ETHICALLY ALIGNED DESIGN

First Edition Glossary

A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems

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Explanatory Note: Developed through the collaborative work of the Glossary Committee, a Committee of The IEEE Global Initiative, with input from Committees and Chairs over the duration of EADv1, EADv2 and EAD1e along with feedback from multiple Chairs of the IEEE P7000™ Series, this Glossary is meant to be an illustrative tool for teams attempting to work on difficult cross boundary issues such as those ethical issues that may arise in the development, design, or deployment of artificial intelligence.

The purpose of this glossary is to give interdisciplinary teams a shared resource for reference to terms which may have meanings that are discipline specific. Within this document there are 6 definitions given for most terms. In those cases where 6 full definitions are not given for each term a suitable definition within the discipline examined could not be found. The 6 categories of disciplines from which definition were draws include: ordinary language; computational disciplines (e.g., mathematics and statistics); economics and social sciences; engineering disciplines; philosophy and ethics; and international law and policy.

This edition of the Glossary is in draft form.

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
ACCEPTANCE	Active acknowledgement	We welcome recommendations!	See also acceptance criteria: "the list of requirements that a software system must satisfy before customers take delibery" (LaPlante 2001, 4).	"1. a favorable attitude toward an idea, situation, person, or group; 2. 2. willing acknowledgment of validity or correctness" (APA); "belongingness" in relation to a chosen peer group (Elliot, Dweck, Yeager, 2017: 588-589).	Believing a claim has sufficient warrant to incorporate into our relevant value scheme (Douglas n.d. "Norms for Values in Scientific Belief Acceptance")	"satisfactoriness by virtue of conforming to approved standards" (AGROVOC) Adapted from the WHO Main Principles for Pharmaceutical Products definition for Acceptance Criteria: "Measurable terms under which a test result will be considered acceptable." ICH-GMP Q6 definition: "Numerical limits, ranges, or other suitable measures for acceptance of the results of analytical procedures. [ICH Q6A]"
ACCEPTABLE RISK	Hazards that are actively acknowledged as being within limits of an individual or organization's tolerance	"In the context of a medical treatment this describes a situation in which the expected benefits outweigh the potential hazards of the treatment" (Upton and Cook 2014).		"A risk that has significantly smaller or fewer detrimental consequences than alternative courses of action" (Porta and Last 2018).	Risk distributions that are equitable, conform to acceptable mehods, reflect salient values and give future generations appropriate due (see Schrader- Frechette 2000: 773-774).	The level of Residual Risk that has been determined to be a reasonable level of potential loss/disruption for a specific IT system. Source(s): NIST SP 800-16
ACCESS	Permission for entry and/or use	May refer to access time or "the elapsed time between the initiation of a request for data and receipt of the first bit or byte of that data" (reilly 2004, 3).	"1. The method of gaining entry to a building, a room, a site, or services; 2. The right or permission to use something (access to documents)" (Gorse, Johnston and Pritchard 2012).	"to retrieve or recall" (APA)	We welcome recommendations!	"Ability to make use of any information system resource" (Source(s): CNSSI 4009-2015 (NIST SP 800-32)
ACCESSIBILITY	The quality of being open to all	We welcome recommendations!	"Refers to the ease with which a human may enter an environment and rances from high to low. Two aspects of the work environment, variability and accessiblity, determine the applicability of autonomous robots, humans, and teleoperators. Accessibility determines whether a human is applicable: if a humnan cannot enter an environment or if the environment is harmful, an autonomous robot or teleoperator is a better choice" (LaPlante 2001, 5).	See also accessible: "1. receptive or responsive to personal interaction and other external stimuli; 2. retrievable through memory or other cognitive processes" (APA).	We welcome recommendations!	"The ease and conditions under which statistical information can be obtained." (UN Statistical Data and Metadata Exchange, 2009)

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ACCOUNTABILITY	Liability to account for and answer for one's conduct; judgment of blameworthiness; obligation to provide a satisfactory answer to an external oversight agent	A set of mechanisms, practices and attributes that sum to a governance structure which "consists of accepting responsibility for the stewardship of personal and/or confidential data with which it [data organization] is entrusted in a cloud environment, for processing, storing, sharing, deleting and otherwise using data according to contractual and legal requirements from the time it is collected until when the data are destroyed (including onward transfer to and from third parties). Accountability involves committing to legal and ethical obligations, policies, procedures and mechanism, explaining and demonstrating ethical implementation to internal and external stakeholders and remedying any failure to act properly" (Felici, Loulours, Pearson 2013).	National Society for Professional Engineers, Fundamental Canon #6, "6. Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession."	"Accountability involves the means by which public agencies and their workers manage the diverse expectations generated within and outside the organization" (Romzek and Dubnik 1987, 228); "Administrative accountability is the concept that officials are to be held answerable for general notions of democracy and morality as well as for specific legal mandates" (Shafritz 1992, 10).	Accountability is a component of the state of being responsible, alongside being answerable and being attributable. "To be answerable . . . is to be susceptible for assessment of, and respond to, the reasons one takes to justify one's actions. … To be accountable, on the other hand, is to be susceptible to being held to account if one flouts relationship-defining demands" (623). To "hold someone to account," in turn, "is precisely to sanction that person, whether it be via the expression of a reactive attitude, public shaming, or something more psychologically or physically damaging" (623).	"quality or state of being accountable, liable or responsible" (UNOG); (1) the responsibility for the results of the discharge of authority and official duties, including duties delegated to a subordinate unit or individual; or to (2) process whereby public service organizations and individuals within them are held responsible for their decision and actions, including their stewardship of public funds, fairness, and all aspects of performance, in accordance with agreed rules and standards, and fair and accurate reporting on performance results vis-à-vis mandated roles and/or plans; (3) the obligation of the Secretariat and its staff members to be answerable for all decisions made and actions taken by them, and to be responsible for honouring their commitments, without qualification or exception. (UNHQ); The principle that an individual is entrusted to safeguard and control equipment, keying material, and information and is answerable to proper authority for the loss or misuse of that equipment or information. Source(s): CNSSI 4009-2015 (NSA/CSS Manual Number 3-16 (COMSEC)); The security goal that generates the requirement for actions of an entity to be traced uniquely to that entity. This supports non-repudiation, deterrence, fault isolation, intrusion detection and prevention, and after-action recovery and legal action. Source(s): CNSSI 4009-2015 (NIST SP 800-27 Rev. A) ; Individual accountability: Ability to associate positively the identity of a user with the time, method, and degree of access to an information system. Source(s): CNSSI 4009-2015

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ADAPTATION	transformation necessary to accomplish a goal	We welcome recommendations!	"Process that allows humans to adjust to changing conditions or relationships in their environment" (LaPlante 2001, 8).	"adjustment of a sense organ to the intensity or quality of stimulation, resulting in a temporary change in sensory or perceptual experience" (APA).	We welcome recommendations!	"changes in an organism's structure or habits that help it to adjust to its surroundings." (United Nations Statistics Division); "Adjustment of a population to changes in environment over generations, associated (at least in part with genetic changes resulting from selection imposed by the changed environment" (AGROVOC); "In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate." (IPCC 2012)
ADAPTIVE CAPACITY	Level of resources available to assist adaptation	We welcome recommendations!	we welcome recommendations!	See also adaptive intelligence: "the ability to apply knowledge to novel situations, such as solving problems and conversing with others, demonstrating an effective ability to interact with, and learn from, the environment." (APA)	See also "Adaptive systems" or "Cybernetics: denotes the study of the communication and manipulation of information for the control and guidance of physical, chemical, biological, or other systems, such as automation-, guidance-, or homeostatic-ststems. Feedback loops, and forward loops, widely understood as versions of a closed-loop, are circular causal structures... which are crucial to cybernetics and have forerunners in a variety of areas on inquiry, from engineering and formal logic, through economics and biology, to sociology, psychology, and philosophy" (Iannone 2001, 133-134).	The combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities. (IPCC 2012)

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AFFECT	"The manner in which one is inclined or disposed; (also) the capacity for willing or desiring; a mental state, mood, or emotion, esp. one regarded as an attribute of a more general state; a feeling, desire, intention" (OED).	Rosalind Picard ([1995] 2010) defines affective computing as "computing that relates to, arises from, or influences emotions".	No common definition found. We welcome recommendations!	"Affect corresponds to a sensorial experience in response to internal or external stimuli. It is expressed with physiological and motor responses... Affect also comprises and expressive social response; it plays a determining role in the thoughts and actions of a person in relation to self and others, and influences how the individual copes with situational stressors and interpersonal relations" (Renaud and Zacchia 2013, 299); " any experience of feeling or emotion, ranging from suffering to elation, from the simplest to the most complex sensations of feeling, and from the most normal to the most pathological emotional reactions. Often described in terms of positive affect or negative affect, both mood and emotion are considered affective states. Along with cognition and conation, affect is one of the three traditionally identified components of the mind" (APA).	"The inner motive as distinquished from the intention or end of action. Cf. Spinoza, Ethics, bk. III. -- L.W." (Runes 2004(1942)). See also Affective: "The generic character supposedly shared by pleasure, pain and the emotions as distinguished from the ideational and volitional aspects of consciousness. See Affect. -- L.W."	We welcome recommendations!
AGENCY	Capacity to decide and act	Agency is an essential characteristic that is useful to define or classify agents. Agency requires capacity to act on sense data, within an environment, over time, to pursue goals (see Franklin and Graesser 1996).	Agents are "systems" with "the following properties: autonomy (make decisions about what to do), reactivity (situated in an environment and are able to perceive and respond), pro-activeness (take initiative), and social ability (interact with other agents via some kind of agent-communication language)" (Woolridge 1997, 2-3).	The "law of agency 'encompasses the legal consequences of consensual relationships in which one person (the 'principal') manifests assent that another person (the 'agent') shall, subject to the principal's right of control, have power to affect the principal's legal relations through the agent's acts and on the principal's behalf (American Law Institute 2001, p. 1)" (Shapiro 2005); "the state of being active, usually in the service of a goal, or of having the power and capability to produce an effect or exert influence." (APA)	Ethical agency is "that which enables us to act in the interest of another, to put the well-being of another before our own" (Hofmeyr 2009, v)	"Organization" (UN Statistics Data and Metadata Exchange); "A fiduciary relationship created by express or implied contract or by law, in which one party (the agent) may act on behalf of another party (the principal) and bind that other party by words or actions." (UNHQ); "Any executive department, military department, government corporation, government controlled corporation, or other establishment in the executive branch of the government (including the Executive Office of the President), or any independent regulatory agency, but does not include: (i) the Government Accountability Office; (ii) the Federal Election Commission; (iii) the governments of the District of Columbia and of the territories and possessions of the United States, and their various subdivisions; or (iv) government-owned contractor-operated facilities, including laboratories engaged in national defense research and production activities. Source(s): FIPS 200 (44 U.S.C., Sec. 3502) "

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AGENT	An intelligent being who acts by will, from intention, whether for its own ends or those of other agents	"Autonomous decision-making entities" (Bonabeau 2002); "An agent can be a physical or virtual entity that can act, perceive its environment (in a partial way) and communicate with others, is autonomous and has skills to achieve its goals and tendencies. It is in a multi-agent system (MAS) that contains an environment, objects and agents (the agents being the only ones to act), relations between all the entities, a set of operations that can be performed by the entities and the changes of the universe in time and due to these actions" (Ferber 1999)	"Agent[s] have state and engage in actions which move it [the agent] among states... agents repeatedly and simultaneously take action, which leads them from their previous state to a new one. The actions of an agent are taken from a given repertoire. The problem in defining the transition functions of agents is due to the fact that the state in which the agent ends up after taking a particular action at a particular state depends also on actions and states of other agents" (Shoham and Tennenholtz 1995, 242-243); "1. a computational entity that acts on behalf of other entities in an autonomous fashion, 2. in the client-server model, the part of the system that performs infomration preparation and exchange on behalf of a client or server. Especially in the phrase 'intelligent agent' it implies some kind of automatic process which can communiate with other agents to perform some collective task on behalf of one or more humans" (LaPlante 2001, 12).	Within agency theory, agents are actors who fulfill, with varying degrees of accuracy and completeness, the tasks specified for them by their principals (see Eisenhardt 1989); "1. a person or entity that acts or has the capacity to act, particularly on behalf of another or of a group; 2. a means by which something is done or caused" (APA).	An agent is an entity able to act based upon its own judgment and under its own will; "In doing x an agent acts incontinently if and only if: 1) the agent does x intentionally; 2) the agent believes there is an alternative action y open to him; and 3) the agent judges that, all things considered, it would be better to do y than to do x" (Davidson 1969, 22); Floridi and Sanders suggest that "artificial agents extend the class of entities that can be involved in moral situations. For they can be conceived of as moral patients (as entities that can be acted upon for good or evil) and also as moral agents (as entities that can perform actions, again for good or evil) (2004, 349); "In ethics an agent is always a person who is acting, or has acted, or is contemplating action. Here it is usually held that to be a moral agent, i.e. an agent to whom moral qualities may be ascribed and who may be treated accordingly, one must be free and responsible, with a certain maturity, rationality, and sensitivity -- which normal adult human beings are taken to have. Ethics is then concerned to determine when such an agent is morally good or virtuous, when morally bad or vicious, or, alternatively, when he is acting rightly and when wrongly, when virtuously and when viciously. See Act. -- W.K.F. See also "Act: In ethics the main concern is usually said to be with acts or actions, particularly voluntary ones, in their moral relations, or with the moral qualities of acts and actions. By an act or action here is meant a bit of behavior or conduct, the origination or attempted origination of a change by some agent, the execution of some agent's choice or decision (so that not acting may be an act). As such, an act is often distinguished from its motive, its intention, and its maxim on the one hand, and from its consequences on the other, though it is not always held that its moral qualities are independent of these. Rather, it is frequently held that the rightness of an act, or its moral goodness, or both, depend at least in part on the character or value of its motive, intention, maxim, or consequences, or of the life or system of which it is a part. Another question concerning acts in ethics is whether	"person acting on behalf of manufacturers, suppliers or recipients, who has a mandate to represent one of them and to conclude a contract in the name of that person." (UNHQ); A host-based intrusion detection and prevention program that monitors and analyzes activity and may also perform prevention actions. Source(s): NIST SP 800-94

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AI/AS	acronym - Artificial Intelligence and Autonomous Systems					
ALGORITHM	a set of rules for solving a problem	Hopcroft and Ullman (1979) define an algorithm with respect to procedures; "a procedures is a finite sequence of instructions that can be mechanically carried out, such as a computer program... a proceudres which always terminates is called an algorithm" (quote in Reilly 2004, 23). "given both the problem and the device, an algorithm is characterised by these properties: 1. application o fthe algorithm to a particular input set or problem description results in a finite sequence of actions, 2. the sequence of actions has a unique initial actions, 3. each action in the sequence has a unique successor, 4. the sequence terminates with either a solution to the porblem or a statement that the problem is unsolvable for that set of data" (Reilly 2004, 16). See also "analysis of algorithms consists of algorithm complexity and problem complexity. The former (algorithm complexity) analyzes the behavior of a specific algorithm with respect to theh amount of memory space, time or other resources needed for a problem. The latter (problem complexity) analyzes the minimum requirements of space and time or other resources for the class of all algorithms for that problem" (Reilly 2004, 17).	"A systematic and precise, step-by-ste procedure (such as a recipe, a program, or a set of programs) for solving certain kinds of problems or accomplishing a task, for instance converting a particular kind of input data to a particular kind of output data, or controlling a machine tool. An algoritm may be expresssed in ordinary language, in programming language, or in machine code. An algorithm transforms some initial data into another form, which is its result. An algorithm can be executied by a machine" (LaPlante 2001, 13).	" a well-defined procedure or set of rules that is used to solve a problem or accomplish a task or that is used for conducting a series of computations" (APA)	"In its original usage, this word referred to the Arabic system of notation for numbers and to the elementary operations of arithmetic as performed in this notation. In mathematics, the word is used for a method or process of calculation with symbols (often, but not necessarily, numerical symbols) according to fixed rules which yields effectively the, solution of any given problem of some class of problems. -- A.C." (Runes 2004, 1942).	"A clearly specified mathematical process for computation; a set of rules that, if followed, will give a prescribed result. Source(s): NIST SP 800-107 (Superceded by Rev. 1)

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ANTICIPATORY ETHICS	Analysis of the standards for good or bad actions taken when designing, developing, deploying, or decommissioning emerging technologies	No common definition found. We welcome recommendations!	No common definition found. We welcome recommendations!	No common definition found. We welcome recommendations!	"Anticipatory ethics refers here to: (1) engagement with the ethical implications of a technology while the technology is still in the earliest stages of development; and (2) engagement that is targeted to influence the development of the technology" (Johnson 2011).	We welcome recommendations!
ART	Products of creativity intended to evoke emotion or give meaning; Non-scientific, craftsman-like, or creative aspects of a profession	"Art refers to the useful practices of a field, not to drawings or sculptures. Programming, design, software and hardware engineering, building and validating models, and building user interfaces are all "computing arts." If aesthetics is added, the computing arts extend to graphics, layout, drawings, photography, animation, music, games, and entertainment. All this computing art complements and enriches the science" (Denning 2005, 29).	No common definition found. We welcome recommendations!	"The term "the arts" includes, but is not limited to, music (instrumental and vocal), dance, drama, folk art, creative writing, architecture and allied fields, painting, sculpture, photography, graphic and craft arts, industrial design, costume and fashion design, motion pictures, television, radio, film, video, tape and sound recording, the arts related to the presentation, performance, execution, and exhibition of such major art forms, all those traditional arts practiced by the diverse peoples of this country. (sic) and the study and application of the arts to the human environment" (20 U.S.C. 952 (b))	"Something is a work of art when it has a meaning—is about something—and when that meaning is embodied in the object in which the work of art materially consists… works of art are embodied meanings" (Danto 2013, 149; quoted in Haynes 2015); "In Aristotle the science or knowledge of the principles involved in the production of beautiful or useful objects. As a branch of knowledge art is distinguished both from theoretical science and from practical wisdom; as a process of production it is contrasted with nature. -- G.R.M." (Runes 2004 (1942)).	Prior art: Definition In the context of intellectual property and patents, everything which has been made available to the public before the relevant date anywhere in the world by means of written disclosure and which can be of assistance in determining whether the claimed invention is new and involves an inventive step (is non-obvious) for the purposes of international search and international preliminary examination.
ARTIFICIAL	Of a thing: made or constructed by human skill, esp. in imitation of, or as a substitute for, something which is made or occurs naturally; man-made (OED)	No common definition found. We welcome recommendations!	Ninsberg adapts Newell and Simon (1976) physical-symbol systems as definitive for an artificial entity: "A physical symbol system consists of a set of entities, called symbols which are physical patterns that can occur as components of another type of entity called an expression (or symbol structure). Thus, a symbols structure is composed of a number of instances (or tokens) of symbols related in some physical way (such as one token being next to another). At any instant of time the system will contain a collection of these symbol structures. Besides these structure, the system also contains a collection of processes that operate on expressions to produce other expressions: processes of creation, modification, reproduction, and destruction. A physical symbol system is a machine that produces through time and evolving collection of symbol structures. Such a system exists in a world of objects wider than just these symbolic expressions themselves".	"The term artificial flavor or artificial flavoring means any substance, the function of which is to impart flavor, which is not derived from a spice, fruit or fruit juice, vegetable or vegetable juice, edible yeast, herb, bark, bud, root, leaf or similar plant material, meat, fish, poultry, eggs, dairy products, or fermentation products thereof. Artificial flavor includes the substances listed in 172.515(b) and 582.60 of this chapter except where these are derived from natural sources" (21 CFR 501(22)(a)(1))	"The artificial is the result of the overlap between nature and conventional technology" (Negrotti 1999, 185). Those objects agents which are artificial are part of an "unavoidable selection process—of an observation level, an exemplar or an essential performance—will cause transfiguration of the feature and the behavior of the exemplar once it is rebuilt as the artificial" (Negrotti 1999, 185).	We welcome recommendations!

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ARTIFICIAL INTELLIGENCE	"The capacity of computers or other machines to exhibit or simulate intelligent behaviour" (OED)	"AI will be such a program which in an arbitrary world will cope not worse than a human" (Dobrev 2004, 2); "Artificial intelligence is the enterprise of constructing a symbol system that can reliably pass the Turing test" (Ginsberg 2012, 9); See Figure 1.1 Russell and Norvig (1995 page 5). "Artificial intelligence is a field of computer science concerne dwith the computational understanding of what is commonly called intelligent behavior and with the creation of artifacts that exhibit such behavior. This definition may e examined more closely by considering the field from three points of view: computational psychology (the goal of which is to understand human intelligent behvaior by creating computer programs that behave in the same way that people do), computational philosopy (the goal of which is to form a computational understanding of human-level intelligent behavior, without being resticted to the algorithms and data structures that the human mind actually does use), and machine intelligence (the goal of which is to expand the fronteir of what we know how to program" (Reilly 2004, 40-41).	Artificial intelligence engineering has been compared to knowledge engineering. A "knowledge based system design" of AI encompasses 3 levels: "the 'knowledge level' view of a knowledge-based system describes the knowledge that is used by and embedded in that system. The 'algorithm level' view escribes the system as a search algorithm, configured out of standard component types (e.g., generators, testers, patchers, constraint propagators, belief revisers, etc). The 'program level' view expresses the system in terms of the elements of existing programming paradigms (rules, objects, procedures, etc) (Tong and Sriram 2012, 8-9)	"AI approaches can be divided into "narrow AI" and "general AI." Narrow AI systems perform individual tasks in specialized, well-defined domains, such as speech recognition, image recognition, and translation. In contrast, the long-term goal of general AI is to create systems that exhibit the flexibility and versatility of human intelligence in a broad range of cognitive domains, including learning, language, perception, reasoning, creativity, and planning" (NITRD 2016, 19)	"we shall say that an entity is intelligent if it has an adequate model of the world (including the intellectual world of mathematics, understanding of its own goals and other mental processes), if it is clever enough to answer a wide variety of questions on the basis of this model, if it can get additional information from the external world when required, and can perform such tasks in the external world as its goals demand and its physical abilities permit" (McCarthy and Hayes 1969, 4)	"A subfield of computer science concerned with the concepts and methods of symbolic inference by a computer and the symbolic representation of the knowledge to be used in making inferences" (INIS); "The branch of computer science concerned with the development of machines capable of performing activities that are normally thought to require a human type of intelligence. And, additionally, the ability of a computer or other machine to perform activities normally thought to require a human type of intelligence." (UNHQ: A/S-15/12 Annex II, pr 12 of E, paragraph (d))

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ARTIFICIAL LIFE	study of biological life through computers	"Artificial life (AL) is a new discipline that studies 'natural life' by attempting to recreate biological pheomenoa, from scratch, within computers and other 'artifical media... AL amounts to the practice of synthetic biology, which attempts to recreate biological phenomena in alternative media. It is the study of life-as-it-could-be, rather than the biological life-as-we-know-it" (Reilly 2004, 43).	"The attempt to understand the emergence of life by re-creating possible life forms as simulation program so computers and studying their behavior" (LaPlante 2001, 23).	"a research area of artificial intelligence in which computer-based systems exhibit behavioral characteristics of living systems. Often constructed using cellular automata, these systems fall into three categories depending on the approach: software (simulators), hardware (robotics), and wetware (synthetic DNA). This research area often attempts to simulate the effects of communication and other society-based skills on survival" (APA)	"Artificial life studies the emergence of order and adaptive behavior in general and is closely related to AI" (Boden 2000, 58).	We welcome recommendations!
ASSISTIVE TECHNOLOGY	Software and hardware purposively combined to augment or replace human sensory or cognitive tasks	No common definition. We welcome recommendations.	No common definition. We welcome recommendations.	""Assistive technology" consists of devices and other solutions that assist people with deficits in physical, mental, or emotional functioning. Assistive technology devices are items frequently used by people with functional deficits as alternative ways of performing actions, tasks, and activities. Assistive technology also includes ways of controlling these devices. Software may control ordinary hardware systems in ways that facilitate their use by persons with functional deficits, like text-to-speech conversion software that runs on ordinary computers" (LaPlante, Hendershot and Moss 1992, "Assistive Technology Devices and Home Accessibility Features: Prevalence, Payment, Need and Trends", Advance Data National Center for Health Statistics, Volume 217, p. 2).	No common definition. We welcome recommendations.	"A generic term that includes assistive, adaptive and rehabilitative devices for people with disabilities and includes the process used in selecting, locating and using them." (UNHQ; A/RES/65/186 paragraph 15(e))
AUGMENTED REALITY	Augmented reality is virtual content layered over the real environment	"Augmented Reality (AR) allows the user to see the real world, with virtual objects superimposed upon or composited with the real world. Therefore, AR supplements reality, rather than completely replacing it... AR is any system that has the following three characteristics: 1. Combines real and virtual, 2. Is interactive in real time, [and] 3. Is registered in three dimensions" (Azuma 1997, 356).	"An AR system supplements the real world with virtual (computer-generated) objects that appear to coexist in the same space as the real world... an AR system [will] have the following properties: combines real and virtual objects in a real environment; runs interactively, and in real time; and registers (aligns) real and virtual objects with each other" (Azuma et al 2001, 34)	"augmented reality is the material/virtual nexus mediated through technology, information and code, and enacted in specific and individualised space/time configurations" (Graham, Zook, and Boulton 2012, 466).	We welcome recommendations!	We welcome recommendations!

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AUTOMATION	mechanized, goal oriented, process	"automation is the conversion of a work process, a prcedure, or equipment to automatic rather than human operation or control. Automation does not simply transfer human functions ot machines, but incolves a deept reorganization of the work process" (reilly 2004, 54).	"A generic term for machines designed to operate without human input except to reprogram or for maintenance; often, but not always, computer controlled; autonomous robots are a form of automatiion, but not all automation involves robotics. Automation paradigms include: a) a continuous flow production process which integrates various mechanisms to produce an item with relatively few or no worker operations, usually through electronic- control, b) self-regulating machines (feedback) that can perform highly precise operations in sequence; c) electronic computing machines" (LaPlante 2001, 31).	"Production by machinery without the need for immediate human intervention" (Black, Hashimzade and Myles 2017); "In theory, a workerless system of manufacture; in practice, a series of individual computer-controlled or robotic machine tools, with electromechanical link operations replacing transfer by hand. Research on the modern labour process suggests that automation displaces, rather than replaces, human labour and skill—to maintenance, planning, distribution, and ancillary work" (Scott 2014).	See "Automoton theory: Automaton Theory: Theory that a living organism may be considered a mere machine". See also "automatism: In metaphysics: Theory that animal and human organisms are automata, that is to say, are machines governed by the laws of physics and mechanics. In psychology: Psychological automatism is the performance of apparently purposeful actions, like automatic writing without the superintendence of the conscious mind. L. C. Rosenfield, From Beast Machine to Man Machine, N. Y., 1941. -- L.W." (Runes 2004 (1942).	"Term used to cover a broad range of systems, including automated manufacturing equipment, control systems, automated laboratory systems manufacturing execution systems and computers running laboratory or manufacturing database systems. The automated system consists of the hardware, software and network components, together with the controlled functions and associated documentation. Automated systems are sometimes referred to as computerised systems, in this Guide the two terms are synonymous. [PIC/S PI 011-3]"; Autonomous system: "One or more routers under a single administration operating the same routing policy. Source(s): NIST SP 800-54 "

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
AUTONOMOUS	fully independent		See also autonomous robot: "computer-controlled system programmed to carry out some task without human intervention; for example, a welding robot; distinguishable from other computer controlled systems byt its flexibility, that is by a capability to carry out more than one task, with reprogramming; for example a welding robot could also be a painting robot" (LaPlante 2001, 31).	"1. having an independent existence; 2. acting or operating under one's own direction; 3. having self-government. Compare heteronomous" (APA).	see autonomy	Autonomous technology: "Any kind of technology that can function without being told what to do by a person, for example robots." (CCW/MSP/2015/3 paragraph 76); Autonomous vehicle: "This term has been used for a long time in the robotics and artificial intelligence research communities to signify systems that have the ability and authority to make decisions independently and self-sufficiently. Over time, this usage was casually broadened to not only encompass decision making, but to represent the entire system functionality, thereby becoming synonymous with automated. This usage obscures the question of whether a so-called "autonomous vehicle" depends on communication and/or cooperation with outside entities for important functionality (such as data acquisition and collection). Some driving automation systems may indeed be autonomous if they perform all of their functions independently and self-sufficiently, but if they depend on communication and/or cooperation with outside entities, they should be considered cooperative rather than autonomous. Some vernacular usages associate autonomous specifically with full driving automation (level 5), while other usages apply it to all levels of driving automation, and some state legislation has defined it to correspond approximately to any ADS at or above level 3 (or to any vehicle equipped with such an ADS).; Additionally, in jurisprudence, autonomy refers to the capacity for self-governance. In this sense, also, "autonomous" is a misnomer as applied to automated driving technology, because even the most advanced ADSs are not "self-governing." Rather, ADSs

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AUTONOMY	The ability of a person or artifact to govern itself including formation of intentions, goals, motivations, plans of action, and execution of those plans, with or without the assistance of other persons or systems.	Agents that are autonomous have control both over their internal state and over their own behavior" and "autonomy means that the problem solvers have their own persistent thread of control (i.e., they are active) and that they decide for themselves which actions they should perform at what time" (Jennings 2000, 280 and 283); Multiple forms of autonomy have been proposed by Maes and User-Autonomy: "an agent is autonomous with respect to the user for choosing what action to perform if it can make the choice without the user's intervention."; Social Autonomy: "an agent X is autonomous with respect to another agent Y for the adoption of a goal G if X can refuse the adoption of the goal G from Y." Norm-Autonomy: "an agent is autonomous with respect to a norm if it can violate that norm" Environmental-Autonomy: "the environment can only influence the behaviour of an agent, it cannot impose it" (Self) Agent-Autonomy: "the property that allows an agent to have and choose between several possible behaviours" (See Carabelea, Boissier and Florea 2004, 104-107).	"Where an agent acts autonomously, it is not possible to hold any one else responsible for its actions. In so far as the agent's actions were its own and stemmed from its own ends, others cannot be held responsible for them" (Sparrow 2007, 63); "The freedom to be different or behave differently than other nodes within the system" (LaPlante 2001, 31).	"we define local [government] autonomy conceptually as a system of local government in which local government units have an important role to play in the economy and the intergovernmental system, have discretion in determining what they will do without undue constraint from higher levels of government, and have the means or capacity to do so" (Wolman et al 2008, 4-5); "1. a state of independence and self-determination in an individual, a group, or a society; 2. in self-determination theory more specifically, the experience of acting from choice, rather than feeling pressured to act. This form of autonomy is considered a fundamental psychological need that predicts well-being" (APA).	"Put most simply, to be autonomous is to be one's own person, to be directed by considerations, desires, conditions, and characteristics that are not simply imposed externally upon one, but are part of what can somehow be considered one's authentic self" (Christman 2015)."Two conditions are ordinarily required before a decision can be regarded as autonomous. The individual has to have the relevant internal capacities for self-government and has to be free from external constraints. In a medical context a decision is ordinarily regarded as autonomous where the individual has the capacity to make the relevant decision, has sufficient information to make the decision and does so voluntarily" (British Medical Association 2016); Freedom consisting in self-determination and independence of all external constraint. See Freedom. Kant defines autonomy of the will as subjection of the will to its own law, the categorical imperative, in contrast to heteronomy, its subjection to a law or end outside the rational will. (Fundamental Principles of the Metaphysics of Morals, § 2.) -- L.W. (Runes (2004 (1942))	Refers to an election management body: "Often confused with independence of action, an autonomous electoral management body (EMB) refers to its institutional status, i.e. its structural independence. The EMB is a separate entity from other government agencies (independence with regard to the composition and functioning of the electoral administration). This aspect of independence is therefore more accurately referred to as 'autonomy.'" (UNDP)

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AVATAR	representative symbol		"A representation of auser present within a virtual environment; a virtual actor representng a user" (LaPlante 2001, 32).	"alter ego" (APA)	We welcome recommendations!	"An Internet user's representa-tion of himself or herself, in the form of a three-dimensional model used in computer games, a two-dimensional icon (picture) used on Internet forums and other communities or a text construct. Can also refer to the personality connected with the screen name, or handle, of an Internet user. Not to be confused with the previous use of the word to refer to a perfect example of a particular quality or a particular type of person. (UNHQ)

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BASELINE	initial measurement or control		"a major version of a system selected for release to customers and/or for the purpose of measuring some attribute, e.g., reliability. A formally approved version of a configuration item, regarless of media, formally designated and fixed at a specific time during the configuration item's life cycle" (LaPlante 2001, 36).	"data or information obtained prior to or at the onset of a study (e.g., before introduction of an intervention) that serves as a basis for comparison with data collected at a later point in time so as to assess the effects of particular manipulations or treatments" (APA)	We welcome recommendations!	"Reference for measurable quantities from which an alternative outcome can be measured, e.g. a non-intervention scenario used as a reference in the analysis of intervention scenarios." (IPCC 4th); "The baseline (or reference) is the state against which change is measured. It might be a 'current baseline,' in which case it represents observable, present-day conditions. It might also be a 'future baseline,' which is a projected future set of conditions excluding the driving factor of interest. Alternative interpretations of the reference conditions can give rise to multiple baselines." (IPCC 2012); "A minimum or reference point used for comparisons; data or analyses used for comparative purposes. A baseline might be a "current baseline," in which case it represents observable, present-day conditions. It might also be a "future baseline," which is a projected future set of conditions excluding the driving factor of interest. Alternative interpretations of the reference conditions can give rise to multiple baselines." (UNHQ: Ecosystem and Human Well-being: A Framework for Assessment, Appendix 4, Glossary; Concise Oxford Dictionary of Current English, tenth edition, 1999); "Hardware, software, databases, and relevant documentation for an information system at a given point in time". Source(s): NIST SP 800-161 (CNSSI 4009)
BENEFICENCE	Doing good, the manifestation of benevolence or kindly feeling, active kindness. (OED)	No common definition	"Providing the greatest possible balance of benefits to risks" (Singer and Vinson 2002, 4)	"The term "beneficence" is often understood to cover acts of kindness or charity that go beyond strict obligation. In this document, beneficence is understood in a stronger sense, as an obligation. Two general rules have been formulated as complementary expressions of beneficent actions in this sense: (1) do not harm and (2) maximize possible benefits and minimize possible harms" (Belmont Report, 1978).	"The simplest principle of beneficence requires each person to perform the action, of those available to her, that will make the outcome best" (Murphy 1993, 268).	We welcome recommendations!

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CAPACITY	Space or scope for resources	May refer to channel capacity or "the rate at which a channel can transmit data to or from an I/O device, or to or from main storage" (Reilly 2004, 94).	"In perfromance evaluation, the capacity of a system is the maximum rate at which it can perform useful workk under the given set of constraints. These contraints could be, for example, the blocking probability or the end-to-end delay of packets in a system, 2. in communications, the capacity of a channel is the maximum bit rate at which information can be transmitted reliably, 3. in graph theory, the maximum amount of flow that is allowed to be sent through an edge or vertex" (LaPlante 2001, 65).	"1. the maximum ability of an individual to receive or retain information and knowledge or to function in mental or physical tasks; 2. the potential of an individual for intellectual or creative development or accomplishment; 3. inborn potential, as contrasted with developed potential (see ability)" (APA)	"Any ability, potentiality, power or talent possessed by anything, either to act or to suffer. It may be innate or acquired, dormant or active. The topic of capacity figures, in the main, in two branches of philosophy: (a) in metaphysics, as in Aristotle's discussion of potentiality and actuality, (b) in ethics, where an agent's capacities are usually regarded as having some bearing on the question as to what his duties are. -- W.K.F." (Runes 2004 (1942)).	"The combination of all the strengths, attributes, and resources available to an individual, community, society, or organization, which can be used to achieve established goals." (IPCC 2012); "The ability of individuals, institutions and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner (UNDP, 2002). There are three levels at which capacity should be developed: Individual (experience, knowledge, technical level), Organizational (organizational systems and procedures), and Systemic or related to the enabling environment (policies, legislation, social norms, etc.).(UN Public Administration Glossary)
CLASSIFICATION SYSTEM	rigorous method of organizing		"The process of finding classification rules (any one of a class of rules used in data mining. A classification rule partifitions the given data into disjoint sets), 2. an area of data mining that attempts to preduct the cateogry of a categorical data by building a model based on some predictor variables" (LaPlante 2001, 77).	We welcome recommendations!	See classification: "1. Process of grouping objects into classes on the basis of the discovery of common properties; or the results of such grouping. 2. Process of grouping species into genera, genera into still larger genera, and so on to the summum genus (q.v.). -- A.C.B." (Runes 2004).	"Arrangement or division of objects into groups based on characteristics which the objects have in common." (UN Statistical Data and Metadata Exchange)
CLIENT	a customer or other person who is receiving benefits	May refer to client-server computing or "a distributed computing model in which client applications requres services from server processes. Clients and servers typically run on different, though interconnected, computers. A client application is a process or program that sends messages to a server via a network" (reilly 2004, 100).	"Synonymous with customer or a computer system or process that requests a service of another computer system or process (eg. A server). In the client-server model, the client is a process that remotely accesses the resources of a server. In the object oirented model, a class is considered a client of another class when it uses the other class features" (LaPlante 2001, 78).	"a person receiving treatment or services" (APA)	We welcome recommendations!	"A machine or software application that accesses a cloud over a network connection, perhaps on behalf of a consumer" Source(s): NIST SP 800-146 "

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CLIMATE	long term, prevailing weather, culture, or habits of a region or organization		See also climate engineering or geoengineering: "Climate engineering, also known as geoengineering, describes a diverse and largely hypothetical array of technologies and techniques for intentionally manipulating the global climate, in order to moderate or forestall some of the effects of climate change" (https://ce-conference.org/what-climate-engineering)	"long-term weather conditions in a particular region, such as average temperature, humidity, and sunshine" (APA)	We welcome recommendations!	"Climate in a narrow sense is usually defined as the average weather, or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The classical period for averaging these variables is 30 years, as defined by the World Meteorological Organization. The relevant quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. In various chapters in this report different averaging periods, such as a period of 20 years, are also used." (IPCC 2012)

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COGNITION	The action or faculty of knowing; knowledge, consciousness; acquaintance with a subject (OED)	SEE ALSO ONTOLOGY: "Cognitive ontology could be a nomenclature: that is a standardized set of terms which researchers intend to use in a systematic way in order to promote mutual understanding.... A Cognitive ontology could refer to a domain, not a set of term but a set of entities to which a cognitive theory refers.... A cognitive ontology could be a set of basic metaphysical categories: when we carve up or structure cognitive systems, what kind of entities make up that structure? A cognitive ontology in this third sense should indicate whether the relationship between levels is one of composition, constitution, or something else" (Janssen, Klein and Slors 2017, 24).	"The process of acquiring information and selecting and controlling responses to it; decision making or thinking the application of intelligence to shape behavior; the process of cogitating" (LaPlant 2001, 85).	A functional ontology for cognitive function includes 3 primary functions: "phonology (phonetic encoding and articulation), semantics (perceptual knowledge and functional knowledge), and orthography (visual synthesis of feature extraction and colour processing)" (Price and Friston 2005, 270); "1. all forms of knowing and awareness, such as perceiving, conceiving, remembering, reasoning, judging, imagining, and problem solving. Along with affect and conation, it is one of the three traditionally identified components of mind; 2. an individual percept, idea, memory, or the like" (APA)	"Cognition is defined as the symbolic (or conceptual) processing of information that is required for central representation and organized expression of a response" (Lang 1984, 192); Knowledge in its widest sense including: non-propositional apprehension perception, memory, introspection, etc.) as well as propositions or judgments expressive of such apprehension. Cognition, along with conation and affection, are the three basic aspects or functions of consciousness". Five types of cognition are generally recognized: "Abstractive: That meaning of cognition which lacks one of the two requisites for intuitive knowledge: for in abstrictive cogniti n either we know things through other things, and not through their proper images -- or we know th'ngs that are not present; Comprehensive: "Strictly speaking, that which is adequate to or fully commensurate with the object, -- a knowledge in which the whole object is known completely and in every way in which it can be known -- even to all the effects and consequences with which it has an intrinsic connection. This knowledge must be clear, certain, evident, and quidditative, because it is the most perfect type of knowledge corresponding to the object"; Intuitive: "Requires two things: (1) that it result from the proper species, or the proper image of the object itself, impressed upon the mind by the object or by God, and (2) that it bear upon an object that is really present with the greatest clearness and certitude"; Quidditative: "In the strict sense, is that which arises from the proper image of an object, like intuitive knowledge, and besides, penetrates distinctly, with a clear, proper, and positive concept, the essential predicates of a thing even to the last difference. But quidditative knowledge in the wide sense is any knowledge of the quiddity or essence of an object, or any definition explaining what a thing is" (H.G.); Sensory-- "a material process, but it is not the matter of the particular thing which enters into the sensory faculties; rather they supply the material foundation for the sensible form to become existent within the mind. Cognition is, therefore, "assimilation" of the mind to its object.	Cognitive process: [the mental processes of perception, discovery, recognition, imagination, judging, memorizing, learning and thinking through which an individual obtains knowledge and conceptual understanding] (UNOG)

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COGNITIVE COMPUTING	Programming designed to mimic human cognition	"Cognitive computing is an emerging paradigm of intelligent computing methodologies and systems based on cognitive informatics that implements computational intelligence by autonomous inferences and perceptions mimicking the mechanisms of the brain" (Wang et al 2010, p. 1). See also "cognitive scienc is the interdisciplinary study of cognition. Cognition includes mental states adn processes such as thinking, reasoning, remembering, language understanding and generation, visual and auditory perception, learning, consciousness, and emotion. Cognitive science can also be defined as, roughly, the intersection of the disciplines of computer science (especially artificial intelligence) linguistics, philosophy, psychology, cognitive anthropology, and the cognitive neurosciences" (Reilly 2004, 110).	See also cognitive engineering-- "deseigning systems to match human cognitive processes". (LaPlante 2001, 84).	No common definition. We welcome recommendations.	No common definition. We welcome recommendations.	We welcome recommendations!

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
COMMUNITY	a group with common interests or characteristics, also the space in which such a group is found			"a socially organized set of species members living in a physically defined locality. Human communities are often characterized by (a) commonality of interests, attitudes, and values; (b) a general sense of belonging to a unified, socially integrated group; (c) members' self-identification as community members; and (d) some system of communication, governance, education, and commerce. In general parlance, "the community" often means society or the general public" (APA).	"In ethics and political philosophy,, the term 'community' refers to a form of connection among individuals that is qualitatively stronger and deeper than a mere association. The concept of a community includes at least two elements: (1) individuals belonging to a community have ends that in a robust sense common, not merely congruent private ends, and that are conceieved of and valued as common ends by the members of the group; (2) for the individuals involved, their awareness of themselves as belonging to the group is a significant constituent of their identity, their sense of who they are" (Buchanan 2000, 155)	Human populations (INIS); "The set of all populations that inhabit a certain area" (UNHQ: A/64/66/Add.2. para. 258); "A group of people living in the same locality and under the same government" (AGROVOC); "in SNMP protocol the community is a character string that is a clear text password between the manager and the agent" (UNOG); Community risk: "Probability that a particular vulnerability will be exploited within an interacting population and adversely impact some members of that population. Source(s): CNSSI 4009-2015 "; Community of Interest: "A collaborative group of users who exchange information in pursuit of their shared goals, interests, missions, or business processes, and who therefore must have a shared vocabulary for the information they exchange. The group exchanges information within and between systems to include security domains" Source(s): CNSSI 4009-2015 "

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COMPLIANCE	conformity to standards	We welcome recommendations!	"1. The reciprocal of stiffness, being the displacement resulting from the application of unit load. In the case of beams, flexibility is an alternative term used for compliance; 2. For a spring, the inverse of spring rate" (Atkins and Escudier 2013).	"1. submission to the demands, wishes, or suggestions of others" (APA).	"low road or rule based ethics" (Rohr 1988).	"Compliance is whether and to what extent countries do adhere to the provisions of an accord. Compliance depends on implementing policies ordered, and on whether measures follow up the policies. Compliance is the degree to which the actors whose behaviour is targeted by the agreement, local government units, corporations, organisations, or individuals, conform to the implementing obligations." (IPCC 4th, 79); "in the present environmental context, regulatory compliance -- corporations, public agencies or governments complying with relevant laws, regulations and guidelines. More generally the word "compliance" means conforming to a rule, such as a specification, policy, standard or law." (UNHQ: A/61/673, p4); "Conformity in fulfilling official requirements. ; Source(s): NIST SP 800-146 "
COMPUTATION	Computation is the integration of numerical simulation, mathematical modeling, algorithm development and other forms of quantitative analysis to solve problems that theorization, experimentation, and/or observation cannot.	Computation is construed 6 ways: "1. Formal symbol manipulation, 2. Effective computability, 3. Execution of an algorithm, 4. Digital state machines, 5. Information processing, 6. Physical symbol systems (Smith 2002, 3).	No common definition found. We welcome recommendations!	We welcome recommendations!	"Computation = Programming Language Syntax + Programming Language Semantics" (Zenil 2014, 401)	Adapted from Computer System: "Computer hardware components assembled to perform in conjunction with a set of software programs, which are collectively designed to perform a specific function or group of functions. [PIC/S PI 011-3]"
COMPUTER LANGUAGES		"notations for virtual machines that execute algorithms and with notations for algorithms and data; the sets of strings of symbols that are geneart-ed by such notatiosn are called languages" (reilly 2004, 1996).	we welcome recommendations!	We welcome recommendations!	Artificial languages used to instruct computer software.	Programming languages (INIS)

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CONFIDENCE	assurance in the trustworthiness of a person, thing, or estimate		see also Confidence intervals	"a value expressing the frequency with which a given confidence interval contains the true value of the parameter being estimated" (APA)	We welcome recommendations!	Level of confidence in the correctness of a result measured as "very high confidence: at least 9 out of 10 chance of being correct; high confidence: about 8 out of 10 chance; medium confidence: about 5 out of 10 chance; low confidence: about 2 out of 10 chance; very low confidence: less than 1 out of 10 chance" (IPCC 4th); "term used to represent trust in a measurement or estimate"(UNHQ: E/F/R/C/A)
CONFIDENTIALITY	holding private, secret, or proprietary information	"Rules and procedures that prevent unauthorized persons from gaining access to information. Together with availability and integrity, confidentiality is generally considered one of the three basic principles of security" (Butterfield and Ngondi 2016).	holding private or proprietary information in secret	"a principle of professional ethics requiring providers of mental health care or medical care to limit the disclosure of a patient's identity, his or her condition or treatment, and any data entrusted to professionals during assessment, diagnosis, and treatment. Similar protection is given to research participants and survey respondents against unauthorized access to information they reveal in confidence" (APA)	"The ethical duty of confidentiality refers to the obligation of an individual or organization to safeguard entrusted information. The ethical duty of confidentiality includes obligations to protect information from unauthorized access, use, disclosure, modification, loss or theft. Fulfilling the ethical duty of confidentiality is essential to the trust relationship between researcher and participant, and to the integrity of the research project" (Panel on Research Ethics, Government of Canada; http://www.pre.ethics.gc.ca/eng/policy-politique/initiatives/tcps2-eptc2/chapter5-chapitre5/)	"Preserving authorized restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information". Source(s): FIPS 200 (44 U.S.C., Sec. 3542)
CONFLICT OF INTEREST	when a public official benefits privately from their public role	We welcome recommendations!	we welcome recommendations!	"a state of incompatibility among an individual's or group's various interests and motivations, particularly when professional interests and responsibilities are inconsistent with personal motives and goals" (APA).	We welcome recommendations!	"A conflict of interest is a situation where an individual or corporate entity is invited to act on behalf of one party, but has an actual or potential relationship with or interest in the other party or parties" (AGROVOC); "Personal, direct or indirect interest of a member or staff of an Election Management Body (EMB), whether financial or otherwise, that is related to any matter that comes up for decision before that EMB. In such a case, the member or staff of the EMB concerned should disclose the conflict of interest and be prevented from participating in any discussion or decision on that matter." (UNDP)

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CONSCIOUSNESS	The state or ability to be aware of self and environment	No common definition found. We welcome recommendations!	"Consciousness-- attributes ascribed to consciousness usually include self-awareness, a sense of past and future, free will, and most outward signs of intelligent behavior" (LaPlante 2001, 100).	"1. the state of being conscious; 2. an organism's awareness of something either internal or external to itself; 3. the waking state; 4. in medicine and brain science, the distinctive electrical activity of the waking brain, as recorded via scalp electroencephalogram, that is commonly used to identify conscious states and their pathologies" (APA).	Two concepts of consciousness appear in the literature: Creature consciousness which may include: sentience, wakefulness, self-consciousness, ability to know "what it is like", being subject to conscious states, and aware of transitive consciousness. State consciousness include six major states: of awareness, of qualitative senses, of phenomena, of "what it is like", or access to others, and as narrative making (See Van Gulick 2017); Kant described "consciousness in general as: Consciousness conceived as purely logical, objective, universal, necessarily valid, in contrast to the eccentricity, particularity, subjectivity, irrationality, and privacy of the psychological consciousness. See Kant. -- W.L." (	We welcome recommendations!
CONSENT	Agreement	No common definition found. We welcome recommendations!	No common definition found. We welcome recommendations!	"the attachment of an agent's will to a proposal, action, or outcome, such that the agent accepts (some share of the) responsibility for the consequences and/or legitimizes an action or state of affairs which, in the absence of consent, would lack legitimacy or legality" (Reeve 2016); "voluntary assent or approval given by an individual" (APA)	Within applied ethics, informed consent is argued to be the act necessary to demonstrate respect for persons. "Respect for persons requires that subjects, to the degree that they are capable, be given the opportunity to choose what shall or shall not happen to them. The consent process can be analyzed as containing three elements: information, comprehension and voluntariness" (Belmont Report); "Agreement or sympathy in feeling or thought-- V.F. (Runes 2004 (1942)).	"One of the fundamental principles of international law. Any change in the existing state of affairs requires the agreement of the parties legally concerned." (ESCWA)
CONSENSUS	General agreement among a group	"Two processes are necessary to solve group decision making problems: A consensus process and a selection process. The consensus reaching process is necessary to obtain a final solution with a certain level of agreement between the experts; and the selection process is necessary to obtain such a final solution" (Herrera-Viedma et al 2007, 863).	No common definition found. We welcome recommendations!	"general agreement among the members of a group, especially when making an appraisal or decision" (APA).	Philosopher John Rawls describes the source of political stability as achievement of an overlapping consensus concerning government legitimacy. "In an overlapping consensus, citizens all endorse a core set of laws for different reasons. In Rawlsian terms, each citizen supports a political conception of justice for reasons internal to her own comprehensive doctrine" (Wenar 2017)	"Method of decision making in which all stakeholders participate and attempt to align their positions. Consensus is not unanimity on a decision but rather represents a successful effort to find common ground for all stakeholders so that none oppose the decision taken." (UNDP)

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
CONSERVATION	preservation of a natural resource against human or human-caused predation	We welcome recommendations!	"Conservation law is a rule stating that the weighted sum of mean waiting times of requressts of different classes in a work conserving system that is not overloaded is independent of the order of service" (LaPlante 2001, 100).	"the awareness that physical quantities do not change in amount when they are altered in appearance, such as when water is poured from a wide, short beaker into a thin, tall one" (APA)	We welcome recommendations!	"A collaborative effort to improve open access to data, information, and knowledge related to the conservation and sustainable use of biodiversity with the belief that this will contribute to improving conservation outcomes." (UNHQ: UNEP/IPBES.MI/2/2. Para 100)
CONTROL	The action or fact of holding in check or restraining; restraint	"An adaptive controller is a controller that can modify its behavior in response to changes in the dynamics of the process and the disturbances. It can be considered as a special type of nonlinear feedback control in which the stages of the process can be separated in to two categories, which can change at different rates" (Bhatt and Shah 2002). May also refer to a control structure or "a programming language construct that specifies a departure from normal sequential execution. A control structure controls the sequence of statement execution within a given program unit, and encompasses special facilities for selection, repetition, and execution handling" (Reily 2004, 209).	"Control is 1. the study and practice of controlling or making a system behave in a specific manner, 2. intervention, by means of appropriate manipulated inputs, into the controlled process in the course of its operation; some form of observation of the actual controlled process behavior is ususally being used by the controller" (LaPlante 2001, 104).	"Engineering controls implement physical change to the workplace, which eliminates/ reduces the hazard on the job/ task. [These include] change processes to minimize contact with hazardous chemicals, isolate or enclose the process, use of wet methods to reduce generation of dusts or other particulates, general dilution ventilation, use of fume hoods" (Occupational Safety and Health Administration, no date).	Control is restriction of choice or action possibilities by a superior actor	"Regulating a process, property or component in a qualitative or quantitative sense. Not to be confused with MONITORING which refers only to detection or measurement." (INIS); "As defined in the glossary prepared as part of the implementation at the United Nations of International Public Sector Accounting Standards (IPSAS): The power to govern the financial and operating policies of another entity so as to benefit from its activities." (UN IPSAS glossary); "ownership, either directly or indirectly through subsidiaries, of more than one half of the voting power of an enterprise, or a substantial interest in voting power and the power to direct, by statute or agreement, the financial and operating policies of the management of the enterprise" (TD/B/Com.2/ISAR/16/ Add.3); "The part of the ICS used to perform the monitoring and control of the physical process. This includes all control servers, field devices, actuators, sensors, and their supporting communication systems." Source(s): NIST SP 800-82 Rev. 2; See also control system: " A system in which deliberate guidance or manipulation is used to achieve a prescribed value for a variable. Control systems include SCADA, DCS, PLCs and other types of industrial measurement and control systems". Source(s): NIST SP 800-82 Rev. 2 "

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COST BENEFIT ANALYSIS	method for estimating the pros and cons of a decision	We welcome recommendations!	"The analysis of benefits and costs related to the implementation of a product" (LaPlante 2001, 109). See also cost estimation: "describes a suite of techniques that takes early atifacts of the software development process and, from these, calculates the first estimate of overall cost" (LaPlante 2001, 109).	"1. an analytic procedure that attempts to determine and compare the economic efficiency of different programs. Costs and benefits are reduced to their monetary value and expressed in a cost–benefit (or benefit–cost) ratio (APA). See also Cost-Effectiveness Analysis: "a measure of program efficacy or economic efficiency expressed in terms of the cost of achieving a unit of program outcome" (APA).	We welcome recommendations!	"assessment of the direct economic and social costs and benefits of a proposed project for the purpose of project or programme selection. The cost-benefit ratio is determined by dividing the projected benefits of the programme by the projected costs. A programme having a high benefit-cost ratio will take priority over others with lower ratios." (United Nations Statistics Division: Environment Glossary)
CULTURE/ CULTURAL	"culture is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society" (Tylor 1871)	Programming and product development styles including personal and organizational commitments to quality, efficiency, and expertise in writing, reviewing, testing, and/or marketing software and hardware.	"'Tech's strong culture' is the context of work life, a set of rules that guides the relationship between the company and "it's people". At one level, the culture offers a description of the social characteristics of the company that also embodies a specification of required work behavior... the culture also includes articulated rules for thoughts and feelings, "mindsets" and "gut reactions"... thus "the culture" is a gloss for an extensive definition of membership in the corporate community that includes rules for behavior, thought and feeling, all adding up to what appears to be a well-defined and widely shared 'member role'" (Kunda 2009, 7).	"Culture is a well organized unity divided into two fundamental aspects—a body of artifacts and a system of customs" (Malinowski 1931, 623).; "Culture is an historically transmitted pattern of meanings embodied in symbols" (Geertz 1973, 89); "1. the distinctive customs, values, beliefs, knowledge, art, and language of a society or a community. These values and concepts are passed on from generation to generation, and they are the basis for everyday behaviors and practices; 2. the characteristic attitudes and behaviors of a particular group within society, such as a profession, social class, or age group" (APA)	"The intrinsic value of society. Syn. with civilization. Employed by Spengler to define a civilization in its creative growth-period. The means, i.e. the tools, customs and institutions, of social groups; or the employment of such means. In psychology, the enlightenment or education of the individual. Some distinguish culture from civilization (q.v.) the former being the effect on personal development and expression (art, science, religion) of the institutions, materials and social organization identified with the latter. -- J.K.F." (Runes 2004)	"cultural objects] are objects of historical and/or artistic value; [cultural resources] are archaeological and historical sites" (INIS)
DATA MINING	computer aided search through numerical, symbolic, image, text, or other electronic material to identify patterns with significance	"Data mining is the process of finding previously unsuspected patterns in information contained in large databases". Data mining might also be described as "knowledge discovery in databases or the processof idenitfying valid, novel, potentially useful, and ultimately understandable structure in data" (Reilly 2004, 233-234).	"A class of analytical applications that search for hidden patterns in a database. Data mining is the process of sifting through large amounts of data to produce data content relationships. Data mining tools use a variety of techqniues including case-based reasoning, data visualization, fuzzy query and analysis, and neural networks; 2. An information extraction activity whose goal is to discover hidden facts contained in databases. Using a combination of machine learning, staistical analysis, modeling techniques and database technology, data mining finds patterns and subtle relationships in data an infers rules that allow the prediction of future results" (LaPlante 2001, 120-121).	"the automated (computerized) examination of a large set of observations or measurements, particularly as collected in a complex database, in order to discover patterns, correlations, and other regularities that can be used for predictive purposes" (APA)	We welcome recommendations!	"A class of database applications that look for hidden patterns in a group of data that can be used to predict future behavior." (UNHQ); "An analytical process that attempts to find correlations or patterns in large data sets for the purpose of data or knowledge discovery". Source(s): CNSSI 4009-2015 (NIST SP 800-53 Rev. 4) "

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DATA SECURITY	safeguarding of electronic information from theft or loss	"Data security is typically defined in terms of five properties: 1. confidentiality-- assurance that data, programs, and other system resources are protected against disclosure to unauthorized persons, programs, or systems, 2. integrity-- assurance that data, programs, and other system resources are protected against malicious or inadvertent modification or destruction by unauthorized persons, programs, or systems, 3. Availability-- assurance that the use of data, programs, or other system resources will not be denied to authorized persons, programs, or systems, 4. Authentiation-- the property that persons, programs, or systems are accurately identified by a computing system, and 5. nonrepudiation-- the property that communications received from persons, programs or systems can be assured to have indeed been sent by their purported senders" (Reilly 2004, 236).	See also Common Data Security Architecture: "An architecture for providing high security for transactions over the Internet. It makes extensive use of security technologies such as encryption and decryption" (Ince 2013).	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!

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DATA	Symbols representing information that can be manipulated	"Data means "things given" in Latin—although we tend to use it as a mass noun in English, as if it denotes a substance—and ultimately, almost all useful data is given to us either by nature, as a reward for careful observation of physical processes, or by other people, usually inadvertently (consider logs of Web hits or retail transactions, both common sources of big data). As a result, in the real world, data is not just a big set of random numbers; it tends to exhibit predictable characteristics. For one thing, as a rule, the largest cardinalities of most datasets—specifically, the number of distinct entities about which observations are made—are small compared with the total number of observations" (Jacobs 2009, 39).	"Any information, represented in binary, which a computer receives, processes, or outputs" (LaPlante 2001, 117); DeMauro, Marco and Grimaldi (2015) review definitions that capture some engineering definitions.	"A value or set of values representing a specific concept or concepts. Data become "information" when analyzed and possibly combined with other data in order to extract meaning and to provide context. The meaning of data can vary depending on its context"; "A dataset is an organized collection of data. The most basic representation of a dataset is data elements presented in tabular form. Each column represents a particular variable. Each row corresponds to a given value of that column's variable. A dataset may also present information in a variety of non-tabular formats, such as an extended mark-up language (XML) file, a geospatial data file, or an image file" (Data.gov, no date).	"Big data is a term describing the storage and analysis of large and or complex data sets using a series of techniques including, but not limited to: NoSQL, MapReduce and machine learning" (Ward and Barker 2013); "Big data should be defined at any point in time as 'data whose size forces us to look beyond the tried-and true methods that are prevalent at that time'" (Jacobs 2009, 44); See also Datum: "Datum: That which is given or presented. In logic: facts from which inferences may be drawn. In epistemology: an actual presented to the mind; the given of knowledge. In psychology: that which is given in sensation; the content of sensation. -- J.K.F."	"1. Systematic information about the attributes of the entities contained in some well-defined aggregate, such as the person records produced from a census or survey, or the birth or death records produced from a civil registration system. Data of this type may be referred to as "micro" or "unit record" or "individual level" data. Data in this sense is synonymous with data set. Though the information contained on records may be quantitative, the definition of the aggregate is necessarily textual, so that data always involves a qualitative element as well. 2. Numeric information derived from such data, such as a table of numbers of persons in various age-sex groups derived from population census data. Data of this kind may be referred to as "macro" or "aggregate" or "tabular" data. In the terminology of the field of statistics, a statistic. 3. Quantitative information in general, including estimates, indicators and statistics of all kinds' (United Nations Statistics Divisions: Demographic Glossary); Characteristics or information, usually numerical, that are collected through observation. (The International Statistical Institute, "The Oxford Dictionary of Statistical Terms", edited by Yadolah Dodge, Oxford University Press, 2003)

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DESIGN	create plans for satisfying a purpose	"Design is primarily a creative activity in which a person takes an es-theic or functional idea and expresses it in some medium in a way that can be understood by someone else. The most common example is engineering design, where the ideas of the designer include both geometric descriptions and notes, sometimes on paper as engineering drawing, but increasingly as electronic files. The essence of CAD (computer aided design is the marriage between the strenths and capa-bilities of computers and the skill and ingenuity of the designer" (Reilly 2004, 127-128).	"The phase of software development following analysis, conceerned with how the problem is to be solved. Dur-ing the design, the system archtecture is defined identifying the structures, the interactes of system components and their detailed relationships" (LaP-lante 2001, 130).	"the format of a research study, describ-ing how it will be conducted and the data collected" (APA)	Verbeek describes the study of the ethics of desig as "address[ing] the moral aspects of technology development adequately, the ethics of technology should expand its approach to technology to include techno-logical mediation and its moral relevance, enabling designers to take responsibility for the quality of the functioning of their designs, and for the built-in morality" (Ver-beek 2008, 92).	Adapted from the ICH definition of design space: "The multidi-mensional combination and interaction of input variables (e.g., material attributes) and pro-cess parameters that have been demonstrated to provide assur-ance of quality. Working within the design space is not consid-ered as a change. Movement out of the design space is considered to be a change and would nor-mally initiate a regulatory post approval change process. Design space is proposed by the appli-cant and is subject to regulatory assessment and approval. [ICH Q8]"
DESIGN INPUT	factors to be accounted for at the outset when developing designs		we welcome recommendations!	We welcome recommendations!	We welcome recommendations!	"The physical and performance requirements of a [medical] de-vice that are used as a basis for device design. [21 CFR Part 820, FDA]"
DESIGN OUTPUT	product of designs, in-cluding judgment of the success of the design to satisfy its purpose		we welcome recommendations!	We welcome recommendations!	We welcome recommendations!	"The results of a design effort at each design phase and at the end of the total design effort. The finished design output is the ba-sis for the device master record. The total finished design output consists of the [medical] device, its packaging and labeling, and the device master record. [21 CFR Part 820, FDA]"

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DEVELOPMENT	A process of maturation of a plan or product from idea to fruition	"The sum of all activiites that are necesssary to build a software product" (LaPlante 2001, 133).	"Development Engineering is an emerging field of research that focuses on technology interventions designed to improve human and economic development within complex, low resource settings" (University of California at Berkeley, "Development Engineering").	Political development "the development of the institutions, attitudes, and values that form the political power system of a society. Political development enhances the state's capacity to mobilize and allocate resources, to process policy inputs into implementable outputs. This assists with problem□solving and adaptation to environmental changes and goal realization. The contemporary notion of good governance also dwells on efficient, effective, and non□corrupt public administration" (Burnell 2016); "the progressive series of changes in structure, function, and behavior patterns that occur over the lifespan of a human being or other organism" (APA).	No common definition. We welcome recommendations!	We welcome recommendations!
DIGITAL PERSONAL ASSISTANT	Interactive software which performs scheduling, coordination, and basic information seeking tasks at a user's request	We welcome recommendations!	Hardware and software integrated into a handheld information appliance with communication capabilities to allow people to create, share, manage and communicate information anywhere, anytime (Business Communications Review, 1995).	We welcome recommendations!	We welcome recommendations!	"A handheld computer that serves as a tool for reading and conveying documents, electronic mail, and other electronic media over a communications link, as well as for organizing personal information, such as a name-and-address database, a to-do list, and an appointment calendar" Source(s): NIST SP 800-101 Rev. 1 "
DISASTER	sudden event with catastrophic consequences			" a collectively experienced sudden catastrophic event caused by nature (e.g., hurricane, earthquake, tsunami, tornado), technology (e.g., airplane crash, nuclear plant explosion, mining accident), or human aggression (e.g., acts of terrorism). The effect is often measured in terms of loss of lives, injuries, and property damage and typically overwhelms the community's resources and ability to respond without outside assistance" (APA).	We welcome recommendations!	"Severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material, economic, or environmental effects that require immediate emergency response to satisfy critical human needs and that may require external support for recovery" (IPCC 2012); "The United Nations Office for Disaster Risk Reduction defines a disaster as a 'serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources" (Rubin and Dahlberg 2017).

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DISCRIMINATION	Differentiation for the purpose of separating persons to determine entitlements, rights, or eligibility	Discrimination algorithms are those that allow computer vision technologies, such as LiDAR, to differentiate types of objects or states of matter (see Hu et al 2009 for example); Algorithms which reproduce social preferences that are discriminatory may be considered to be discriminatory algorithms.	See also "discriminant-- a synonym for variant selector in a record" (LaPlante 2001, 140).	The US Equal Employment Opportunity Commission describes types of discrimination. By: age, disability, genetic information, national origin, pregnancy, race/color, religion, or sex.; "Race discrimination involves treating someone (an applicant or employee) unfavorably because he/she is of a certain race or because of personal characteristics associated with race (such as hair texture, skin color, or certain facial features). Color discrimination involves treating someone unfavorably because of skin color complexion" (EEOC no date); "1. the ability to distinguish between stimuli or objects that differ quantitatively or qualitatively from one another; 2. the ability to respond in different ways in the presence of different stimuli" (APA).	"Any viable account of what discrimination is will regard it as consisting of actions, practices, or policies that are—in some appropriate sense—based on the (perceived) social group to which those discriminated against belong. Moreover, the relevant groups must be "socially salient," ..., i.e., they must be groups that are "important to the structure of social interactions across a wide range of social contexts" (2006: 169). Discrimination against persons, then, is necessarily oriented toward them based on their membership in a certain type of social group. But it is also necessary that the discriminatory conduct impose some kind of disadvantage or harm on the persons at whom it is directed" (Altman 2016); "(a) subjectively: the rational power to distinguish between objects, real or logical, and betwen moral right and wrong. In Aristotelianism there is also a function of internal sense (Gr. kritikon, sensory discrimination; Lat. vis aestimativa or cogitativa) by which men and the higher animals distinguish the good from the bad in their sense experience, (b) objectively: see Distinction. -- V.J.B." (Runes 2004 (1942)).	Definition of "racial discrimination" in Part 1, Article 1 of the UN "International Convention on the Elimination of All Forms of Racial Discrimination": "any distinction, exclusion, restriction or preference based on race, colour, descent, or national or ethnic origin which has the purpose or effect of nullifying or impairing the recognition, enjoyment or exercise, on an equal footing, of human rights and fundamental freedoms in the political, economic, social, cultural or any other field of public life"
DUTY	An obligation based upon one's role	We welcome recommendations!	The NSPE defines the duties of a professional engineer as fulfillment of the fundamental cannons of practice: "1. Hold paramount the safety, health, and welfare of the public. 2. Perform services only in areas of their competence. 3. Issue public statements only in an objective and truthful manner. 4. Act for each employer or client as faithful agents or trustees. 5. Avoid deceptive acts. 6. Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession."	The duties of government officials are broadly understood to mean the duty to serve the public interest and to serve justice. This may include more specific duties such as a duty to zealously represent their clients within the bounds of law, to protect confidentiality of client and litigants information, and to carefully police their personal conflicts of interest and conflicts of commitment (Berenson 2003)	"Moral requirements are often identified with duties, and that which is good but not required is said to be above and beyond duty's call. Duties, then, are regarded as a minimal standard of moral decency, beyond which the nicer or better among us may do something more.... One's duties are further understood as given by a set of rules. One's actual duty is to do one's prima facie duty (follow rules) I so far as is possible, and to act in accordance with the further decision procedure when conflicts among prima facie duties arise" (Wolf 1986, 131); " Whatever is necessary or required; or whatever one is morally obliged to do, as opposed to what one may be pleased or inclined to do. Also, the moral obligation itself and the law or principle in which it is expressed. In ethics, duty is commonly associated with conscience, reason, rightness, moral law, and virtue" (Runes 2004 (1942))	"In its use in Jurisprudence, [duty] is the correlative of a right. Thus, wherever there exists a right in any person, there also rests a corresponding duty upon some other person or upon all persons generally. But it is also used, in a wider sense, to designate that class of moral obligations which lie outside the jural sphere; such, namely, as rest upon an imperative moral basis, but have not been recognized by the law as within its proper province for purposes of enforcement or redress." (Black's Law Dictionary)

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ECONOMICS	pertaining to production, costs, distribution, wealth, and systems for managing these separately or in concert	We welcome recommendations!	We welcome recommendations!	"A social science that studies individual and group decisions on how to use scarce resources to satisfy their wants and needs" (Black, Hashimzade and Myles 2017).	"That branch of social science which is concerned with the exchange of goods. Employed by Xenophon, Aristotle and Cicero to describe treatises on the proper conduct of the household. In more recent times, combined with politics as political economy, the study of the laws and system of society. Now, more specially, the study of the production, distribution and consumption of material wealth and skills. -- J.K.F." (Runes 2004(1942)).	"pertinent to production and distribution and consumption of goods and services and their management" (AGROVOC)
EQUALITY	Sameness in relevant respects (e.g., quantity, value)	Equivalence of both sides of an equation	We welcome recommendations!	"In the abstract, it means that people who are similarly situated in morally relevant respects should be treated similarly. Possible interpretations include equality before the law, equality of political power, equality of opportunity for social and economic advancement, equality of resources, equality of welfare, equality of freedom, and equality of respect" (Nagel 2005).	Two definitions of equality are often referred to: Equality of resources: a distribution of resources is just if it passes the envy test—no one would prefer someone else's set of resources to their own (Dworkin 1981, 285); Equality of welfare: " a distributional scheme treats people as equals when it distributes or transfers resources among them until no further transfer would leave them more equal in welfare (Dworkin 1981, 186).	non-discrimination in the enjoyment of benefits and laws, whether by people or by states (https://www.un.org/ruleoflaw/thematic-areas/human-rights/equality-and-non-discrimination/)
ETHICAL	pertaining to standards of good or acceptable behavior	We welcome recommendations!	We welcome recommendations!	See also "Ethical judgment: 1. a moral decision made by an individual, especially a difficult one made in the context of a real or hypothetical ethical dilemma. Such judgments often reveal the beliefs that an individual applies in discriminating between right and wrong and the attitudes that comprise his or her basic moral orientation; 2. the faculty of making moral distinctions" (APA); "Behaviour judged to be good, just, right, and honourable, based on principles or guides from a specific ethical theory. However, ethical theories may vary from person to person, country to country, or company to company. Ethical realism accepts that although morality does not apply internationally, the ethical values of a trading partner should be respected" (Law 2016).	"Ethical judgments fall, roughly, into tw o classes, (a) judgments of value, i.e. judgments as to the goodness or badness, desirability or undesirability of certain objects, ends, experiences, dispositions, or states of affairs, e.g. "Knowledge is good," (b) judgments of obligation, i.e. judgments as to the obligatoriness, rightness or wrongness, wisdom or foolishness of various courses of action and kinds of conduct, judgments enjoining, recommending or condemning certain lines of conduct. Thus there are two pnrts of ethics, 1.the theory of value or axiology. which is concerned with judgments of value, extrinsic or intrinsic, moral or non-moral, 2. the theory of obligation or deontology, which is concerned with judgments of obligation. In either of these parts of ethics one mav take either of the above approaches -- in the theory of value one may be interested either in anilvzing and explaining (psychologically or sociologically) our various judgments of value or in establishing or recommending certain things as good or as ends, and in the theory of obligation one may be interested either in analyzing and explaining our various judgments of obligation or in setting forth certain courses of action as right, wise, etc." (Runes 2004).	INIS gives "hazards, political aspects, public opinion, radiation protection, safety, safety culture, and sociology" as terms related to ethical aspects

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ETHICAL THEORY	Logical, descriptive, or intellectual historical analysis of the standards of action which are describable as good or evil	We welcome recommendations!	We welcome recommendations!	Within government, ethics is defined with respect to either internal or external controls. Internal controls are the ethics of individuals internalized through mechanisms of professional education, personal moral development, and socialization. External controls are rules, compliance frameworks, and reporting and auditing mechanisms that dictate required forms of behavior (Zajac 1996).	Sigwick distinguishes ethics from ethical science. This distinction helps identify the role of theory in ethics: "ethics is the 'study of what is right or what ought to be, so far as this depends upon the voluntary action of individuals; assuming that whatever we judge to be 'good', we implicitly judge to be something which we 'ought' to bring into existence, -- it does not yet exist, and unless something better is attainable". "The term ethical science might, without violation of usage, denote either the department of Psychology that deals with voluntary action and its spirits, and with moral sentiments and judgments, as actual phenomena of individual human minds; or the department of sociology dealing with similar phenomena, as manifested by normal members of the organized groups of human beings we call societies" (Sidgwick 1893, 1-2; see Mullins); See also theory of value: "In the theory of value the first question concerns the meaning of value-terms and the status of goodness. As to meaning the main point is whether goodness is definable or not, and if so, how. As to status the main point is whether goodness is subjective or objective, relative or absolute. Various positions are possible. 1. Recent emotive meaning theories e.g. that of A. J. Ayer, hold that "good" and other value-terms have only an emotive meaning, 2. Intuitionists and non-naturalists often hold that goodness is an indefinable intrinsic (and therefore objective or absolute) property, e.g., Plato, G. E. Moore, W. D. Ross, J. Laird, Meinong, N. Hartman. 3. Metaphysical and naturalistic moralists usually hold that goodness can be defined in metaphysical or in psychological terms, generally interpreting "x is good" to mean that a certain attitude is taken toward x by some mind or group of minds." (Runes 2004).	We welcome recommendations!

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
ETHICS	Of or relating to moral principles, esp. as forming a system, or the branch of knowledge or study dealing with these. (OED)	"Computer ethics is the analysis of the nature and social impact of computer technology and the corresponding formulation and justification of policies for the ethical use of such technology. I use the phrase "computer technology" because I take the subject matter of the field broadly to include computers and associated technology. For instance, I include concerns about software as well as hardware and concerns about networks connecting computers as well as computers themselves. A typical problem in computer ethics arises because there is a policy vacuum about how computer technology should be used. Computers provide us with new capabilities and these in turn give us new choices for action. Often, either no policies for conduct in these situations exist or existing policies seem inadequate. A central task of computer ethics is to determine what we should do in such cases, i.e., to formulate policies to guide our actions. Of course, some ethical situations confront us as individuals and some as a society. Computer ethics includes consideration of both personal and social policies for the ethical use of computer technology" (Moor 1985, 266).	"Engineering ethics is professional ethics, as opposed to personal morality. It sets the standards for professional practice, and is only learned in a professional school or in professional practice. Engineering ethics is as much a part of what engineers in particular know as factors of safety, testing procedures, or ways to design for reliability, durability, or economy. Engineering ethics is part of thinking like an engineer" (Harris et al 1996, 93).	US executive e order 13490 "Ethics Commitments by Executive Branch Personnel" stipulates that: "Every appointee in every executive agency appointed on or after January 20, 2009, shall sign, and upon signing shall be contractually committed to, the following pledge upon becoming an appointee: "As a condition, and in consideration, of my employment in the United States Government in a position invested with the public trust, I commit myself to the following obligations, which I understand are binding on me and are enforceable under law: "1. Lobbyist Gift Ban; 2. Revolving Door Ban—All Appointees Entering Government; 3. Revolving Door Ban—Lobbyists Entering Government; 4. Revolving Door ban—Appointees Leaving Government; 5. Revolving Door Ban—Appointees Laving Government to Lobby; 6. Employment Qualification Commitment; 7. Assent to Enforcement" ; "1. the branch of philosophy that investigates both the content of moral judgments (i.e., what is right and what is wrong) and their nature (i.e., whether such judgments should be considered objective or subjective). The study of the first type of question is sometimes termed normative ethics and that of the second metaethics. Also called moral philosophy; 2. the principles of morally right conduct accepted by a person or a group or considered appropriate to a specific field" (APA).	Ethics is often described as moral philosophy or the philosophical study of general moral issues. The question "how should we live our lives?" (Copp 2005); "Ethics (also referred to as moral philosophy) is that study or discipline which concerns itself with judgments of approval and disapproval, judgments as to the rightness or wrongness, goodness or badness, virtue or vice, desirability or wisdom of actions, dispositions, ends, objects, or states of affairs. There are two main directions which this study may take. It may concern itself with a psychological or sociological analysis and explanation of our ethical judgments, showing what our approvals and disapprovals consist in and why we approve or disapprove what we do. Or it may concern itself with establishing or recommending certain courses of action, ends, or ways of life as to be taken or pursued, either as right or as good or as virtuous or as wise, as over against others which are wrong, bad, vicious, or foolish. Here the interest is more in action than in approval, and more in the guidance of action than in its explanation, the purpose being to find or set up some ideal or standard of conduct or character, some good or end or summum bonum, some ethical criterion or first principle" (Runes 2004 (1942)).	"The standards which guide the behaviour and actions of personnel in public institutions and which may be referred to as moral laws (UN Charter for the Public Service in Africa); The "ethics infrastructure" includes measures to enhance and preserve organizational integrity, access to information that promotes transparency and accountability, and oversight by independent institutions and the public at large." (UN Public Administration Glossary)

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ETHICS COMMITTEE	group of experts and lay persons tasked with determining whether a proposal or protocol meets expectations and/or conforms to standards of good or acceptable behavior	We welcome recommendations!	We welcome recommendations!	"a group including lay people, healthcare practitioners, and other experts set up to review health care. clinical e. c. an ethics committee that deals with ethical issues in clinical practice other than those relating to research. research e. c. an ethics committee that reviews research involving the use of human subjects, including clinical trials of drugs" (Martin and McFerran 2017).	We welcome recommendations!	"An independent body in a Member State, consisting of healthcare professionals and nonmedical members, whose responsibility it is to protect the rights, safety and wellbeing of human subjects involved in a trial and to provide public assurance of that protection, by, among other things, expressing an opinion on the trial protocol, the suitability of the investigators and the adequacy of facilities, and on the methods and documents to be used to inform trial subjects and obtain their informed consent. [Directive 2001/20/EC]"
EXPERT SYSTEM	Also described as multi-criteria decision-making models (MCDM)	Quinn (1990) defined an expert system as "an interactive computer program that asks the same questions a human expert would ask, and from the information given to it by the user, provides the same answer the expert would provide" (1). "An expert system is a computer program that resons, using knowledge, to solve complex problems.With expert systems, human knowledge is captured and embedded explicitly within the program" (Reilly 2004, 314).	"Computer programs using AI techniques to assist people in solving difficult problems involving knowledge, heuristics, and decision-making are called expert systems, intelligent systems, or smart systems. An expert system is an 'intelligent' interactive computer program that can play the role of a human expert by using heuristic knowledge or rules of thumb. Components of an expert system include: 1. Knowledge base, 2. Inference mechanism, 3. Working memory, 4. Explanation facility, 5. Knowledge acquisition, 6. Debugging facility, 7. Help facility, 8. Intelligent interfaces, 9. Knowledge base editors" (Adeli 2003, 5, 8)	"An expert system consists of three main pairs: 1. Knowledge base. The actual information in the expert system. 2. Inference engine. The name given to the software that makes the expert system work. The software works with input data supplied by the user to search the knowledge base in order to reach a conclusion. 3. User interface. Screens and or menus through which the expert system communicates with users (Duval and Main 1994, 44); "a program, often mimicking expert problem-solving performance, that uses the explicit representation of human knowledge, usually in the form of "if □ then" rules. The expert system often employs a certainty-factor algebra to support reasoning in uncertain situations in which there are missing or vague data or unclear alternatives. Expert systems are used in such fields as medical diagnosis and financial prediction" (APA).	We welcome recommendations!	"decision support systems"; "Computer programs comprising a knowledge-based component, constructed from an expert skill, operating in such a way that the system can offer intelligent advice or make an intelligent decision about a processing function" (INIS)

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EVIL	'In the widest sense: that which is the reverse of good; Whatever is censurable, mischievous, or undesirable; (OED)	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!	In ethics, evil is considered either as a concept or as a problem. Concept of evil: "The concept of evil applies to persons, to intentions, to motives, to conduct, and to organizations, institutions, practices, arrangements, programmes, agencies, endeavours, and situations. The term 'evil' is the worst possible term of opprobrium imaginable. The concept... applies primarily to persons and organizations, secondarily to conduct and practices. Evil deeds must flow from evil motives, the volition to do something evil... one cannot do something evil by accident or through thoughtlessness." (Singer 2004, 189-190). The problem of evil is a matter of theological and epistemic discussions of the question: "whether the world contains undesirable states of affairs that provide the basis for an argument that makes it unreasonable to believe in the existence of God" (Tooley 2015).; "Negation of the extrinsic elections of things. In practice, the positive effects of such negation. The morally bad. Hostility to the welfare of anything. Absence of the good. Opposite of goodness" (Runes 2004).	Closest synonym in law is "malice," which "does not simply mean ill will against a person, but signifies a wrongful act done intentionally, without just cause or excuse" (Black's Law Dictionary)

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GOVERNANCE	"The process of collective decision□making and policy implementation, used distinctly from government to reflect broader concern with norms and processes relating to the delivery of public goods" (McLean and McMillan 2016)	"Governance: a paradigmatic change in the constellation of power relations between individuals, governments and social institutions" (Loader 1997, 1).	"Governance starts at the corporate level and provides a framework to guide managers in their daily work of decision making and action taking. At the level of projects governance is often implemented through defined policies, processes, roles and responsibilities, which set the framework for peoples' behavior, which, in turn, influences the project. Governance sets the boundaries for project management action by: defining the objectives of a project, providing the means to achieve those objectives, [and] controlling progress" (Muller 2011, 87)	"Governance consists of the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them" (World Bbank 2017).	Ethics and ethical standards are often referred to as part of good corporate governance.	Governance is "the exercise of economic, political and administrative authority to manage a country's affairs at all levels. It comprises the mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences" (UNDP, 1997; UN Public Administration Glossary); "public administration" (AGROVOC); See also Data governance: "A set of processes that ensures that data assets are formally managed throughout the enterprise. A data governance model establishes authority and management and decision making parameters related to the data produced or managed by the enterprise." Source(s): CNSSI 4009-2015 (NSA/CSS Policy 11-1); Information security governance: "The process of establishing and maintaining a framework and supporting management structure and processes to provide assurance that information security strategies are aligned with and support business objectives, are consistent with applicable laws and regulations through adherence to policies and internal controls, and provide assignment of responsibility, all in an effort to manage risk". Source(s): NIST SP 800-100

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GOVERNMENT	system of balancing and choosing between political alternatives	We welcome recommendations!	We welcome recommendations!	"The institutions, rules, and administration of state authority" (Brown, McLean and McMillan 2018).	"This term is used in two senses. Sometimes it is used to indicate the particular administrative institutions or agencies of a society whose function it is to control individual action, safeguard individual and national rights, and, in general, promote the public welfare; all in accordance with the methodological principles and for the sake of the ends decreed to be legitimate by the sovereign. A government is, consequently, purely instrumental, and cannot rightly create sanctions for its own activities. It may, however, persist through change of personnel. In another less common use the word indicates the person or persons who hold office in these institutions, rather than the institutions themselves. This second use is more common in Europe than in America, and corresponds to the American term "'the administration." -- M.B.M." (Runes 2004).	1. The term government broadly means the organization of public authorities responsible for governing a society. The way state's fundamental functions are allocated among institutions and the relations between them, according to their respective constitutional framework, determines the type of government of each state (i.e. in democracy, functions are usually divided, more or less rigorously, in three branches or powers: executive, legislative and judiciary); 2. Commonly, government also indicates all institutions, at national, regional or local/municipal level, responsible for executive functions, dealing with day-by-day administration and implemented through bureaucratic structures. At national level, government is generally the cabinet of members (ministers or secretaries, etc.) responsible for policies referred to different matters, under the guide of a leader (president, prime minister, head of state, etc.). (UN Public Administration Glossary); "Government includes national and local government agencies, including development, emergency, civil protection, etc." (ReliefWeb)
HARM	'Evil (physical or otherwise) as done to or suffered by some person or thing; hurt, injury, damage, mischief; To do harm (to); to injure (physically or otherwise); to hurt, damage.' (OED)	We welcome recommendations!	The injurious consequence of a fault or failure (see Del Frate 2013).	"physical, mental, or moral damage" (Martin and McFerran 2017).	In theoretical ethics and law, harm is defined as either tangible or intangible. Tangible harms are damages a person suffers to their physical, emotional, or social self. Tangible harms cause cost or pain, or an appreciable risk of pain, disability, or death (Saver 2005). Intangible harms, at least as described by Lord Devlin, are those damages to the harmonious fabric of society. Other intangible harms can include frustrations to access, affronts to personal dignity, and having one's efforts wasted.	"Any adverse effects that would be experienced by an individual (i.e., that may be socially, physically, or financially damaging) or an organization if the confidentiality of PII were breached. Source(s): NIST SP 800-122 ; "Damage to health, including the damage that can occur from loss of product quality or availability. [ICH Q9, Guidance for Industry: Quality Systems Approach to Pharmaceutical cGMP Regulations, FDA]"

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HAZARD	unavoidable and/or uncertain danger or risk	"1. A situation or event whose realization has the potential for damage to human life, society, the economy, or the environmen; 2. A potential or actual malfunction of a logic circuit during change(s) of state of input variables. Hazards result from the nonideal behaviour of actual switching elements, e.g. noninstantaneous operation, turn-on time different from turn-off time" (Butterfield and Ngondi 2016).	"A Hazard is a momentary output effort that occurs in a logic circuit because of input signal prpagation along different delay paths in the circuit" (LaPlante 2001, 221).	"a potential source of danger, injury, illness, or equipment damage or malfunction" (APA).	We welcome recommendations!	"The potential occurrence of a natural or human-induced physical event that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, and environmental resources." (IPCC 2012); "Any circumstance in the production, control and distribution of a pharmaceutical which can cause an adverse health effect. [Hazard and Risk Analysis in Pharmaceutical Products, WHO]"

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HEALTH	An equilibrium state of physical, emotional, and mental fitness	Health data used in computational disciplines like bioinformatics may use any of a number of types of data related to medical and health states of patients. This may include: "The Electronic Medical Record (EMR) is a longitudinal electronic record of patient health information generated by one or more encounters in a care delivery setting. Included in this information are patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports. The EMR is designed to automate and streamline the clinician□s workflow"; "whereas the EMR stores institutional data, the EHR shares health information across providers [25]. Thus, the EMR contains partial patient medical history whereas the EHR is more complete in terms of the data provided to physicians. EHR systems are the building blocks of HIEs—Health Information Exchange networks" (Heart, ben-Assuli and Shabtai 2017, 21-23).	We welcome recommendations!	The construct "social determinant of health" is discussed in some social scientific literature: "a social determinant of health is a socially controllable factor outside the traditional health care system that is an independent partial cause of an individual's health status. Candidate examples include income, education, occupational rank, and social class" (Sreenivasan 2014); "the condition of one's mind, body, and spirit, the idea being freedom from illness, injury, pain, and distress" (APA).	"The state of optimum capacity for the effective performance of valued tasks" (Parsons 1958, 168).	"a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"", as defined by the World Health Organization (WHO). Methodology to assess health according to the above definition is not yet available, and at present health is generally assessed in terms of mortality and morbidity." (United Nations Statistics Division: Environment Glossary); INIS gives "health hazards, human populations, medical establishments, preventive medicine, quality of life, quarantine, radiation protection, and water reclamation" as terms related to public health. Health testing: "Testing within an implementation immediately prior to or during normal operation to determine that the implementation continues to perform as implemented and as validated" Source(s): NIST SP 800-90A Rev. 1 "

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HUMAN RIGHTS	Essential claims all humans have by virtue of their species membership alone	We welcome recommendations!	We welcome recommendations!	"Human rights are rights inherent to all human beings, regardless of race, sex, nationality, ethnicity, language, religion, or any other status. Human rights include the right to life and liberty, freedom from slavery and torture, freedom of opinion and expression, the right to work and education, and many more. Everyone is entitled to these rights, without discrimination." (UN, no date)	"Human rights are norms that help to protect all people everywhere from severe political, legal, and social abuses. Examples of human rights are the right to freedom of religion, the right to a fair trial when charged with a crime, the right not to be tortured, and the right to engage in political activity. These rights exist in morality and in law at the national and international levels. 1. Human rights are rights. Lest we miss the obvious, human rights are rights (see the entry on rights and Cruft 2012). Most if not all human rights are claim rights that impose duties or responsibilities on their addressees or duty bearers. Rights focus on a freedom, protection, status, or benefit for the rightholders.2. Human rights are plural. 3. Human rights are universal. All living humans have human rights. People have human rights independently of whether they are found in the practices, morality, or law of their country or culture. 4. Human right shave high-priority (Nickel 2017).	The AGROVOC enumerates the following under the hierarchical classification of human rights: "food sovereignty (the right of peoples to define their own policies and strategies for the sustainable production, distribution and consumption of food, with respect for their own culures and their own systems of managing natural resources and rural areas, and is considered to be a precondition for food security), freedom of association (, housing rights, reproductive rights, right to food, and right to information". Human rights are classified under the hierarchy of legal rights.
HUMAN SECURITY	safety and wellbeing of human communities from disasters, whether natural or mandmade	We welcome recommendations!	we welcome recommendations!	"the Commission on Human Security defined the concept as "protecting the core of all human lives in ways that enhance human freedoms and human fulfillment" and as "protecting fundamental freedoms—freedoms that are the essence of life." It goes on to say that, "it means protecting people from critical (severe) and pervasive (widespread) threats and situations. It means using processes that build on people's strengths and aspirations. It means creating political, social, environmental, economic, military, and cultural systems that together give people the building blocks of survival, livelihood and dignity" (Forsythe 2009).	We welcome recommendations!	"Human security means protecting vital freedoms. It means protecting people from critical and pervasive threats and situations, building on their strengths and aspirations. It also means creating systems that give people the building blocks of survival, dignity and livelihood. Human security involves different types of freedoms: freedom from want; freedom from fear; and freedom to take action on one's own behalf"; "Human security can be said to have two main aspects. It means, first, safety from such chronic threats as hunger, disease, and repression. And second, it means protection from sudden and hurtful disruptions in the patterns of daily life – whether in homes, in jobs, or in communities. Such threats can exist at all levels of national income and development." (IPCC 2012)

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HUMAN-MACHINE INTERACTION	humans using machines to accomplish tasks	"a collaborative process between persons and machines" (Norman and Draper 1985)	"Reciprocal interaction of humans with machines, whether the human is controlling the machine, providing logistical support for the machine, serving as the object of machine actions, or simpliy in the presence of the machine" (LaPlante 2001, 231).	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!
HUMANITY	The collection of human persons	We welcome recommendations!	Technology which benefits humanity is that which aids achievement of broad development goals, such as the United Nations Millennium Development Goals. (Hernandez-Ramos 2006).	"compassion in one's personal relations with specific others, shown by kindness, nurturance, charity, and love" (APA).	See also "Humanism: a). Any view in which interest in human welfare is central. b) Renaissance revival of classical learning as opposed to merely ecclesiastical studies. c) An ethical and religious movement culminating in Auguste Comte's "Worship of Humanity," better known as Humanitarianism. d) Philosophical movement represented by F. C. S. Schiller in England, better known as Pragmatism. See Pragmatism. e) Literary Humanism, movement led in America by Irving Babbit, Paul Elmer More, Norman Foerster protesting against extreme emphasis on vocational education and recommending return to a classical type of liberal education or study of "the Humanities." f)Sociological term for tendency to extend ideals, such as love, loyalty, kindness, service, honesty, which normally prevail in primary or intimate groups to guide conduct in non-primary or impersonal groups. g). Religious Humanism is any view which does not consider belief in a deity vital to religion, though not necessarily denying its existence and not necessarily denying practical value to such belief. Represented by a group of left-wing Unitarian ministers and university professors who, in May, 1933, published "The Humanist Manifesto," wherein religion is broadly viewed as a "shared quest for the good life" and social justice and social reform are stressed as important in religious endeavor. -- A.J.B." (Runes 2004)	We welcome recommendations!

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HUMANITARIAN	Motivated by a spirit of service to humanity	We welcome recommendations!	"Humanitarian engineering as the artful drawing on science to direct the resources of nature with active compassion to meet the basic needs of all -- especially the powerless, poor, or otherwise marginalized" (Mitcham and Munoz 2010, 27).	According to the ReliefWeb Glossary of Humanitarian terms, "As per UN General Assembly Resolution 46/182 (19 December 1991), humanitarian assistance must be provided in accordance with the principles of humanity, neutrality and impartiality. Adherence to these principles reflects a measure of accountability of the humanitarian community. - Humanity: Human suffering must be addressed wherever it is found, with particular attention to the most vulnerable in the population, such as children, women and the elderly. The dignity and rights of all victims must be respected and protected. - Neutrality: Humanitarian assistance must be provided without engaging in hostilities or taking sides in controversies of a political, religious or ideological nature. - Impartiality: Humanitarian assistance must be provided without discriminating as to ethnic origin, gender, nationality, political opinions, race or religion. Relief of the suffering must be guided solely by needs and priority must be given to the most urgent cases of distress. (OCHA)" (ReliefWeb Project 2008).	"Devoted to the promotion of human welfare" (Park and Allaby 2017); See also humanitarianism: " a) Any view in which interest in human values is central. b) Any moral or social program seeking to lessen suffering and increase welfare of human beings, often involving intense emotional devotion to social reform, sometimes extending to prevention of cruelty to animals. Philanthropy. Altruism. c) Worship of Humanity. Comtean doctrine, based on posit ivistic science, that Humanity, rather than God or Nature is the Great Being worthy of worship. d) Theological doctrine denying the divinity of Christ.-- A.J.B." (Runes 2004).	We welcome recommendations!
IDENTIFIER	pattern of symbols uniquely attached to a person or thing	"In a programming language, an identifier is a string of charaters used as a name for some element of a program. This element may be a statement label, a procedure or function, a data elemet, or th e program itself" (Reilly 2004, 379).	"The name bound to an abstraction" (LaPlante 2001, 235).	See also identity: "In psychology: personal identity, or the continuous existence of the personality despite physiological and psychological changes." (Runes 2004).	We welcome recommendations!	"A sequence of characters, capable of uniquely identifying that with which it is associated, within a specified context" (ISO/IEC FDIS 11179-1 "Information technology - Metadata registries - Part 1: Framework", March 2004); " A bit string that is associated with a person, device or organization. It may be an identifying name, or may be something more abstract (for example, a string consisting of an IP address and timestamp), depending on the application". Source(s): NIST SP 800-57 Part 1 Rev. 3 NIST SP 800-57 Part 3 Rev. 1

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IMPACT ASSESSMENT	"Impact Assessment is a means of measuring the effectiveness of organisational activities and judging the significance of changes brought about by those activities. It is neither Art or Science, but both" (IFRC no date).	We welcome recommendations!	Also, impact analysis-- "the activity aimed at determining the impact of a change before its actual implementation, in order to anticipate the extent of its efffects, and htus the associated risk and cost" (LaPlante 2001, 239).	"Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse" (Convention on Biological Diversity, no date); Also "Impact Analysis: a quantitative analytic procedure used to assess the net success or failure of a program, usually through controlled experimentation. It is appropriate only if the program's objectives are specifiable and measurable, the program is well implemented for its intended participants, and the outcome measures are reliable and valid" (APA).	"Social impact assessment can be defined as the process of assessing or estimating, in advance, the social consequences that are likely to follow from specific policy actions or project development, particularly in the context of appropriate national, state, or provincial environmental policy legislation. Social impacts include all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society. Cultural impacts involve changes to the norms, values, and beliefs of individuals that guide and rationalize their cognition of themselves and their society" (Burdge and Vanclay 1996, 59).	Privacy impact assessment: "An analysis of how information is handled: (i) to ensure handling conforms to applicable legal, regulatory, and policy requirements regarding privacy; (ii) to determine the risks and effects of collecting, maintaining, and disseminating information in identifiable form in an electronic information system; and (iii) to examine and evaluate protections and alternative processes for handling information to mitigate potential privacy risks" Source(s): NIST SP 800-60 Vol 1 Rev. 1 (OMB Memorandum 03-22) "
IMPLEMENTATION	Putting a plan or policy into action	See also implementation model-- "a modle that consists of the code files and the used work structure. It includes the application software description as wall as the support software description. While the design model is a more abstract view, the implementation model contains the full information necessary to build the system" (LaPlante 239).	"The transformation of a design into a more detailed form, or its realization as a working product. The implementation may be hardware or software end product, which actually performs the required functions, or it may be an intermediate product at a lower level of stepwise refinement. The goal of abstraction is to provide mechanisms by which functionality may be made visible without the user of that functionality needing to be aware of the details of how that functionarlity is achieved, that is, its implementation" (LaPlante 2001, 238).	"The process of bringing any piece of legislation into force" (Law 2015).	We welcome recommendations!	"Implementation describes the actions taken to meet commitments under a treaty and encompasses legal and effective phases. Legal implementation refers to legislation, regulations, judicial decrees, including other actions such as efforts to administer progress which governments take to translate international accords into domestic law and policy. Effective implementation needs policies and programmes that induce changes in the behaviour and decisions of target groups. Target groups then take effective measures of mitigation and adaptation" (IPCC 4th, 82); Implementation specification: " Specific requirements or instructions for implementing a standard" Source(s): NIST SP 800-66 Rev. 1 (45 C.F.R., Sec. 160.103) "

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INDIVIDUALLY IDENTIFIABLE DATA (IID)	Information which can be linked to a single person	"Individually Identifiable Data is data that identifies the person that the data is about, or that can be used to identify that individual. This generally refers to data that contains either an identification number, or factors relating to physical, mental, economic, cultural, or social identity that could be used to link the data to an individual. Regulatory requirements for privacy generally apply (only) to individually identifiable data" (Clifton 2009, 1471-1472)	We welcome recommendations!	"Per the Executive Office of the President, Office of Management and Budget (OMB) and the U.S. Department of Commerce, Office of the Chief Information Officer, "The term "personally identifiable information" refers to information which can be used to distinguish or trace an individual's identity, such as their name, Social Security Number, biometric records, etc. alone, or when combined with other personal or identifying information which is linked or linkable to a specific individual, such as date and place of birth, mother's maiden name, etc." (iDASH no date)	We welcome recommendations!	See personal data
INFORMED CONSENT	agreement to participate in a process only after being given all pertinent information to make a cognizant choice	"A formal process in which the purposes and consequences of research are explained to subjects, who must sign a consent form before any research is carried out" (Chandler and Munday 2016).	We welcome recommendations!	"a person's voluntary agreement to participate in a procedure on the basis of his or her understanding of its nature, its potential benefits and possible risks, and available alternatives" (APA).	"the principle that requires clinicians to provide sufficient information to patients or potential research participants in order to render their consent lawful. How much information and of what kind is regarded as sufficient depends on the seriousness of what is proposed and on the understanding of those from whom consent is required" (Martin 2015)	"A process by which a subject voluntarily confirms his or her willingness to participate in a particular trial, after having been informed of all aspects of the trial that are relevant to the subject's decision to participate. Informed consent is documented by means of a written, signed and dated informed consent form." (International Council on Harmonization—Good Clinical Practice); "Decision, which must be written, dated and signed, to take part in a clinical trial, taken freely after being duly informed of its nature, significance, implications and risks and appropriately documented, by any person capable of giving consent or, where the person is not capable of giving consent, by his or her legal representative. If the person concerned is unable to write, oral consent in the presence of at least one witness may be given in exceptional cases, as provided for in national legislation. [Directive 2001/20/EC]"

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
INFORMATION	Statements that carry meaning	"the technical concept of information is defined as the probability of a signal being transmitted from device A to device B, which can be mathematically quantified" (Shannon and Weaver 1949)	"A mathematical model of the amount of surprise contained in a message" (LaPlante 2001, 244).	"1. knowledge about facts or ideas gained through investigation, experience, or practice; 2. in information theory, a message that reduces uncertainty; that is, information tells us something we do not already know. The bit is the common unit of information in information theory" (APA).	Philosophy of information is understood as the effort to define formally the concept of information. At least 6 general formal theories of information persist in philosophy of information: 1. Fisher information, 2. Shannon information, 3. Kolmogorov complexity, 4. Quantum information, 5. information as a state of an agent, and 6. Semantic information (Adriaans 2013).	"Knowledge concerning any objects such as facts, events, things, processes or ideas including concepts that within a certain context have a particular meaning" (ISO/IEC 2382-1; 1992 - Economic Commission for Europe of the United Nations (UNECE), "Terminology on Statistical Metadata", Conference of European Statisticians Statistical Standards and Studies, No. 53, Geneva, 2000); Facts and ideas, which can be represented (encoded) as various forms of data" Source(s): CNSSI 4009-2015 ; Knowledge -- e.g., data, instructions -- in any medium or form that can be communicated between system entities." Source(s): CNSSI 4009-2015 (IETF RFC 4949 Ver 2); Any communication or representation of knowledge such as facts, data, or opinions in any medium or form, including textual, numerical, graphic, cartographic, narrative, or audiovisual." Source(s): NIST SP 800-171 (Updates to version published June 2015) (CNSSI 4009); INIS distinguishes information into classified information, data, diagrams, proprietary information, public information, and quantum information

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INSURANCE	indemnification against loss	We welcome recommendations!	We welcome recommendations!	"A legal contract in which an insurer promises to pay a specified amount to another party, the insured, if a particular event (known as the peril), happens and the insured suffers a financial loss as a result. The insured's part of the contract is to promise to pay an amount of money, known as the premium, either once or at regular intervals. In order for an insurance contract to be valid, the insured must have an insurable interest. It is usual to use the word 'insurance' to cover events (such as a fire) that may or may not happen, whereas assurance refers to an event (such as death) that must occur at some time (see also life assurance). The main branches of insurance are: accident insurance, fire insurance, holiday and travel insurance, household insurance, liability insurance, livestock and bloodstock insurance, loss-of-profit insurance (see business-interruption policy), marine insurance, motor insurance, pluvial insurance, private health insurance, and property insurance" (Law 2016).	We welcome recommendations!	"The activity of insurance is intended to provide individual institutional units exposed to certain risks with financial protection against the consequences of the occurrence of specified events; it is also a form of financial intermediation in which funds are collected from policyholders and invested in financial or other assets which are held as technical reserves to meet future claims arising from the occurrence of the events specified in the insurance policies" (United Nations Statistics Division: System of National Accounts 1993 Glossary); "A family of financial instruments for sharing and transferring risk among a pool of at-risk households, businesses, and/or governments" (IPCC 2012)

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INTEGRITY	wholeness, particularly of adherence to ethical principles	See also Integrity Constraints: "A constraint imposed on the database by the database management sytem that helps maintain the integrity of the data" (LaPlante 2001, 250).	"Integrity is 1. a belief in the truth of the information represented by a set of data, 2. the degree to which a component or a system reacts and provides measures against the unauthorized access for performing changes and manipulations to data and code, 3. a condition stating that the information in a set of data does satisfy a set of logical constraints" (LaPlante 2001, 250).	"the quality of moral consistency, honesty, and truthfulness with oneself and others" (APA).	"Most simply a synonym for honesty. But integrity is frequently connected with the more complicated notion of a wholeness or harmony of the self, associated with a proper conception of oneself as someone whose life would lose its unity, or be violated by doing various things. ... the aim of living life as a good utilitarian provides its own standards of integrity" (Blackburn 2016).	"Values and related practices that maintain confidence in the eyes of users in the agency producing statistics and ultimately in the statistical product." (IMF "Data Quality Assessment Framework—DQAF—Glossary"); "In public administration, integrity refers to "honesty" or "trustworthiness" in the discharge of official duties, serving as an antithesis to "corruption" or "the abuse of office." Integrity is a key element that completes the notion of accountability and transparency. It can also be defined as incorruptibility, an unimpaired condition or soundness and is synonymous to honesty" (UN Public Administration Glossary); "Software attributes reflecting the degree to which source code satisfies specified software requirements and conforms to contemporary software development practices and standards. [PIC/S PI 011-3]"; See also Data integrity: "A property whereby data has not been altered in an unauthorized manner since it was created, transmitted or stored". Source(s): NIST SP 800-21 Second edition (NIST SP 800-57)

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
INTELLIGENCE	The faculty of understanding; intellect. Also as a count noun: a mental manifestation of this faculty, a capacity to understand (OED) "Intelligence measures an agent's ability to achieve goals in a wide range of environments." S. Legg and M. Hutter (for a review of 70+definitions, See Legg and Hutter 2007).	"Intelligent systems are expected to work, and work well, in many different environments. Their property of intelligence allows them to maximize the probability of success even if full knowledge of the situation is not available. Functioning of intelligent systems cannot be considered separately from the environment and the concrete situation including the goal." R. R. Gudwin "Intelligence is the ability to process information properly in a complex environment. The criteria of properness are not predefined and hence not available beforehand. They are acquired as a result of the information processing." H. Nakashima	"Intelligence is the ability to use optimally limited resources – including time – to achieve goals." R. Kurzweil; "Intelligence is 1. the ability to deal with abstract concepts and form complext pictures of the outside world such as creativity, ability with spoken and written language, etc.2 in the military sense, the aggregated and processed information about the environment, including potential adversaries, available commanders and their staff" (LaPlante 2001, 250).	"Knowledge of the enemy" (Troy 1991, 433); "the ability to derive information, learn from experience, adapt to the environment, understand, and correctly utilize thought and reason" (APA).	Psychologists define intelligence as: "Intelligence A: the biological substrate of mental ability, the brains' neuroanatomy and physiology; Intelligence B: the manifestation of intelligence A, and everything that influences its expression in real life behavior; Intelligence C: the level of performance on psychometric tests of cognitive ability." H. J. Eysenck; "Intelligence is the ability to learn, exercise judgment, and be imaginative." J. Huarte; "The capacity of the mind to meet effectively -- through the employment of memory, imagination and conceptual thinking -- the practical and theoretical problems with which it is confronted. Intelligence is more inclusive than intellect which is primarily conceptual. In Dewey (q.v.), intelligence is the basic instrument, to be contrasted with fixed habit, traditional customs, and the sheer force of political or bureaucratic power as means of settling social issues. -- L.W." (Runes 2004)	"The term 'intelligence' means (1) the product resulting from the collection, processing, integration, analysis, evaluation, and interpretation of available information concerning foreign countries or areas; or (2) information and knowledge about an adversary obtained through observation, investigation, analysis, or understanding. The term 'intelligence' includes foreign intelligence and counterintelligence" Source(s): NIST SP 800-59 (Joint Pub 1-02, 50 U.S.C., Ch 15) "

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INTELLIGENT AGENT	An autonomous entity capable of successfully adapting to its environment by effecting is own will	"Intelligent agents continuously perform three functions: perception of dynamic conditions in the environment; action to affect conditions in the environment; and reasoning to interpret perceptions, solve problems, draw inferences, and determine actions" (Hayes-Roth); "Intelligent agents are software entities that carry out some set of operations on behalf of a user or another program with some degree of independence or autonomy, and in so doing, employ some knowledge or representation of the user's goals or desires" (IBM quoted in Franklin and Graesser 1996, 23).	"By an agent, we mean a system that enjoys the following properties autonomy: agents encapsulate some state (that is not accessible to other agents), and make decisions about what to do based on this state, without the direct intervention of humans or others; reactivity: agents are situated in an environment, (which may be the physical world, a user via a graphical user interface, a collection of other agents, the INTERNET, or perhaps many of these combined), are able to perceive this environment (through the use of potentially imperfect sensors), and are able to respond in a timely fashion to changes that occur in it; pro-activeness: agents do not simply act in response to their environment, they are able to exhibit goal-directed behaviour by taking the initiative; social ability: agents interact with other agents (and possibly humans) via some kind of agent-communication language, and typically have the ability to engage in social activities (such as cooperative problem solving or negotiation) in order to achieve their goals" (Woodridge 1997, 2); "A computer controlled virtual actor, capable of interacting with other agents in the virutal environment and with the virtual environment" (LaPlante 2001, 31).	We welcome recommendations!	For ethicists, intelligent agents and ethical agents are often one and the same. "According to Moor, a machine that is an implicit ethical agent is one that has been programmed to behave ethically, or at least avoid unethical behavior, without an explicit representation of ethical principles. It is constrained in its behavior by its designer who is following ethical principles. A machine that is an explicit ethical agent, on the other hand, is able to calculate the best action in ethical dilemmas using ethical principles. It can "represent ethics explicitly and then operate effectively on the basis of this knowledge." Using Moor's terminology, most of those working on machine ethics would say that the ultimate goal is to create a machine that is an explicit ethical agent" (Anderson and Anderson 2007, 15).	We welcome recommendations!
INTERNATIONAL ORGANIZATION	governmental or non-governmental groups operating transnationally	We welcome recommendations!	See also "internationalization-- the problem of creating systems thatt are not ethnocentric to a particular culture. Typical problems in internationalization include representations of dates and times, collating sequence, and the mapping between the numeric representation of character values and the printed graphs (for example, currency sybols)" (LaPlante 2001, 253).	"Institutions that transcend national boundaries; also, the study of such institutions. Two types are usually distinguished: intergovernmental organizations created by multilateral treaty or agreement among states, such as the United Nations and the International Monetary Fund; and international nongovernmental organizations (NGOs) created by private citizens in different countries, such as the Red Cross and Amnesty International" (Calhoun 2002).	We welcome recommendations!	"International organisations are entities established by formal political agreements between their members that have the status of international treaties; their existence is recognised by law in their member countries; they are not treated as resident institutional units of the countries in which they are located" (United Nations Statistics Division: System of National Accounts 1993 Glossary); "International Organization includes international governmental organizations and UN agencies, funds and programmes." (ReliefWeb)

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LAW	"In general, a scientific law is the description of an observed phenomenon. It doesn't explain why the phenomenon exists or what causes it. The explanation of a phenomenon is called a scientific theory" (Bradford 2017).	An axiomatic statement, "some aspect of computer technology or performance (that) seems to conform to a pattern that 1. can be quantified, and 2. is likely to hold into the indefinite future" examples include Moore's Law, Metcalfe's La, Grosch's Law and Amdahl's Law (Reilly 2004, 439-440).	We welcome recommendations!	"International law is a collection of rules governing relations between states"	"Every formula which expresses the necessity of an action is called a law" (Kant). -- P. A.S." (Runes 2004); "The Rule of Law is one of the ideals of our political morality and it refers to the ascendancy of law as such and of the institutions of the legal system in a system of governance. The Rule of Law comprises a number of principles of a formal and procedural character, addressing the way in which a community is governed. The formal principles concern the generality, clarity, publicity, stability, and prospectivity of the norms that govern a society. The procedural principles concern the processes by which these norms are administered, and the institutions—like courts and an independent judiciary that their administration requires" (Waldron 2016).	"government-wide and organization-specific laws, regulations, policies, guidelines, standards, and procedures mandating requirements for the management and protection of information technology resources" Source(s): NIST SP 800-16 "
LEGAL PERSONHOOD	An individual who has legal status with a state, such as citizenship. "The function of legal personhood is to attribute value and rights to the individual" (Dyschkant 2015, 2107).	We welcome recommendations!	We welcome recommendations!	"While there is disagreement about how precisely to formulate a definition of legal personhood, the key element of legal personhood seems to be the ability to bear rights and duties. Black's Law Dictionary defines a legal person as an entity "given certain legal rights and duties of a human being; a being, real or imaginary, who for the purpose of legal reasoning is treated more or less as a human being" (Dyschkant 2015, 2076)	If legal persons are those who have meaningful agency, then corporations might also have meaningful agency. "For a corporation to be treated as a Davidsonian agent it must be the case that some things that happen, some events, are describable in a way that makes certain sentences true, sentences that say that some of the things a corporation does were intended by the corporation itself. That is not accomplished if attributing intentions to a corporation is only a shorthand way of attributing intentions to the biological persons who comprise e.g., its board of directors. If that were to turn out to be the case then on metaphysical if not logical grounds there would be no way to distinguish between corporations and mobs" (French 1979, 211)	Closest synonym in law is "persona standi in judicio", which means "a person who can purse or defend a legal action in court" (James R. Fox, "Dictionary of International and Comparative Law")
LIABILITY	disadvantageous debts or obligations	We welcome recommendations!	"The consequences of failing to deliver legal obligations under contract or statutory instrument. Persons or organizations have legal responsibilities when operating under a contract or within the legislation that applies to operations undertaken; they will be liable for actions that breach any term or regulation" (Gorse, Johnston, and Pritchard 2013).	"1. in a civil lawsuit, the defendant's legal responsibility to pay monetary damages for injury or other harm that a court has deemed he or she has caused the plaintiff through, for example, professional malpractice" (APA)	We welcome recommendations!	"A liability is an obligation which requires one unit (the debtor) to make a payment or a series of payments to the other unit (the creditor) in certain circumstances specified in a contract between them." (United Nations Statistics Division: System of National Accounts 1993 Glossary)

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LIFECYCLE	stages in a project, also sequences of developmental phases in an organism	We welcome recommendations!	"All the steps or phases an item passes through during its useful life. The life may include: problem identification, requirements engineering, analysis, design, implementation, testing, assessment, risk analysis, maintenance, etc" (LaPlante 2001, 277).	"1. the sequence of developmental stages through which an organism passes between a specified stage of one generation (e.g., fertilization, birth) and the same stage in the next generation; 2. the series of stages that characterizes the lifespan of a group, institution, culture, or product" (APA).	We welcome recommendations!	"An approach to computer system development that begins with (PMA CSVC) identification of the user's requirements, continues through design, integration, qualification, user validation, control and maintenance, and ends only when commercial use of the system is discontinued. [PIC/S PI 011-3]"
LIKELIHOOD	chance of occurrence	"The probability that an observation belongs to a probability distribution with parameters θ□, considered as a function of the parameters rather than of the observation" (Butterfield and Ngondi 2016).	We welcome recommendations!	" in statistics, the probability of obtaining a particular set of results given a set of assumptions about the distribution of the phenomena in the population and the parameters of that distribution" (APA)	"The likelihood, a shortened form of the phrase likelihood function, is the probability of a given dataset within a model. The model will typically contain several parameters which can be varied to give the best fit to the data, and the likelihood then is a function of those parameters. High values of the likelihood, indicating that the observed data were quite probable if that model is the true one, are interpreted as indicating that the data favour those parameter values" (Liddle and Loveday 2008).	Probabilistic estimation of occurrence, measured as a percent. The IPCC 4th defines likelihood as "virtually certain: >99% probability of occurrence; very likely: >90% probability; likely: >66% probability; more likely than not: >50% probability; about as likely as not: 33%- 66% probability; unlikely <33% probability; very unlikely:< 10% probability; exceptionally unlikely: <1% probability"
MACHINE LEARNING		"machine learning is the study of methods for constructing and improving software systems by analyzing examples f their desired behavior. Machine learning methods are appropriate in application settings where people are unable to provide precise specifications for desired program behavior, but where examples of this behavior are available." (Reilly 2004, 476).	"In knowledge discovery, machine learning is most commonly used to mean the application of induction algorithms, which is one step in the knowledge discovery process. Machien learning is the field of scientific study that concentrates on induction algorithms and other algoritms that can be said to learn" (LaPlante 2001, 291).	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!
MALEFICENCE	Acts intentionally taken to promote evil or confound good	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!	Within applied ethics, the principle of non-maleficence is invoked. Non maleficence: is the avoidance of doing harm (Gillon 1985, 130); See also Malevolence "Ill or evil will or disposition -- the will or disposition to do wrong or to harm others. The vice opposed to the virtue of benevolence or good will. -- W.K.F." (Runes 2004).	Closest synonym would be "mala fides," defined as "bad faith, absence of honest intentions in international relations" (James R. Fox, "Dictionary of International and Comparative Law")

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MALFEASANCE	Acts intentionally taken by persons or organizations in a position of power to promote evil or confound good	We welcome recommendations!	We welcome recommendations!	Malfeasance is failure of officials to faithfully execute their duties, whether as enforcement of rightful law or policy, chiefly for their own gain in funds or leisure (Becker and Stigler 1974)	We welcome recommendations!	"Intentional conduct that is wrongful or unlawful, especially by officials or public employees. Malfeasance is at a higher level of wrongdoing than nonfeasance (failure to act where there was a duty to act) or misfeasance (conduct that is lawful but inappropriate)" (https://www.law.cornell.edu/wex/malfeasance)
METHODOLOGY	"Methodology is defined as the research strategy that outlines the way one goes about undertaking a research project, whereas methods identify means or modes of data collection" (Howell 2012, viii)	"A detailed approach to solving an engineering problem. A synonym for methodology, i.e. a set of rules and guidelins undepinning software development. A methodology is a way of doing things and is thus similar to the idea of a process. 2. The implementation of an operation, i.e., the code describing how an operation is effected. The method describes the algorithm or procedure used in full detail, ready for execution" (LaPlante 2001, 308).	"We consider a methodology to encompass (i) a set of concepts used; (ii) notations for modelling aspects of the software (requirements, designs, implementation); and (iii) a process that is followed in order to produce the software" (Padgham and Winikoff 2002, 1)	OECD glossary of statistical terms defines methodology as "a structured approach to solve a problem"; "1. the science of method or orderly arrangement; specifically, the branch of logic concerned with the application of the principles of reasoning to scientific and philosophical inquiry. 2. the system of methods, principles, and rules of procedure used within a particular discipline" (APA).	"methodology is a generic term exemplified in the specific method of each science. Hence its full significance can be understood only by analyzing the structure of the special sciences. In determining that structure, one must consider: a) the proper object of the special science, b) the manner in which it develops, c) the type of statements or generalizations it involves, d) its philosophical foundations or assumptions, and e) its relation with the other sciences, and eventually its applications. (Runes 2004 (1942)). Methods in philosophy include: Socratic method, synthetic method, ascetic method, psychological method, critical or transcendental methods, dialectical methods, intuitive methods, reflexive methods, eclectic methods, adn positivistic methods. Other sciences employ: axiomatic or hypothetical-deductive methods, nomological or inductive methods, descriptive methods, historical methods, and psychological methods. (Runes 2004).	"A structured approach to solve a problem" (Economic Commission for Europe of the United Nations (UNECE), "Terminology on Statistical Metadata", Conference of European Statisticians Statistical Standards and Studies, No. 53, Geneva, 2000); See also Formal Method: "Software engineering method used to specify, develop, and verify the software through application of a rigorous mathematically based notation and language" Source(s): CNSSI 4009-2015 (Guide to the Software Engineering Body of Knowledge)

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MIND	'A person's cognitive, rational, or intellectual powers; the intellect; esp. as distinguished from the emotions; a person of intellectual prowess; an intellectual' (OED); A combination of the neural architecture and effects of the transmissions of this architecture on the formation of emotions, mental representations, correspondences between sensation and mental representations of that which is sensed, computation of internal and external data, and decisions, plans and intentions made on the basis of the unity of all of these	"According to a Classical Computational Theory of Mind), the mind is a computational system similar in important respects to a Turing machine, and core mental processes (e.g., reasoning, decision-making, and problem solving) are computations similar in important respects to computations executed by a Turing machine" (Rescorla 2015)	Fodor (1983) stipulates nine features of a modular cognitive system: 1. Domain specificity, 2. Mandatory operation, 3. Limited central accessibility, 4. Fast processing, 5. Informational encapsulation, 6. Shallow outputs, 7. Fixed neural architecture, 8. Characteristic and specific breakdown patterns, 9. Characteristic ontogenetic pace and sequencing (Robbins 2017)	"1. broadly, all intellectual and psychological phenomena of an organism, encompassing motivational, affective, behavioral, perceptual, and cognitive systems; that is, the organized totality of an organism's mental and psychic processes and the structural and functional cognitive components on which they depend. The term, however, is also used more narrowly to denote only cognitive activities and functions, such as perceiving, attending, thinking, problem solving, language, learning, and memory. 2. the substantive content of such mental and psychic processes. 3. consciousness or awareness, particularly as specific to an individual. 4. a set of emergent properties automatically derived from a brain that has achieved sufficient biological sophistication. In this sense, the mind is considered more the province of humans and of human consciousness than of organisms in general. 5. human consciousness regarded as an immaterial entity distinct from the brain. 6. the brain itself and its activities. In this view, the mind essentially is both the anatomical organ and what it does. 7. intention or volition. 8. opinion or point of view. 9. the characteristic mode of thinking of a group, such as the criminal mind or the military mind" (APA)	John R. Searle suggest that "just manipulating the symbols is not itself enough to guarantee cognition, perception, understanding, thinking, and so forth. And, since computers qua computers, are symbol manipulating devices, merely running the computer program is not enough to guarantee cognition" (1990, 26); A representational theory of mind according to Fodor is "a system of mental representations, including both primitive representations and complex representations formed from primitive representations" (Rescorla 2015).	We welcome recommendations!
MITIGATION	Plan to lessen the impact of a harm	We welcome recommendations!	"Risk mitigation planning is the process of developing options and actions to enhance opportunities and reduce threats to project objectives. Risk mitigation implementation is the process of executing risk mitigation actions. Risk mitigation progress monitoring includes tracking identified risks, identifying new risks, and evaluating risk process effectiveness throughout the project" (Project Management Institute 2008).	Mitigation is "abatement or diminution of a penalty or punishment imposed by law" (Black's Law Dictionary)	We welcome recommendations!	"Abatement or diminution of something painful, injurious, severe, or calamitous." INIS; "The lessening of the potential adverse impacts of physical hazards (including those that are human-induced) through actions that reduce hazard, exposure, and vulnerability" (IPCC 2012); Risk mitigation: "Prioritizing, evaluating, and implementing the appropriate risk-reducing controls/ countermeasures recommended from the risk management process" Source(s): CNSSI 4009-2015

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MIXED REALITY	A type of virtual reality system	"The most straightforward way to view a Mixed Reality environment, therefore, is one in which real world and virtual world objects are presented together within a single display, that is, anywhere between the extrema of the virtuality continuum" (Milgram and Kishino 1994)	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!
MODEL OR MODELLING	abstract representation of a process or reality	"A simplified representation of something (the referent). The representation may be physical or abstract, and may be restricted to certain properties of the referent. In computing, models are usually abstract and are typically represented in a diagramming notation, such as dataflow diagrams (in functional design), ERA diagrams (for a data model), or state-transition diagrams (for a model of behaviour); in the case of the relational model the referent is the target system while in the waterfall model, V-model, and spiral model the referent is the development process. In computer graphics, models are used to create realistic images of objects and their attributes" (Butterfield and Ngondi 2016).	"A model is a representation of reality of an artifact or activity intended to explain the behavior of some aspects of it. In creating a model, an abstraction technique is used. Thus, the model is typically less complex or complete than the reality modeled and can be regarded as an abstract description, 2. a mathematical or schematic description of a computer or network system" (LaPlante 2001, 313).	"A mathematical, physical, pictorial, or computer representation, of one phenomenon by another. Models are often used to simplify complex phenomena for analytical purposes" (Kent 2006).	"In logic, a model for a set of sentences is an interpretation under which they are all true" (Blackburn 2016).	"Techniques that use mathematical models to understand and predict the outcomes of interventions." (Adapted from EMA: "modelling and simulation); A very detailed description or scaled representation of one component of a larger system that can be created, operated, and analyzed to predict actual operational characteristics of the final produced component". Source(s): FIPS 201-2

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MONITOR	person or process charged with asssessing conformity to rules or methods	"display monitors produce real-time dynamic graphic images from computer output" (Reilly 2004, 528).	"A program that allows the control of the execution of other programs in an embedded syste" (LaPlante 2001, 315).	"a person who listens to and reports on foreign radio broadcasts and signals" (OUP)	We welcome recommendations!	"continuous or frequent standardized measurement and observation of the environment (air, water, land/soil, biota), often used for warning and control" (United Nations Statistics Division: Environment Glossary); "Monitoring and Evaluation covers collecting and assessing information on quality and progress of projects and programmes, designing methodologies and evaluation tools; recommending best practices and lessons learned to improve effectiveness and impact of activities through reports, training/workshop, etc" (ReliefWeb); "A person appointed by, and responsible to, the sponsor for monitoring and reporting the progress of the trial and for the verification of data. [Specific Pharmaceutical Products, WHO] The act of conducting a planned sequence of observations or measurements of control parameters to assess whether a CCP is under control. [Hazard and Risk Analysis in Pharmaceutical Products, WHO]"
MORAL	Thought and discourse about moral questions; moral philosophy, ethics (OED); Pertaining to the meaning of good and evil and establishment of ethical standards to foster those Meanings	"A moral Turing test (MTT) might similarly be proposed to bypass disagreements about ethical standards by restricting the standard Turing test to conversations about morality. If human `interrogators' cannot identify the machine at above chance accuracy, then the machine is, on this criterion, a moral agent" (Allen et al 2000, quoted in Arnold and Schuetz 2016, 104).	We welcome recommendations!	"1. relating to the distinction between right and wrong behavior; 2. describing a behavior that is considered ethical or proper, or a person or group who adheres to a moral code" (APA)	Moral is used as an adjective to describe patterns of reasoning and belief. "Moral reasoning is a species of practical reasoning—that is, as a type of reasoning directed towards deciding what to do and, when successful, issuing in an intention" (Richardson 2014). Moral relativism is a topic of concern for the implementation of ethical AI. "Descriptive Moral Relativism (DMR). As a matter of empirical fact, there are deep and widespread moral disagreements across different societies, and these disagreements are much more significant than whatever agreements there may be. Metaethical Moral Relativism (MMR). The truth or falsity of moral judgments, or their justification, is not absolute or universal, but is relative to the traditions, convictions, or practices of a group of persons" (Gowans 2016)	Usually "moral" is contrasted to the "legal," but "moral" could be entailed in the older legal expression "lex non scripta," which refers to all laws not written down - this could include the "unwritten" form of common law (such as in the Untied Kingdom), but could also include customary international law as well as "natural law," the "law of nations," or similar phrases for normative standards that are not explicated in a written manner.

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
MORAL AGENT	An agent able to define and implement their meaning of good and evil	"A suitably generic characterization might be that a moral agent is an individual who takes into consideration the interests of others rather than acting solely to advance his, her, or its self interest" (Allen et al 2000, 252).	We welcome recommendations!	Cua defines moral agents with respect to the principle of impartiality, "As moral agents, the principle of autonomy appears to be the basis for applying the principle of impartiality, for in the notion of balance implicit in the moral point of view it is suggested that the interests of all individuals in dispute have an equal claim to respect in adjudication. Unless morality is to be viewed primarily as a product of external factors, every moral agent is entitled to administer its function so long as the principle of impartiality is applied and maintained" (Cua 1967, 164-165).	"For any user of moral language, the class of moral agents—the group of agents to whom a moral judgment is universalized—is independent of, not a function of, not defined by that or any particular moral judgments. It may be the case, as a contingent matter of fact, that a particular moral judgment which I make can only be acted upon by some (but not all) of the members of my class of moral agents. This does not however furnish groups for claiming that... the class of moral agents is purely a function of each moral judgment" (Steiner 1973, 264)	International law is ambiguous in its definitions: for the most part, the only actors-of-standing in international law are states. Human rights law permits for individuals as legal actors, but this is a limited area within international law.
MORAL AUTONOMY	Cognitive capacity to self-define the meaning of good and evil, with or without the ability to fully act upon it	An artificial system's achievement to pass the moral Turing test	We welcome recommendations!	"the state an older child has achieved when he or she can recognize that an act's morality may be substantially determined by its motive and other subjective considerations, rather than by its consequences. Moral independence is a mark of the autonomous stage of moral development" (APA)	Moral autonomy "refers to the capacity to impose the (putatively objective) moral law on oneself, and, following Kant, it is claimed as a fundamental organizing principle of all morality" (Christman 2015).	We welcome recommendations!
MORAL NORMS	"Perceptions about the moral correctness or wrongness of actions that have been codified by a community into standards against which behaviors are judged, praised or punished;" "Standards which pertain to the meaning of good and evil and are held as such by a community"	We welcome recommendations!	We welcome recommendations!	the APA defines morals as " the ethical values or principles that people use to guide their behavior" (APA)	"Moral norms are the rules of morality that people ought to follow....There are different norms for different kinds of social interaction: norms of justice, norms of cooperation, and norms prescribing various kinds of altruistic behavior" (Harms and Skyrms 2008); See also morals "The term is sometimes used as equivalent to "ethics." More frequently it is used to designate the codes, conduct, and customs of individuals or of groups, as when one speaks of the morals of a person or of a people. Here it is equivalent to the Greek word ethos and the Latin mores. -- W.K.F." (runes 2004)	jus cogens is argued to be the basis of international morality and law. It is a set of peremptory laws, such as laws against genocide, slavery, and torture.
NATURAL LANGUAGE PROCESSING		"Natural language processing (NLP) refers to computer systems that analyze, attempt to understand, or produce, one or more human langauges" (Reilly 2004, 548).	"Natural language is 1. a language with rules which depends on the usage rather than on strictly formalized rules, 2. the branch of AI research that studies techniques that allow computer systems to accept inputs and produce outputs in a conventinoal language like English" (LaPlante 2001, 328).	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!

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NOMEN-CLATURE	system of terms	We welcome recommen-dations!	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!	"A systematic naming of things or a system of names or terms for things. In classification, no-menclature involves a systemic naming of categories or items" (United Nations Glossary of Clas-sification Terms; prepared by the Expert Group on International Economic and Social Classifica-tions, unpublished on paper)
NON-GOVERNMENTAL ORGANIZATION	organized society without authoritative power to allocate values or reduce liberties of others	We welcome recommen-dations!	We welcome recommendations!	"An independent voluntary association of people working together for a common purpose that does not include achiev-ing government office, earning profit, or engaging in illegal activities" (Black, Hashimzade and Myles 2017).	We welcome recommendations!	"Non-governmental Organiza-tion includes organizations that operate independently from any government, including civil socie-ty." (ReliefWeb)
NONLINEAR	without order representa-ble by a line	We welcome recommen-dations!	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!	IPCC defines nonlinearity as "A process is called nonlinear when there is no simple proportional relation between cause and ef-fect" (IPCC 4th assessment)
NORMS	'That which is a model or a pattern; a type, a standard; A value used as a reference standard for purposes of comparison' (OED)	In mathematics, norms are functions assigning a strictly positive length or size to each vector in a vector space (other than zero vectors).	"With 'norm' we mean 'a principle of right action binding upon the members of a group and serving to guide, con-trol, or regulate proper and acceptable behavior" (Boella, van der Torre and Verhagen 2006).	"A collective evaluation of behavior in terms of what it ought to be; a collective expectation as to what behavior will be; and/or particular reactions to behavior, including attempts to apply sanctions or otherwise induce a particular kind of conduct." (Gibbs 1965, 589); "1. a stand-ard or range of values that represents the typical performance of a group or of an individual (of a certain age, for example) against which comparisons can be made" (APA)	"Norms are generally accepted, sanctioned prescriptions for, or prohibitions against, others behavior, belief or feeling, i.e., what others ought to do , believe, feel—or else" (Morris 1956, 610). "All societies have rules or norms specifying appropriate and inappropriate behavior, and individuals are rewarded or punished as they conform to or deviate from the rules. The norms are blueprints for behavior, setting limits within which individuals may seek alter-nate ways to achieve their goals. Norms are based on cultural values, which are justified by moral standards, reasoning, or aesthetic judgment" (Broom and Selznick 1963, 68); "a) General: Standard for meas-ure. Pattern. Type. b) In ethics: Standard for proper conduct. Rule for right action. c) In axiology: Standard for judging value or evaluation. d) In aesthetics: Standard for judging beauty or art. Basis for criticism, e) In logic: Rule for valid inference. f) In psy-chology: Class average test score" (Runes 2004)	See morals

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NORMATIVE SYSTEM	a system based on what is established as the norm (OED); Organized parameters of action designed to promote good	"Normative systems include systems of law, abstract models of computer systems, and hybrid systems consisting of human and computer agents in interaction" (Jones and Sergot 1993, 275).	"A normative system defines a set of constraints on the behaviour of agents, corresponding to obligations, which may or may not be observed by agents (Agotnes et al 2007, 1175)	the APA defines normative as: "relating to a norm: pertaining to a particular standard of comparison for a person or group of people, often as determined by cultural ideals regarding behavior, achievements or abilities, and other concerns. For example, a normative life event such as marriage or the birth of a child is expected to occur during a similar period within the lifespans of many individuals, and normative data reflect group averages with regard to particular variables or factors" (APA)	"A normative multiagent system is a multiagent system together with normative systems in which agents on the one hand can decide whether to follow the explicitly represented norms, and on the other the normative systems specify how and in which extent the agents can modify the norms" (Boella, van der Torre and Verhagen 2006, 74)	See morals
NUDGING	Gentle persuasion	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!	"Nudges—liberty-preserving approaches that steer people in particular directions, but that also allow them to go their own way" (Sunstein 2014, 583).	We welcome recommendations!

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ONTOLOGY	"The study of what there is"	"The same ontological theory may commit to different conceptualizations, as well as the same conceptualization may underlie different ontological theories. The term "ontology" will be used ambiguously, either as synonym of "ontological theory" or as synonym of conceptualization". Conceptualization: an intensional semantic structure which encodes the implicit rules constraining the structure of a piece of reality. Formal Ontology: the systematic, formal, axiomatic development of the logic of all forms and modes of being. Ontological commitment: a partial semantic account of the intended conceptualization of a logical theory. Ontological engineering: the branch of knowledge engineering which exploits the principles of (formal) Ontology to build ontologies. Ontological theory: a set of formulas intended to be always true according to a certain conceptualization. Ontology: that branch of philosophy which deals with the nature and the organisation of reality. Ontology: (sense 1) a logical theory which gives an explicit, partial account of a conceptualization; synonym of conceptualization" (Guarino and Giaretta 1995).	We welcome recommendations!	"the branch of philosophy that deals with the question of existence itself" (APA).	"The larger discipline of ontology can thus be seen as having four parts: 1. the study of ontological commitment, i.e. what we or others are committed to, 2. the study of what there is, 3. the study of the most general features of what there is, and how the things there are relate to each other in the metaphysically most general ways, 4. the study of meta-ontology, i.e. saying what task it is that the discipline of ontology should aim to accomplish, if any, how the questions it aims to answer should be understood, and with what methodology they can be answered" (Hofweber 2017); See also Ontological object: "The real or existing object of an act of knowledge as distinguished from the epistemological object." (Runes 2004).	"A formal specification of a conceptualisation, i.e. the objects, concepts and other entities that are assumed to exist in some area of interest and the relationships that hold among them." (United Nations Statistical Commission and Economic Commission For Europe Conference Of European Statisticians, Statistical Standards And Studies - No. 53, "Terminology on Statistical Metadata", United Nations, Geneva, 2000)

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OPEN DATA	information that can be accessed by anyone with appropriate tools	We welcome recommendations!	We welcome recommendations!	"Data that are freely available to everyone without mechanisms of control, such as copyright or patents" (Mayhew 2015).	We welcome recommendations!	"Data is open if it can be freely accessed, used, modified and shared by anyone for any purpose - subject only, at most, to requirements to provide attribution and/or share-alike. Specifically, open data is defined by the Open Definition and requires that the data be A. Legally open: that is, available under an open (data) license that permits anyone freely to access, reuse and redistribute B. Technically open: that is, that the data be available for no more than the cost of reproduction and in machine-readable and bulk form." (AGROVOC); Adapted from definition of open system "An environment in which system access is not controlled by persons who are responsible for the content of electronic records that are on the system. [21 CFR Part 11, FDA]"

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OPEN SOURCE	software with source code that can be available and modified by all with appropriate tools	"The process of releasing the program code of a software product in order to encourage companies and others to build on the original product" (Ince 2013); "Denoting software that is freely available with its source code, to be used or altered by anybody as they wish. Commonly the only restriction is that it cannot be charged for, that its free distribution should not be hindered, and that the work of others should be properly respected. Behind such software lies a belief that the cooperative approach it seeks to foster is the best way to create high quality software, through widespread inspection, modification, and correction of the source code by any interested party. It is contrasted especially with the traditional proprietary model, where source code is a closely guarded commercial secret. A strong recent trend has been the emergence of websites that use software version control tools to provide online source code hosting (e.g. GitHub, SourceForge)" (BUtterfield and Ngondi 2016).	We welcome recommendations!	"Denoting computer software that is freely available with its source code, to be used or altered by anybody as they wish. Commonly the only restriction is that it cannot be charged for, that its free distribution should not be hindered, and that the work of others should be properly respected. This cooperative approach reflects a belief that the best way to create high quality software is through widespread inspection, modification, and correction of the source code by any interested party. It is contrasted especially with the traditional proprietary model, where source code is a closely guarded commercial secret" (Law 2016).	As described in the Philosophy of the GNU project, "Free software means that the software's users have freesom. Specifically, free software means users have four essential freedoms: (0) to run the program, (1) to study and change the program in source code form, (2) to redistribute exact copies, and (3) to distribute modified versions" (https://www.gnu.org/philosophy/philosophy.html)	We welcome recommendations!

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PATIENTS	Agents who are acted upon by other agents	We welcome recommendations!	We welcome recommendations!	Individuals who are treated by healthcare practitioners and whose data—Protected Health Information—is covered as Individually identifiable health information which "means any information, including demographic information collected from an individual, that--"(A) is created or received by a health care provider, health plan, employer, or health care clearinghouse; and "(B) relates to the past, present, or future physical or mental health or condition of an individual, the provision of health care to an individual, or the past, present, or future payment for the provision of health care to an individual, and--"(i) identifies the individual; or"(ii) with respect to which there is a reasonable basis to believe that the information can be used to identify the individual" (42USC 1301.1171(6)); "1. a person receiving health care from a licensed health professional. See inpatient; outpatient. 2. in linguistics, the entity that is affected by or undergoes the main action described in a clause or sentence, such as door in James opened the door or James knocked on the door. The patient is usually the grammatical object and is easiest to identify when this is the case; however, door is both subject and patient in such constructions as The door was opened by James (see passive voice), The door swung open, and (in some analyses) The door is open. In case grammar, the term experiencer is sometimes used for a patient who is a sentient being, such as Angus in Angus felt threatened or Angus saw it all" (APA).	"The patient, not the promiser, the liar, the thief, the murderer, but the promisee, the person lied to, the sufferer of the theft, the victim of murder. It is impossible even to state such typical moral situations as these without referring to patients as well as agents: no promises without someone having the promise made to him, no lies without someone lied to, no thefts, acts of violence or murders without victims, no acts of kindness without recipients. In cases like these there cannot be human agents without human patients; for these are things that people do to other people" (McPherson 1984, 172).	We welcome recommendations!

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PERSONAL DATA	Facts about an individual which may be used to identify them	We welcome recommendations!	We welcome recommendations!	"'Personal data' means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person" (General Data Protection Regulation, Article 4.1).""Sensitive Personal Data" are personal data, revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, trade-union membership; data concerning health or sex life and sexual orientation; genetic data or biometric data" (General Data Protection Regulation, Article 8.1)	We welcome recommendations!	"any information relating to an identified or identifiable individual (data subject); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as name, an indentification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person" (Art.4, Sec. 1, Regulation (EU) 2016/679, a.k.a. General Data Protection Regulation)
PERSUASION	The action or an act of persuading or attempting to persuade; the addressing of arguments or appeals to a person in order to induce cooperation, submission, or agreement; the presenting of persuasive reasoning or compelling arguments (OED)	See Persuasive technology	We welcome recommendations!	The process by which agent action becomes social structure, ideas become norms, and the subjective becomes the intersubjective"' (Finnemore and Sikkink, 1998: 914); "an active attempt by one person to change another person's attitudes, beliefs, or emotions associated with some issue, person, concept, or object" (APA).	Aristotle suggests that persuasion rests on three technical means of persuasion: ethos, pathos, and logos. Persuasion will not occur without speaker credibility. Persuasive efforts are lost unless emotional salience of the argument is conveyed. Persuasion will fail unless logically sound demonstrations of the persuasive points are made (See Aristotle's Rhetoric).	We welcome recommendations!

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PERSUASIVE TECHNOLOGY	(Also known as "Captology"). Software systems, which may or may not be integrated with specialized hardware, designed to change the behaviors or attitudes of end users in order to achieve a desirable end.	"Captology focuses on he planned persuasive effects of computer technology. Computers function as a tool or instrument to increase capabilities in order to reduce barriers, increase self-efficacy, provide information for better decision-making, change mental models; Computers function as a medium to provide experiences in order to provide first-hand learning, insight, visualization and resolve, and to promote understanding of cause-and-effect relationships. Computers function as social actors to create relationships in order to establish social norms, invoke social rules and dynamics, and provide social support or sanction" (Fogg, Cuelar and Danielson 2009, 110; 116)	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!
POLICY	Authoritative plans of action	We welcome recommendations!	"A specific scheme for managing resources, independent of the means for implementing the scheme" (LaPlante 2001, 373).	"A guide to action to change what would otherwise occur; a decision about amounts and allocations of resources; a statement of commitment to certain areas of concern; the distribution of the amount shows the priorities of decision makers. Public policy is policy at any level of government" (Porta 2016)	We welcome recommendations!	The representation of rules or relationships that makes it possible to determine if a requested access should be allowed, given the values of the attributes of the subject, object, and possibly environment conditions". Source(s): NIST SP 800-162 ; Statements, rules or assertions that specify the correct or expected behavior of an entity. For example, an authorization policy might specify the correct access control rules for a software component." Source(s): NIST SP 800-95 (Open Grid Services Architecture Glossary of Terms)

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PRINCIPLE/ PRINCIPLES	A fundamental source from which something proceeds; A primary element, force, or law which produces or determines particular results (OED)	Principles such as the Church-Turing Principle, are statements that may be testable hypotheses or axioms used in computation (Deutsch 1985). Use of the phrase "in principle" may be interpreted as "according to statements"	We welcome recommendations!	"1. a fundamental rule, standard, or precept, especially in matters of morality or personal conduct; 2. a proposition deemed to be so fundamental and obvious as to need no defense or support; 3. in the empirical sciences, a statement of an established regularity, similar to a law" (APA).	"the term "principles" to designate the most general normative standards of conduct" (Beauchamp 1995, 182); "A fundamental cause or universal truth, that which is inherent in anything. That which ultimately accounts for being. According to Aristotle, the primary source of all being, actuality and knowledge. (a) In ontology: first principles are the categories or postulates of ontology. (b) In epistemology: as the essence of being, the ground of all knowledge. Syn. with essence, universal, cause. -- J.K.F." (Runes 2004)	"A rule or standard, especially of good behavior". Source(s): NIST SP 800-27 Rev. A
PRIVACY	"The protection of select information through the use of mechanical or statistical masking mechanisms for the purpose of protecting individual or group dignity, desire for seclusion or concealment, property, secrets, or freedom of choice"	Freedom from surveillance (see Lyon and Zureik 1996). See also "Pretty good privacy (PGP)" or a proprietary encryption software for protecting email (Reilly 2004, 628).	Privacy engineering is defined by NIST as "privacy engineering means a specialty discipline of systems engineering focused on achieving freedom from conditions that can create problems for individuals with unacceptable consequences that arise from the system as it processes PII" (NISTIR 8062 2017, iv)	"One aspect of privacy is the withholding or concealment of information" (Posner 1977, 393). Bostwick gives a typology of privacy as: "the privacy of repose, the privacy of sanctuary, and the privacy of intimate decision. Repose means peace, quiet, and calm for the individual protected. Sanctuary means prohibiting other persons from seeing, hearing, and knowing (1456). The zone of intimate decision is an area within which the personal calculus used by an individual to make fundamental decisions must be allowed to operate without the injection of disruptive factors by the state. This privacy is less "freedom from" and more "freedom to" (1466)" (Bostwick 1976). The OECD Privacy Framework Privacy Principles include: collection limitation, data quality, purpose specification, use limitation, security safeguards, openness, individual participation, and accountability	Privacy is a multidimensional concept wherein features of behavior regulation relating to choice, control, and access, such as "having choice, protecting personal information, having control over one's information. Other features referenced what is commonly described as the content of privacy, for example, attending to bodily functions, personal information, medical information. The functions of privacy were expressed through features such as safety, security, independence, allows one to self-reflect, helps avoid scrutiny, or judgment. Features indicative of the psychological processes motivating behaviors of control, or following loss of control were mentioned, for example, a human need, concealing emotions, concealing embarrassing details, fear of adverse outcomes. Threats to privacy also emerged, for example, subject to violation, threatened on the Internet. Moreover, utterances included the states or conditions that allow privacy to be achieved, for example, being alone/ without company, with people you feel close to, anonymity, not being disturbed, intimacy, personal space" are prized (Vasalau, Joinson and Houghton 2015).	"Assurance that the confidentiality of, and access to, certain information about an entity is protected". Source(s): NIST SP 800-130

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PROPRIETARY	Owned as property	"A protocol confined to a particular proprietary set of software or hardware. This is in contrast to Internet protocols which are completely open" (Ince 2013).	We welcome recommendations!	"Proprietary capacity means the capacity or interest of a producer or handler that, either directly or through one or more intermediaries, is a property owner together with all the appurtenant rights of an owner including the right to vote the interest in that capacity as an individual, a shareholder, member of a cooperative, partner, trustee or in any other capacity with respect to any other business unit" (&CFR983.27)	"Pertaining to the ownership of and benefits derived from property, including intellectual property and a commercial or industrial enterprise" (Last 2007). "Defined and enforced in employment contracts rather than by substantive law, proprietary information encompasses both trade secrets as well as knowledge not eligible for trade secret protection" (Montville 2007, 1162).	Proprietary information: "Material and information relating to or associated with a company's products, business, or activities, including but not limited to financial information; data or statements; trade secrets; product research and development; existing and future product designs and performance specifications; marketing plans or techniques; schematics; client lists; computer programs; processes; and know- how that has been clearly identified and properly marked by the company as proprietary information, trade secrets, or company confidential information. The information must have been developed by the company and not be available to the Government or to the public without restriction from another source" Source(s): CNSSI 4009-2015 "
REDUNDANCY		"redundancy, the incorporation into a system design of more elements than are absolutely necessary, is the principal way to implement fault-tolerance. The redundant elements need not all be hardware components, they might also be additional software (software redundancy), additional time (time redundancy), and additional information (information redundancy). (Reilly 2004, 664); "In robotics, the number n degrees of mobility of the mechanical structure, the number m of operational sapce variables, and the number r of the operational space variables necessary to specify a given stask. If r<n the manipulator is kinematically redundant ans has (n-r) redundant degrees of mobility" (LaPlante 2001, 413).	"1. the use of parallel of series components in a system to reduce the possibility of failure. Similarly, referring to an increase in the number of components which can interchangeably perform the same function in a system, 2. the duplication of data in a database" (LaPlante 2001, 413).	"1. the property of having more structure than is minimally necessary, 2. in linguistics and information theory, the condition of those parts of a communication that could be deleted without loss of essential content" (APA).	We welcome recommendations!	We welcome recommendations!

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REGULATION	rules delivered by authoritative bodies to prescribe or proscribe conduct	"1. (institutional regulation) Control and supervision of organizations exercised by external authorities through the application of rules; 2. (media regulation, media controls) Laws and guidelines concerning media content and the conduct of media industries, which vary by country and platform (though broadcasting tends to be most heavily regulated). Media regulation can be divided into economic regulation, technical regulation, and content regulation" (Chandler and Munday 2016).	See also "regulator-- a controller that is designed to maintain the state of the controlled variable at a constant value, despite fluctuations of the load" (LaPlante 2001, 417).	"A rule individuals or firms are obliged to follow; or the procedure for deciding and enforcing such rules. Modern economies are subject to numerous forms of regulation. Regulations may be set and enforced by government bodies, or by quasi-autonomous non-governmental organizations (quangos). In the last resort regulation relies on legal sanctions, but the largest proportion of effective regulation is done by the regulators setting standards which organizations then try to comply with as a matter of self-discipline" (Black, Hashimzade adn Myles 2017).	We welcome recommendations!	"1. Government activity designed to monitor and guide private economic competition specific actions (characterized as economic regulation) have included placing limits on producers' prices and practices, and promoting commerce through grants or subsidies. Other actions emerging more recently (termed social regulation) have included regulating conditions under which goods and services are produced and attempting to minimize product hazards and risks to consumers, 2. There are many meanings of the term regulation in legal, economic and social sciences. Some of them are so wide, that include any kind of public interference in economics, by planning, granting, negotiating with economic operators, such as setting bodies of laws, administrative rulings, and precedents referred to environment protection, labour and sanitary conditions, etc" (UN Public Administration Glossary); "a law, rule, or other order prescribed by authority, especially to regulate conduct" (AGROVOC)
RESEARCH	Systematic inquiry into real phenomena	"Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view" (OECD Glossary of Statistical Terms 2013).	We welcome recommendations!	"Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program which is considered research for other purposes" (45CFR46.102(d)).	Emancipatory research is defined as "Politically engaged research aimed at the empowerment of oppressed people by revealing the social relations of knowledge production in which oppression is maintained. Contrary to the positivist tradition, claims to objectivity in knowledge production are interrogated and accountability to the subjects is emphasized. The method devolves control of the research agenda to the subjects at all stages: the planning, design, fieldwork, and analysis challenge hierarchical relations between researchers and researched. The research process is seen as a transformative experience for both researchers and subjects" (Elliot et al 2016).	The Declaration of Helsinki describes " Medical research involving human subjects must conform to generally accepted scientific principles, be based on a thorough knowledge of the scientific literature, other relevant sources of information, and adequate laboratory and, as appropriate, animal experimentation. The welfare of animals used for research must be respected. The design and performance of each research study involving human subjects must be clearly described and justified in a research protocol" (https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/)

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
RESEARCH AND DEVELOPMENT	activities intended to produce novel information or products	We welcome recommendations!	"Research and development is a department in software organizations hwere new methods, systems, and software are exxplored. There is a correlation between long-term success of a company and efforts put in research and development" (LaPlante 2001, 421).	We welcome recommendations!	We welcome recommendations!	"Research and development by a market producer is an activity undertaken for the purpose of discovering or developing new products, including improved versions or qualities of existing products, or discovering or developing new or more efficient processes of production" (System of National Accounts Glossary 1993, Para 6.142)
RESILIENCE	elastic ability to recover from disaster	We welcome recommendations!	"How easily a material returns to its original shape after an elastic deformation" (Gorse, Johnston and pritchard 2012).	"The ability of the system to withstand either market or environmental shocks without losing the capacity to allocate resources efficiently" (Perrings 2006, 418); "the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands" (APA)	"The abilty of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change" (Adger 2000, 347).	"capacity of a natural system to recover from disturbance" (United Nations Statistics Division, Environment Glossary); "The ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions" (IPCC 2012); "Resilience is the ability of people, communities and systems that are confronted by disasters or crises to withstand damage and to recover rapidly. FAO's work tries to improve the resilience of households, communities and institutions to more effectively prevent and cope with threats and disasters that impact agriculture, food security and nutrition."; "The ability to quickly adapt and recover from any known or unknown changes to the environment through holistic implementation of risk management, contingency, and continuity planning" Source(s): NIST SP 800-34 Rev. 1 ; The ability to continue to: (i) operate under adverse conditions or stress, even if in a degraded or debilitated state, while maintaining essential operational capabilities; and (ii) recover to an effective operational posture in a time frame consistent with mission needs" Source(s): NIST SP 800-137 (Adapted from NIST SP 800-39)

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RESPONSIBLE	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	We welcome recommendations!	National Society of Professional Engineers, Fundamental Canon #6 "6. Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession." Specific responsibilities include: "responsibility for coordination of an entire project and sign and seal the engineering documents for the entire project, provided that each technical segment is signed and sealed only by the qualified engineers who prepared the segment" (II, 2, c); ". Engineers shall accept personal responsibility for their professional activities, provided, however, that engineers may seek indemnification for services arising out of their practice for other than gross negligence, where the engineer's interests cannot otherwise be protected." (III, 8).	"A government that is responsive to public opinion, that pursues policies that are prudent and mutually consistent, and that is accountable to the representatives of the electors" (Grant 2016).	"To be morally responsible for something, say an action, is to be worthy of a particular kind of reaction—praise, blame, or something akin to these—for having performed it" (Eshleman 2016).	Responsible individual: " A trustworthy person designated by a sponsoring organization to authenticate individual applicants seeking certificates on the basis of their affiliation with the sponsor" Source(s): NIST SP 800-32 "

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RIGHTS	That which is considered proper, correct, or consonant with justice, and related uses; the standard of permitted and forbidden action within a particular sphere	We welcome recommendations!	We welcome recommendations!	"Legal or moral recognition of choices or interests to which particular weight is attached. Very often, statements about rights draw on more than one of the four relations identified: 1. A right is a liberty: a person has a liberty to X means that he has no obligation not to X. 2. A right is a right 'strictly speaking' or a claim right: a person has a right to X means others have a duty to him in respect of X. 3. A right is a power, that is, the capacity to change legal relations (and others are liable to have their position altered). 4. A right is an immunity, that is the absence of the liability to have the legal position altered (Reeve 2016).	"Rights are entitlements (not) to perform certain actions, or (not) to be in certain states; or entitlements that others (not) perform certain actions or (not) be in certain states... Rights-assertions can be categorized, for example, according to: Who is alleged to have the right: Children's rights, animal rights, workers' rights, states' rights, the rights of peoples. What actions or states or objects the asserted right pertains to: Rights of free expression, to pass judgment; rights of privacy, to remain silent; property rights, bodily rights. Why the rightholder (allegedly) has the right: Moral rights are grounded in moral reasons, legal rights derive from the laws of the society, customary rights exist by local convention. How the asserted right can be affected by the rightholder's actions: The inalienable right to life, the forfeitable right to liberty, and the waivable right that a promise be kept" (Wenar 2015). " See also, Right: " In an ethical sense an action conforming to the moral law. Also the correlative of duty. In a legal sense, any claim against others, recognized by law. Political rights, the capacity of exercizing certain functions in the formation and administration of government -- the right to vote, to be elected to public office, etc. Natural rights, as against positive rights, those claims or liberties which are not derived from positive law but from a "higher law", the law of nature. The right to live, the right to work, the "pursuit of happiness", the right to self-development are sometimes considered natural rights. -- W.E.	The Universal Declaration on Human Rights enumerates the rights enshrined in international law.

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RISK	Possible loss or harm	"Risk exposure is [equal to] the probability of an unsatisfactory outcome and the loss to the parties affected if the outcome is unsatisfactory" (Boehm 1991, 33).	"A measure of the cost of operating a system, derived by combining hazard probability, danger, and severity of mishap. Risk is defined as the possibility of loss or injury. Risk exposure is defined by the relationship RE= P(UO)*L(UO) where RE is the risk exposure, P(UO) is the probability of an unsatisfactory outcome, and P(LO) is the loss to the affected parties if the outcome is unsatisfactory (LaPlante 2001, 426); "The probability that a substance or situation will produce harm under specified conditions. Risk is a combination of two factors: The probability that an adverse event will occur (such as a specific disease or type of injury) and the consequences of the adverse event. Risk encompasses impacts on public health and on the environment, and arises from exposure and hazard. Risk does not exist if exposure to a harmful substance or situation does not or will not occur. Hazard is determined by whether a particular substance or situation has the potential to cause harmful effects" (Presidential Commission on Risk Assessment and Risk Management 1997).	Risk = Probability X Consequence; "the probability of experiencing loss or harm that is associated with an action or behavior" (APA).	"1. risk = an unwanted event which may or may not occur. 2. risk = the cause of an unwanted event which may or may not occur. 3. risk = the probability of an unwanted event which may or may not occur. 4. risk = the statistical expectation value of an unwanted event which may or may not occur. 5. risk = the fact that a decision is made under conditions of known probabilities ("decision under risk" as opposed to "decision under uncertainty")" (Hansson 2014).	"T he combination of the probability of occurrence of harm and the severity of that harm. [ICH Q9, ISO/IEC Guide 51, Guidance for Industry: Quality Systems Approach to Pharmaceutical cGMP Regulations, FDA]"; "A measure of the extent to which an entity is threatened by a potential circumstance or event, and typically a function of: (i) the adverse impacts that would arise if the circumstance or event occurs; and (ii) the likelihood of occurrence. Information system-related security risks are those risks that arise from the loss of confidentiality, integrity, or availability of information or information systems and reflect the potential adverse impacts to organizational operations (including mission, functions, image, or reputation), organizational assets, individuals, other organizations, and the Nation". Source(s): NIST SP 800-171 (Updates to version published June 2015) (Adapted from FIPS 200)
RISK ANALYSIS	evaluation of the severity and likelihood of harms	"A systematic and disciplined approach to analysing risk—and thus obtaining a measure of both the probability of a hazard occurring and the undesirable effects of that hazard" (Butterfield and Ngondi 2016).	"Risk analysis is the assessment of the loss probability and loss magnitude for each identified risk item. Risk identification is the production of a list or project specific risk items that are likely to compromise a project's success" (LaPlante 2001, 426).	"The measurement and analysis of risk associated with a business, project, or decision. It involves the identification of risk, the classification of risks in regard to their impact and likelihood, and a consideration of how they might best be managed" (Law 216).	We welcome recommendations!	"method of evaluating the probability of the adverse effects of a substance, industrial process, technology or natural process" (United Nations Statistics Division: Environment Glossary); "Method to assess and characterise the critical parameters in the functionality of an equipment or process. [EU GMP Guide, Annex 15] The estimation of the risk associated with the identified hazards. [ICH Q9]"; The process of identifying the risks to system security and determining the likelihood of occurrence, the resulting impact, and the additional safeguards that mitigate this impact. Part of risk management and synonymous with risk assessment" Source(s): NIST SP 800-27 Rev. A

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RISK MANAGEMENT SYSTEM	process for mitigating harms identified through a risk analysis	"The collection of processes and procedures involved in analysing, identifying, evaluating, controlling, and monitoring on an ongoing basis the risks in a given system" (Butterfield and Ngondi 2016).	Risk management is the problem of identifying and controlling risks. Risk management is divided into the following tasks: risk assessent, risk identification, risk analysis and prioritization, risk control, risk management planning, risk resolution, and monitoring" (LaPlante 2001, 426).	"Elimination or mitigation of negative consequences of risk. This involves identification, analysis, and assessment of risk, as well as the development and application of the appropriate measures. Risk management strategies can be broadly classified into risk avoidance, risk pooling, risk reduction, risk retention, and risk sharing" (Black, Hashimzade and Myles 2017).	We welcome recommendations!	Adapted from the European medicines Association: "A set of activities and interventions designed to identify, characterise, prevent or minimise risks relating to medicines, including the assessment of the effectiveness of those activities and interventions." (EMA Glossary); "A set of pharmacovigilance activities and interventions designed to identify, characterise, prevent or minimise risks relating to a medicinal product, including the assessment of the effectiveness of those activities and interventions. [Directive 2001/83/EC]"; "A structured approach used to oversee and manage risk for an enterprise" Source(s): CNSSI 4009-2015
RISK MINIMIZATION ACTIVITY	activities designed to mitigate harms identified through risk analysis	We welcome recommendations!	See also "risk resolutio and monitorin--production of a situation in which the risk items are eliminated or resolved. Risk monitoring involves tracking the project's progress twoards resolving its risk items and taking corrective action where appropriate" (LaPlante 2001, 426).	We welcome recommendations!	We welcome recommendations!	A public health intervention intended to prevent or reduce the probability of the occurrence of an adverse reaction associated with exposure to a medicine or to reduce its severity if it occurs. (Adapted from the EMA Glossary); "Prioritizing, evaluating, and implementing the appropriate risk-reducing controls/countermeasures recommended from the risk management process. A subset of Risk Response". Source(s): NIST SP 800-30 (CNSSI 4009)
ROBOTICS	Study and development of mechanical human replacements	"Robotics is the study of reprogrammable, multifunctional manipulators designed to move materials, parts, tools or specialized devices through programmed motions for the performance of a variety of tasks. Robots can be ssaid to be programmable machines that either in performance or appearance imitate human activities" (Reilly 2004, 671).	See also Robot Programming Language: "robot programming language is a computer programming language which has special features that apply to the problem of programming manipulators.Robot programming languages can be spliced into three categories: 1. specialized manipulator languages which are built by developing a completely new language, 2. robot library for an existing computer language. it is a popular computer language augmented by a library of robot-specific subroutines. 3. robot library for a new general-purpose language" (LaPlante 2001, 427).	"the probability of experiencing loss or harm that is associated with an action or behavior" (APA).	See discussion of Animats and animacy; "Animats are synthetic animals, either computer simulated or robotic" (Mandik 2002, 10); "Animacy" is energetically expensive moving and seeking behavior (Korienek and Uzgalis 2002, 82-83).	The European Parliament defines "the following characteristics of a smart robot: 1. the acquisition of autonomy through sensors and/or by exchanging data with its environment (inter-connectivity) and the trading and analysing of those data; 2. self-learning from experience and by interaction (optional criterion); 3. at least a minor physical support; 4. the adaptation of its behaviour and actions to the environment; and 5. absence of life in the biological sense" (P8_TA(2017)0051)

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SAFETY	Prevention of accidents	AI safety is described as mitigating accident risks from machine learning. "The problem of accidents in machine learning systems. We define accidents as unintended and harmful behavior that may emerge from machine learning systems when we specify the wrong objective function, are not careful about the learning process, or commit other machine learning-related implementation errors" (Amodei et al 2016, 1-2) ; "Safety is the probabilty that a system will eiehter perform its functions corectly or will discontinue its functions in a well-defined safe manner. For system safety, all causes of failures which lead to an unsafe state shall be included: hardware failures, software failures, failures due to electrical interference, and human interaction, and failures in the controlled object. The system sasfety also depends on many factors which cannot be quantified by can only be considered qualitatively" (LaPlante 2001, 433).	The state of Michigan has defined a safety engineer as "Safety Engineers make sure workplaces are safe. They monitor the general work environment, inspect buildings and machines for hazards and safety violations, and recommend safety features in new processes and products. Safety Engineers evaluate plans for new equipment to assure that it is safe to operate and investigate accidents to determine the cause and how to keep them from happening again. Safety Engineers also design special safety clothing and safety devices to protect workers from injury when operating machines. They may educate workers through safety campaigns or classes. Some Safety Engineers specialize in fire prevention They analyze the design of buildings and the items in them to determine the best place to put fire extinguishers, sprinklers and emergency exits. Others specialize in product safety. They conduct research to make sure products are safe and recommend how a company can change its product design to make it safe" (Michigan.gov).	We welcome recommendations!	We welcome recommendations!	"the condition of being safe or without danger" (AGROVOC)

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SINGULARITY	convergence of states or events into one integrated whole	"Somewhere in space–time where general relativity theory predicts that certain quantities, such as the curvature of space–time, become infinite. For example, singularities are predicted to occur at the big bang and at the centre of a black hole. The existence of singularities is usually regarded as a limitation of general relativity theory. It has been suggested that singularities will not occur in a full theory of quantum gravity due to space–time being an emergent quantity in such a theory" (Law and Rennie 2015).	"In continuum modelling of material behaviour, where a quantity tends to an infinite value, such as the elastic stress at the tip of a sharp crack having zero crack tip radius. In practice, the radius cannot be smaller than two atoms across, so the stress is bounded. Furthermore in ductile solids, the stress is limited by yielding. An example in potential-flow theory is the infinite velocity that is predicted to occur when flow emerges from a source or enters a sink" (Atkins and Escudier 2013).	"The critical threshold or division between two states of being, e.g. between boiling and not boiling. At such a point it is impossible to decide whether the object is in one state of being or another—thus, one would have to say it is neither boiling nor not-boiling and in this precise sense it is properly referred to as undecidable" (Buchanan 2018).	"an explosion to ever-greater levels of intelligence, as each generation of machines creates more intelligent machines in turn" (Chalmers 2010, 7); "In cosmology, a point at which ordinary calculations break down because certain physical quantities become infinite: for example, the 'event' at the beginning of the big bang, at which in some theories the density of matter and the curvature of spacetime is infinite" (Blackburn 2016).	"A trait marking one phenomenon or aspect as distinct from others; something singular, distinct, peculiar, uncommon or unusual" (IPCC 4th)
SOCIAL NORMS	Formal and informal rules defined by a social group	We welcome recommendations!	We welcome recommendations!	"any of the socially determined consensual standards that indicate (a) what behaviors are considered typical in a given context (descriptive norms) and (b) what behaviors are considered proper in the context (injunctive norms). Whether implicitly or explicitly, these norms not only prescribe the socially appropriate way to respond in the situation (the "normal" course of action) but also proscribe actions that should be avoided if at all possible. Unlike statistical norms, social norms include an evaluative quality such that those who do not comply and cannot provide an acceptable explanation for their violation are evaluated negatively. Social norms apply across groups and social settings, whereas group norms are specific to a particular group. See also social convention" (APA).	"Rules indicating what is considered to be acceptable or appropriate behavior for the members of some group. Social norms can be either formal and explicit (e.g., traffic regulations) or informal and implicit (e.g., unspoken rules governing how close we stand to others while engaging in conversation" (Baron and Byrne 1981, 268; quoted in Shaffer 1983).	See morals

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SOCIAL BENEFIT	positive return to a community or communities from a process or organization	We welcome recommendations!	We welcome recommendations!	"Any action entails private costs and private benefits to the individual who initiates the action. It may also entail costs and benefits that are not borne by the individual—termed external costs and external benefits. The sum of private and external costs is termed the social cost. Social benefits similarly reflect the sum of private and external benefits. Thus, social costs reflect the cost to everyone in society, while private costs include costs only to parties in the transaction. Examples where social costs differ from private costs include pollution or deaths caused by drunken driving. An example where the social benefit exceeds the private benefit is the positive spillover effects of research and development" (Calhoun 2002).	We welcome recommendations!	"Social benefits are current transfers received by households intended to provide for the needs that arise from certain events or circumstances, for example, sickness, unemployment, retirement, housing, education or family circumstances." (System of National Accounts Glossary, 1993, paragraph 8.7)
SOCIAL COSTS	negative externality placed on a community or communities due to actions by an organization or its processes	We welcome recommendations!	We welcome recommendations!	See social benefit	We welcome recommendations!	External costs; Environmental externalities
SOCIO-TECHNICAL SYSTEM	"a social system operating on a technical base" (?)	Integration of community and personal systems with informational and mechanical systems (the-encyclopedia-of-human-computer-interaction-2nd-ed)	We welcome recommendations!	"an approach to the design and evaluation of work systems... based on the theory that tasks and roles, technology, and the social system constitute a single interrelated system, such that changes in one part require adjustments in the other parts" (APA).	We welcome recommendations!	"...humans and technologies work together to produce outcomes to effectively respond to societal challenges" "Science, technology and innovation for the post-2015 development agenda: Report of the Secretary-General" (E/CN.16/2014/2, p.4: UN Economic and Social Council, Commission on Science and Technology for Development, Seventeenth Session, 2014).

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SPECIFICATION	description of requirements for a product or process	" formal description of a system, or a component or module of a system, intended as a basis for further development. The expression of the specification may be in text in a natural language (e.g. English), in a specification language, which may be a formal mathematical language, and by the use of specification stages of a methodology that includes a diagrammatic technique. Characteristics of a good specification are that it should be unambiguous, complete, verifiable, consistent, modifiable, traceable, and usable after development" (Butterfield and Ngondi 2016).	"A statement of the design of development requirements to be satisfied by a system or product. 2. A document stating requirements. A specification should refer to or include drawings, patterns, or other relevant documents and indicate the means and the criteria whereby conformity can be checked" (LaPlante 2001, 461).	We welcome recommendations!	We welcome recommendations!	"An assessment object that includes document-based artifacts (e.g., policies, procedures, plans, system security requirements, functional specifications, and architectural designs) associated with an information system" Source(s): NIST SP 800-137 (NISTIR 7298); "A list of tests, references to analytical procedures, and appropriate acceptance criteria that are numerical limits, ranges, or other criteria for the test described. It establishes the set of criteria to which a material should conform to be considered acceptable for its intended use. "Conformance to specification" means that the material, when tested according to the listed analytical procedures, will meet the listed acceptance criteria. [EU GMP Guide, Part II, ICH Q7, ICH Q6A, Q6B, Guidance for Industry cGMP for Phase 1 Investigational Drugs, FDA]"
STANDARDS	principle or baseline product or process used as the comparator in judgments of fitness or conformity	We welcome recommendations!	"A set of documents that define a standardized set of methods, procedures, etc" (Gorse, Johnston and Pritchard 2012).	the APA defines "standards of practice as: a set of guidelines that delineate the expected techniques and procedures, and the order in which to use them, for interventions with individuals experiencing a range of psychological, medical, or educational conditions" (APA)	See also Norms	"Something established by authority, custom, or general consent as a model or example." Source(s): NIST SP 800-130 ; "A rule, condition, or requirement: (1) Describing the following information for products, systems, services or practices: (i) Classification of components. (ii) Specification of materials, performance, or operations; or (iii) Delineation of procedures; or (2) With respect to the privacy of individually identifiable health information" Source(s): NIST SP 800-66 Rev. 1 (45 C.F.R., Sec. 160.103) ; "Set of rules or codes mandating or defining product performance (e.g., grades, dimensions, characteristics, test methods, and rules for use). Product, technology or performance standards establish minimum requirements for affected products or technologies" (IPCC 4th, 87)

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SUBSIDIARITY	process of decision-making where the decisions are made by those whose lives are most closely affected by that decision	We welcome recommendations!	We welcome recommendations!	"A doctrine holding that higher levels of an organizational hierarchy should refrain from assuming responsibility for tasks that can be successfully accomplished by subordinate units. The doctrine of subsidiarity is commonly associated with the European Union (EU); tasks that cannot be discharged by member states are handed up to the EU's central administrative bodies. Conversely, the principle limits the EU to those functions that cannot be carried out by member states" (Calhoun 2002).	"The ``principle of subsidiarity" regulates authority within a political order, directing that powers or tasks should rest with the lower-level sub-units of that order unless allocating them to a higher-level central unit would ensure higher comparative ef®ciency or effectiveness in achieving them." (Follesdal 1998, 190).	"Subsidiarity is the idea that a central authority should have a subsidiary function, performing only those tasks which cannot be performed effectively at a more immediate or local level" (UN Public Administration Glossary); "The principle that decisions of government (other things being equal) are best made and implemented, if possible, at the lowest most decentralized level closest to the citizen. Subsidiarity is designed to strengthen accountability and reduce the dangers of making decisions in places remote from their point of application. The principle does not necessarily limit or constrain the action of higher orders of government, it merely counsels against the unnecessary assumption of responsibilities at a higher level." (IPCC 2012)
SUPER-INTELLIGENCE	The capacity to apprehend what is beyond the normal range of human intelligence or understanding; spiritual or paranormal insight or awareness, spiritualism. (OED)	Bostrom defines superintelligence as "an intellect that is much smarter than the best human brains in practically every field, including scientific creativity, general wisdom and social skills" (2006,11)	We welcome recommendations!	We welcome recommendations!	Marcus, Hibbard, and Yudkowsky debated the possibility of a "Friendly superintelligence" as imbued with a "motivation of benevolence towards humanity" but whose superintelligent maximization might go awry leading based upon faults in conceptualizations of AI motivation, leading to the "Smiley Tiling Berserker" scenario, faltering on the "Do what I mean" vs "Do what I said" problem, or becoming a "maverick nanny with a dopamine drip" (see Loosemore 2014).	We welcome recommendations!

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SUSTAINABILITY	The Brundtland Report defines sustainable development as "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"	We welcome recommendations!	"The Natural Step" perspective on sustainability suggests four "system conditions" amenable to engineering design and control: Condition 1: Finite materials (including fossil fuels) should not be extracted at a faster rate than they can be redeposited in the Earth's crust. Condition 2: Artificial materials (including plastics) should not be produced at a faster rate than they can be broken down by natural processes. Condition 3: The biodiversity of ecosystems should be maintained, whilst renewable resources should only be consumed at a slower rate than they can be naturally replenished. Condition 4: Basic human needs must be met in an equitable and efficient manner" (Hammond 2004, 616)	A sustainable system is one which survives or persists (Costanza and Patten 1995, p. 193); "A concept that is used to describe community and economic development in terms of meeting the needs of the present without compromising the ability of future generations to meet their needs" (Park & Allaby 2017).	"Sustainability is the continued use of program components and activities for the continued achievement of desirable program and population outcomes" (Scheirer and Dearing 2011, 2060).	"Ability to continue a condition or situation over a considerable period of time without degradation of the environment" (INIS); "The ability of a process or human activity to meet present needs but maintain natural resources and leave the environment in good order for future generations" (AGROVOC)
SYSTEM	Integration of individual units into a purposive whole; "(in anatomy) a group of organs and tissues associated with a particular physiological function, such as the nervous system" (Martin and McFerran 2017); "An assembly of components or elements connected together in an organized way to produce outputs; the components of the assembly are affected by being in the system and the behaviour of the system is changed if any component leaves it" (Law 2016).	"A state of a system may be defined as an undisturbed motion that is restricted by as many conditions or data as are theoretically possible without mutual interference or contradiction" (Dirac 1981, 11); See also systems programming, "systems programming is concerned with the operating systems, utility programs, and library software needed to keep computer systems running smoothly" (Reilly 2004, 743).	"A system is a complete set of components which interact or are interdependent from one stage to another" (Blanchard and Fabrycky, 2011 chapter 1); "A system is a collection of components, items, or equipment organized or designed to accomplish a specific function or set of functions. It can be based on one or more processes, hardware, software, facilities, and people. System is a heirarchic concept: a system at one level may be a subsstem viewed from a higher level" (LaPlante 2001, 483).	"Socio-technical systems [are] arrangements of multiple purposive actors and material artifacts interacting in ways that require analyzing the total system and not just the constituent subsystems. (Rophol 1999, quoted in Bauer and Herder 2004); "1. any collective entity consisting of a set of interrelated or interacting elements that have been organized together to perform a function; 2. an orderly method of classification or procedure (e.g., the Library of Congress Classification system); 3. a structured set of facts, concepts, and hypotheses that provide a framework of thought or belief, as in a philosophical system; 4. a living organism or one of its major bodily structures (e.g., the respiratory system)" (APA)	Systems philosophy is one component of van Bertalanffy's systems' theory. Systems philosophy includes: systems ontology, systems paradigms, systems axiology, applied systems philosophy. Laszlo describes "philosophical value theory can be reconstructed in the framework of systems philosophy by conceiving of values as expressions of various states of adaptation of the individual to his biological and sociocultural environment" (1973, 250).	"Any organized assembly of resources and procedures united and regulated by interaction or interdependence to accomplish a set of specific functions. See information system (IS)" Source(s): CNSSI 4009-2015 ; "A combination of interacting elements organized to achieve one or more stated purposes." Source(s): NIST SP 800-161 (ISO/IEC 15288)

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
TECHNICAL NORMS	Parameters of action which a professional community has determined confer some benefit based upon their uses	We welcome recommendations!	See also technical reference: "A technical reference is a document describing the technical aspects of a system. The system present both hardware and software aspects" (LaPlante 489).	We welcome recommendations!	"A technical norm is a factual statement about the relationship between means and ends.... More generally, a technical norm is a statement of the form: If you want A, and you believe that you are in a situation B, then you ought to do X" (Niiniluoto 1993, 11-12); see also Techne: "The set of principles, or rational method, involved in the production of an object or the accomplishment of an end; the knowledge of such principles or method; art. Techne resembles episteme in implying knowledge of principles, but differs in that its aim is making or doing, not disinterested understanding. -- G.R.M."	We welcome recommendations!
TECHNOLOGY	The branch of knowledge dealing with the mechanical arts and applied sciences; the study of this; The application of such knowledge for practical purposes, esp. in industry, manufacturing, etc.; the sphere of activity concerned with this; the mechanical arts and applied sciences collectively (OED); Application of scientific, mathematical, design, or engineering practices to creation of artifacts (SM-J)	"Technology is the application of science, engineering and industrial organization to create a human-build world" (Rhodes 1999, p. 19); "Technology is a collective term for a group of practices, tools, techniques, and/or methods" (LaPlante 2001, 489).	"technology is constituted by the systematic study and practice of the making and using of artifacts and to some extent by the physical artifacts themselves" (Mitcham 2004, 328)	NIST defines information technology as, "Any equipment or interconnected system or subsystem of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the executive agency. For purposes of the preceding sentence, equipment is used by an executive agency if the equipment is used by the executive agency directly or is used by a contractor under a contract with the executive agency which—1) requires the use of such equipment; or 2) requires the use, to a significant extent, of such equipment in the performance of a service or the furnishing of a product. The term information technology includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources" (NIST 2013).	In philosophy of technology, techne is referred to as related to the concept of technology. Feenberg describes it as "the word techne in ancient Greed signifies the knowledge or the discipline associated with a form of poiesis (the practical activity of human production). Each techne includes a purpose and meaning for its artifacts (2006, 2). Techne, is variously defined as a type of productive knowledge, whether technical knowledge, theoretical knowledge, or moral knowledge (Roochnik 1986).	"The practical application of knowledge to achieve particular tasks that employs both technical artefacts (hardware, equipment) and (social) information ('software', know-how for production and use of artefacts)." (IPCC 4th, 88); INIS defines [appropriate technology] A technology anywhere between the simplest and the most sophisticated that is appropriate for accomplishing a particular task
TERMINOLOGICAL SYSTEM	purposeful organization of terms or other symbols to ease understanding across persons or platforms	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!	We welcome recommendations!	"A concept system with designations for each concept" (ISO/IEC FDIS 11179-1 "Information technology - Metadata registries - Part 1: Framework", March 2004)

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TEST	Testing is defined as assessment of the fitness of a product to achieve its stated goals	Models of software testing emphasize different testing goals. “Demonstration phase models test to make sure that the software satisfies its specification, while destruction phase models test to detect implementation faults. Life Cycle Evaluation models test to detect requirements, design and implementation faults while Life Cycle Prevention models test to prevent requirements, design and implementation faults” (Gelperin and Hetzel 1988, 688). Test data is a data set used at the end of the model building process to determine how well the model might fit the full data; n software engineering, “Segment testing requires each statement in the program to be executed by at least one test case. Branch testing asks that each transfer of control (branch) in the program is exercised by at least one test case and is usually considered to be a minimal testing requirement. Path testing requires that all execution parts in a program are tested but is impractical since even small programs can have a huge (possibly infinite) number of paths (Ntafos 1988, 868).	“A test is a technical operation that consists of verifying functionalities for a given product, process, or service according to the specified procedure” (LPlante 2001, 491). I	“1. any procedure or method used to examine or determine the presence of some factor or phenomenon; 2. a standardized set of questions or other items designed to assess knowledge, skills, interests, or other characteristics of an examinee; 3. a set of operations, usually statistical in nature, designed to determine the validity of a hypothesis” (APA).	We welcome recommendations!	We welcome recommendations!
TESTING	procedures for assessing competence or quality of something or someone	See also “debugging” or correction of syntactic errors, logical errors, or algorithmic errors in a computer program (Reilly 2004, 248).	“Testing is operating a system (possibly under unrealistic conditions of use) in order to detect faults” (LaPlante 2001, 491).	“The process of assessing and measuring a learner’s attainment in a task, a lesson, a subject, or a programme of study” (Wallace 2015).	We welcome recommendations!	Subjection to specific planned procedures calculated to reveal any deficiencies.(INIS)

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
TRAINING	Goal oriented teaching, particularly to develop a skill	Training data is a portion of data used to fit a model; "Trainability is the property of an algorithm or process by which it can be trained on sample data and thus rendered adapable to different situations" (LaPlante 2001, 499)	We welcome recommendations!	"A training program is the method through which the State agency carries out a plan of educational and training activities to improve the operation of its programs. (a)Initial in-service training means a period of intensive, task-oriented training to prepare new employees to assume job responsibilities. (b)Continuing training means an on-going program of training planned to enable employees to: (1) Reinforce their basic knowledge and develop the required skills for the performance of specific functions, and (2) acquire additional knowledge and skill to meet changes such as enactment of new legislation, development of new policies, or shifts in program emphasis. (c)Full-time training means training that requires employees to be relieved of all responsibility for performance of current work to participate in a training program. (d)Part-time training means training that allows employees to continue full time in their jobs or requires only partial reduction of work activities to participate in a training program outside of the State or local agency. (e)Long-term training means training for eight consecutive work weeks or longer. (f)Short-term training means training for less than eight consecutive work weeks" (45CFR 235.61); ; "The process of improving workforce skills. This may be done by formal instructional courses, provided by employers or by educational institutions, either before or during employment. Such courses may be full- or part-time. Training can also be provided on the job by working under the supervision of more experienced workers. Most firms which provide any training make some use of both methods. General training, for example, increases numeracy and improves the skills of the worker in any form of employment. Specific training, such as in the operation of specialized equipment, enhances the worker's skills only for the firm providing the training" (Black, Hashimzade and Myles 2017); "An exercise programme designed to assist the learning of skills, to improve physical fitness, and thereby to prepare an athlete for a particular com-	"Ethical training in a company is directed to the company employees and aims to enable each organisation member to apply moral reasoning tools to discuss and tackle ethical questions connected with corporate activities...Ethical training in a company is directed to the company employees and aims to enable each organisation member to apply moral reasoning tools to discuss and tackle ethical questions connected with corporate activities ethical training can help the organisation to: Build understanding around the reason why certain organisational principles and rules can be shared as the result of a fair agreement; Provide an opportunity for a real dialog between the company and its employees, in order to reach an agreement supporting compliance with principles, values and rules of conduct. The purpose of ethical training is to enable employee to identify and deal with ethical problems, developing their moral intuitions, which are implicit in choices and actions. Ethical training help each member of the organisation to judge the moral legitimacy of her/his decisions, enabling them to apply moral principles and values in business decision-making (De Colle, Sacconi and Baldin 2003).	"Development or upgrading of a particular skill, usually by intensive or specialized methods; for broad, more leisurely instruction, use EDUCATION (INIS)"

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TRANSPARENCY	Easily seen through, recognized, understood, or detected (OED); Sufficient illumination to confer comprehension	"When chances are made to a computer's hardware or software configuration, which do not require any action on a user's part, the chances are said to be transparent to the user. This does not mean that the user will see no efect of the change, just that no action is required by the user to experience it" (Reilly 2004, 760).	We welcome recommendations!	Transparency is a characteristic which describes a process whereby information is requested and then disclosed completely within the limits of public law, without distortion, and with respect to the computational and cognitive capacities of the information recipient in order to enable those recipients to interpret the information so that they are able to make rational, informed, decisions; "Openness and clarity in how research was conducted and for what purpose. Transparency in the aims, objectives, methods, and outcomes of research is important to enable readers to understand and replicate a study, and to establish trust and accountability in the research findings and their interpretation" (Castree, Kitchin, Rogers 2013).	"Information transparency is not an ethical principle per se, seeing that it can be ethically neutral, but it can easily become an ethically 'enabling" or "impairing" factor, that is a proethical condition, when the disclosed information has an impact on ethical principles. Such an impact depends on at least two types of relationship that occur between disclosed information and ethical principles. One is dependence: some amount of information is required in order to endorse ethical principles. The other is regulation: ethical principles regulate information flow by constraining its access, usage, dissemination and storage. Information transparency is ethically enabling when it provides the information necessary for the endorsement of ethical principles (dependence) or (and this might be an inclusive or) when it provides details on how information is constrained (regulation). Conversely, ethical principles can be impaired if false details (misinformation) or inadequate or excessive amounts of information are disclosed. Accountability, safety, welfare and informed consent are examples of ethical principles that depend on the disclosure of some information in order to be endorsed" (Turilli and Floridi 2009, 107)	"Transparency refers to unfettered access by the public to timely and reliable information on decisions and performance in the public sector, as well as on governmental political and economic activities, procedures and decisions" (UN/DPADM, "Public Sector Transparency and Accountability in ed Arab Countries: Policies and Practices", p.11)
TRIPLE BOTTOM LINE	"People, Planet, Profit"	We welcome recommendations!	We welcome recommendations!	"3BL (triple bottom line) advocates believe that social (and environmental) performance can be measured in fairly objective ways, and that firms should use these results in order to improve their social (and environmental) performance. Moreover, they should report these results as a matter of principle, and in using and reporting on these additional "bottom lines' firms can expect to do better by their financial bottom line in the long run" (Norman and MacDonald 246); "encompasses the financial, social, and environmental outcomes of business activity, conceived as equally legitimate dimensions of business performance. The term expresses the belief that companies should not be narrowly focused on economic performance (see shareholder value) but should be managed to serve the interests of multiple stakeholders" (Heery and Noon 2017)	"The Triple Bottom Line is based on the idea that a firm should measure its performance in relation to stakeholders including local communities and governments, not just those stakeholders with whom it has direct, transactional relationships (such as employees, suppliers and customers). ... The TBL adds social and environmental measures of performance to the economic measures typically used in most organizations. Environmental performance generally refers to the amount of resources a firm uses in its operations (e.g. energy, land, water) and the by-products its activities create (e.g. waste, air emissions, chemical residues etc.). Social performance generally refers to the impact a firm (and its suppliers) has on the communities in which it works" (Hubbard 2006, 180).	We welcome recommendations!

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
TRUST	Firm belief in the reliability, truth, or ability of someone or something; To believe or accept a statement, story, etc., without seeking verification or evidence for it (OED)	"Trust is the willingness to beleive messages, especially access control messages, without further authentication" (LaPlante 505); Trust models are developed for multi-agent communication: "A reputation-based trust model collects, distributes, and aggregates feedback about participants' past behavior. These models help agents decide whom to trust, encourage trustworthy behavior, and discourage participation by agents who are dishonest. Reputation-based trust models are basically divided into two categories based on the way information is aggregated from an evaluator's perspective. They are "Direct/Local experience model" and "Indirect/Global reputation model" where direct experience is derived from direct encounters or observations (firsthand experience) and indirect reputation is derived from inferences based on information gathered indirectly (secondhand evidence such as by word of mouth)" (Das and Islam 2012).	We welcome recommendations!	Legal definitions of trust include: 1. An equitable or beneficial right or title to land or other property, held for the beneficiary but another person, in whom resides the legal tile or ownership, recognized and enforced by courts of chancery; 2. An obligation arising out of a confidence reposed in the trustee or representative, who has the legal title to property conveyed to him, that he will faithfully apply the property according to the confidence reposed or, in other words, according to the wishes of the grantor of trust; 3. An equitable obligation, either express or Implied, resting upon a person by reason of a confidence reposed in him, to apply or deal with the property for the benefit of some other person, or for the benefit of himself and another or others, according to such confidence (Black's Law Dictionary Online); "1. A situation in a game with asymmetric information where an agent is expected by other agent(s) to behave in a particular way or to perform a particular action, 2. a fund established by an individual to create sustained benefits for another individual or entity" (Black, Hashimzade and Myles 2013)	"Trust is generally a three-part relation: A trusts B to do X. First, I trust someone if I have reason to believe it will be in that person's interest to be trustworthy in the relevant way at the relevant time. My trust turned, however, not directly on the Trusted's interests per se, but on whether my own interest are encapsulated in the interests of the trusted, that is, on whether the Trusted counts my interests as partly his or her own interests just because they are my interests" (Hardin 2006, 19).	"A characteristic of an entity that indicates its ability to perform certain functions or services correctly, fairly and impartially, along with assurance that the entity and its identifier are genuine" Source(s): NIST SP 800-152; "The willingness to take actions expecting beneficial outcomes, based on assertions by other parties" Source(s): NIST SP 800-95 (Open Grid Services Architecture Glossary of Terms); The confidence one element has in another, that the second element will behave as expected" Source(s): NIST SP 800-161 (Software Assurance in Acquisition: Mitigating Risks to the Enterprise.)

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TRUST-WORTHINESS	Worthy of trust or confidence; reliable, dependable (OED)	"In both socially oriented and service-oriented trust computing, we can define trust in terms of trust belief and trust behavior. 1 Trust belief between two parties is the extent to which one party believes that the other is trustworthy in a given situation. Trustworthy means one party is willing and able to act in the other's interest. Trust between two parties is the extent to which a party depends on the other in a given situation with a feeling of relative assurance, even though negative consequences are possible. If a trust belief means "A believes that B is trustworthy," it will lead to a trust behavior, such as "A trusts B" (Wang and Lin 2008).	Microsoft proposes that, "Trustworthy Computing has four pillars: reliability, security, privacy and business integrity. "Reliability" means that a computer system is dependable, is available when needed, and performs as expected and at appropriate levels. "Security" means that a system is resilient to attack, and that the confidentiality, integrity and availability of both the system and its data are protected. "Privacy" means that individuals have the ability to control data about themselves and that those using such data faithfully adhere to fair information principles. "Business Integrity" is about companies in our industry being responsible to customers and helping them find appropriate solutions for their business issues, addressing problems with products or services, and being open in interactions with customers" (Gates 2002).	"If the individuals trust one another, then they each believe the other is trustworthy enough to perform a certain type of task in a competent way. Trustworthiness is a characteristic or property of an individual; trust is an attitude or belief we have about those who are trustworthy (Chesire 2011, 51-52)	Trust is an attitude that we have towards people whom we hope will be trustworthy, where trustworthiness is a property [of a trusted person], not an attitude [towards trust as such]. Trust and trustworthiness are therefore distinct although ideally those whom we trust will be trustworthy and those who are trustworthy will be trusted. (McLeod 2015)	"The attribute of a person or enterprise that provides confidence to others of the qualifications, capabilities, and reliability of that entity to perform specific tasks and fulfill assigned responsibilities" Source(s): CNSSI 4009-2015
UNCERTAINTY	a measure of doubt	"1. The uncertainty about a piece of knowledge in a knowledge base can be represented in a variety of ways. The most popular is to attach a number to the fact or rule, e.g. 1 for complete truth, 0 for complete falsity, ¾ for likely. Sometimes these numbers are intended to be the probability of the knowledge being true. Reasoning systems must assign an inferred uncertainty value to an inferred piece of knowledge" (Butterfield adn Ngondi 2016).	"lack of certain, deterministic, values for the variable inputs used in an economic analysis of a building or building system"; "an indication of the variability associated with a measured value that takes into account two major components oferror: (1) bias, and (2) the random error attributed to the imprecision of the measurement process" (ASTM 10th edition).	"1. the state or condition in which something (e.g., the probability of a particular outcome) is not accurately or precisely known; 2. lack of confidence or clarity in one's ideas, decisions, or intentions" (APA); "A consciousness of limited knowledge about present facts or future possibilities. There is a formal distinction between risk and uncertainty: risk applies when probabilities can be assigned to the likely occurrence of future outcomes; uncertainty applies when probabilities cannot be assigned. Used in this sense, decisions with risk permit the application of expected utility. In contrast, expected utility does not apply in the case of uncertainty, and so a more general theory of choice has to be constructed. More commonly, risk and uncertainty are used interchangeably" (Black, Hashimzade, Myles 2013).	See Heisenberg's Uncertainty principle, "which states that we cannot simultaneously know the precise position and momentum of a subatomic particle" (Rohman 1999, 412).	"An expression of the degree to which a value or relationship is unknown. Uncertainty can result from lack of information or from disagreement about what is known or even knowable. Uncertainty may originate from many sources, such as quantifiable errors in the data, ambiguously defined concepts or terminology, or uncertain projections of human behavior. Uncertainty can therefore be represented by quantitative measures, for example, a range of values calculated by various models, or by qualitative statements, for example, reflecting the judgment of a team of experts." (IPCC 2012)

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USER	person or organization that employs another person or organization or their produts or processes	"An individual who uses the software product to perform a specific function. Users may include operators, recipients of the results of the software, or developers or maintainers of software" (LaPlante 2001, 514); See also user interface or "that portion of an interactive computer system that communicates with the user. Design of the user interface includes any aspect of the system that is visible to the user" (Reilly 2004, 778).	See also end-user: "one that has been provided property, and exercises the right to use it" (ASTM).	"A generic term for someone who uses any form of interactive software, including webpages and videogames. In traditional communication models, the user occupies the role of the receiver" (Chandler and Munday 2016).	We welcome recommendations!	"Recipient of statistical information, who transforms it into knowledge needed for decision making or research" (Statistical Data and Metadata Exchange); The company or group responsible for the operation of a system. The GxP customer, or user organisation, contracting a supplier to provide a product. In the context of this document it is, therefore, not intended to apply only to individuals who use the system, and is synonymous with Customer. [PIC/S PI 011-3]"; "Individual, or (system) process acting on behalf of an individual, authorized to access an information system" Source(s): CNSSI 4009-2015 (NIST SP 800-53 Rev. 4)

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VALUES	Worth or quality as measured by a standard of equivalence; The relative worth, usefulness, or importance of a thing or (occas.) a person; the estimation in which a thing is held according to its real or supposed desirability or utility (OED)		Value engineering: "the procedure for developing and evaluating alternatives to a proposed economical design that best fulfills the needs and requirements of the user/owner of the building" (ASTM)	"Value consists in the relation of harmony or fitness. It finds its point of contact with common sense in the popular expression "good for"... or "good of its kind" and the relationship is that of the particular to its universal... "value consists in the fulfillment of interest as such" (Perry 1914); "are the preferences people have for how things ought to be. They represent a person's judgement about what is right and wrong. Organizational values are designed to guide the behaviour and thinking of employees in everything they do. Values are typically embodied in slogans and symbols within the organization" (Heery and Noon 2017).	""Value theory" is roughly synonymous with "axiology". Axiology can be thought of as primarily concerned with classifying what things are good, and how good they are. "value theory" designates the area of moral philosophy that is concerned with theoretical questions about value and goodness of all varieties — the theory of value." (Schroeder 2016). "There is a difference between values and norms... values are individual, or commonly shared conceptions of the desirable, ie. what I and/or others feel we justifiably want—what it is felt proper to want. On the other hand, norms are generally accepted, sanctioned prescriptions for, or prohibitions against, others behavior, belief or feeling, i.e., what others ought to do, believe, feel—or else. Values can be held by a single individual, norms cannot. Norms must be shared prescriptions and apply to others, by definition" (Morris 1956, 610); See also Intrinsic values: "Sometimes defined as (a) the value an entity would have even if it were to have no consequences. In this sense, an entity's intrinsic value is equivalent to its total value less its instrumental value; it would include its contributive value. Sometimes defined as (b) the value an entitv would have were it to exist quite alone. In this sense, an entity's intrinsic value would be equivalent to its total value less the sum of its instrumental and contributive value. -- C.A.B", and Instrumental values: "The value an entity possesses in virtue of the value of the consequences it produces, an entity's value as means. Sometimes the term is applied with reference only to the actual consequences, sometimes with reference to the potential consequences. -- C.A.B." (Runes 2004)	"Value at the level of a single, homogeneous good or service is equal to the price per unit of quantity multiplied by the number of quantity units of that good or service; in contrast to price, value is independent of the choice of quantity unit." (United Nations Statistics Division); "Value meaning: The meaning or semantic content of a value." (Staistical Data and Metadata Exchange)

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VOLUNTARY ACTION	action or labor taken without direct compensation	We welcome recommendations!	We welcome recommendations!	the APA defines voluntary behavior as: "behavior that is intentional in nature (e.g., walking, typing), as opposed to reflexive behavior" (APA)	See also Voluntarism: "In ontology, the theory that the will is the ultimate constituent of reality. Doctrine that the human will, or some force analogous to it, is the primary stuff of the universe; that blind, purposive impulse is the real in nature. (a) In psychology, theory that the will is the most elemental psychic factor, that striving, impulse, desire, and even action, with their concomitant emotions, are alone dependable. (b) In ethics, the doctrine that the human will is central to all moral questions, and superior to all other moral criteria, such as the conscience, or reasoning power. The subjective theory that the choice made by the will determines the good. Stands for indeterminism and freedom. (c) In theology, the will as the source of all religion, that blessedness is a state of activity." (Runes 2004).	"Informal programmes, self-commitments and declarations, where the parties (individual companies or groups of companies) entering into the action set their own targets and often do their own monitoring and reporting." (IPCC 4th, 88)
VALIDATION	A check for accuracy of relationships between claims and data supporting or refuting those claims.	Validation is "the process of building an acceptable level of confidence that an inference about a simulated process is a correct or valid inference for the actual process" (Van Horn quoted in Jagdev et al 1995, 333); "Validation is the assessment of the accuracy of a computational simulation by comparison with experimental data. In validation, the relationship between computation and the real world, i.e., experimental data, is the issue " (Roache 1998, 2)	Validation is "1. conformation by examination and provision of objective evidence that the particular requirements for a specific intended use are fulfilled. In design and development, valdiation concerns the process of examining a product to determine conformity with user needs... 2. the performance or capacity planning study step in which the model solution is compared with actual system measurements. If the model output parameters are determined to be close enough to the corresponding system measurements, then the model is said to be validated, 3. the comparison of results obtained from different models for the same system, e.g., simulation and analytic models, 4. in electronic active and passive device modeling, the pass/fail process in which a completed, ready to use model is used in a simulation, then compared to an intended application, and is determined to suitably predict reality" (LaPlante 2001, 517).	"Validation means establishing by objective evidence that the particular requirements for a specific intended use can be consistently fulfilled. Process validation means establishing by objective evidence that a process consistently produces a result or product meeting its predetermined specifications. Design validation means establishing by objective evidence that device specifications conform with user needs and intended uses" (CFR 21 Part 820.3(z)(1,2)).	"Construct validity is the approximate truth of the conclusion that your operationalization accurately reflects its construct" (Trochim 2006). Types of construct validity include: face validity, content validity, predictive validity, concurrent validity, convergent validity, and discriminant validity. See also Campbell and Stanley 2015.	"Act of testing for compliance with a standard" (INIS); "A documented program that provides a high degree of assurance that a specific process, method, or system will consistently produce a result meeting pre-determined acceptance criteria. [EU GMP Guide, Part II, ICH Q7]"; "Confirmation (through the provision of strong, sound, objective evidence) that requirements for a specific intended use or application have been fulfilled (e.g., a trustworthy credential has been presented, or data or information has been formatted in accordance with a defined set of rules, or a specific process has demonstrated that an entity under consideration meets, in all respects, its defined attributes or requirements)".Source(s): CNSSI 4009-2015

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VERIFICATION	A check for accuracy of a proposed solution.	Verification is "the process of confirming that the conceptual model has been correctly translated into an operational computer programme and that the calculations made with this programme utilize the correct input data" (Schlesinger et al 1974). Approaches to verification include: numerical test cases, animation observation, and programme tracing (Jagdev et al 1995, 332, 333). "Program verification: to verify a program means to demonstrate, via a mathematical proof, that the program is consistent with its specifications" (Reilly 2004, 645); Verification includes "steps take to ensure that the output products of any development phase correctly implement the input products" (LaPlante 2001, 519)	"Verification is the assessment of the accuracy of the solution to a computational model. In verification, the relationship of the simulation to the real world is not an issue" (Roache 1998, 2); "In design and development, verification concerns the process of examining the result of a given activity to determine conformity with the stated requiremetn for that activity. It answers the question 'are we building the system right?'. The cerification includes activities such as inspection, proof of correctness, static analysis, etc. It may include the act of reviewing, inspecting, testing checking, auditin, comparing, or otherwise establishing and documenting whether items, processes, services or documents conform to specified requirements" (LaPlante 2001, 519).	"Verification means confirmation by examination and provision of objective evidence that specified requirements have been fulfilled" (CFR 21 Part 820.3(aa)).	Within philosophy of language and philosophy of science, verificationism is allied with the logical positivist school of thought. A.J. Ayer and Rudolph Carnap both describe verification as relating to the method of determining the meaning of sentences. For Ayer, "Strong verification required that the truth of a proposition be conclusively ascertainable; weak verification required only that an observation statement be deducible from the proposition together with other, auxiliary, propositions, provided that the observation statement was not deducible from these auxiliaries alone... if weak, verifiability merely demarcated sense from nonsense, whilst the strong version meant that the method of verification provided the meaning of the sentence" (Macdonald 2017).	"Principal methods to review, audit, or verify the accuracy of the disseminated data." (United Nations Statistical Data and Metadata Exchange); "Process or result of confirming the accuracy of reported information, data, etc." (INIS); " The application of methods, procedures, tests and other evaluations, in addition to monitoring, to determine compliance with the GMP principles/ quality risk management activities. [Main Principles for Pharmaceutical Products, WHO, TRS 981 Annex 2, WHO]"; "Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled (e.g., an entity's requirements have been correctly defined, or an entity's attributes have been correctly presented; or a procedure or function performs as intended and leads to the expected outcome." Source(s): CNSSI 4009-2015

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
VIRTUAL REALITY	"A "virtual reality" is defined as a real or simulated environment in which a perceiver experiences telepresence" (Steuer 1992, 6)	"Virtual Reality is an alternate world filled with computer-generated images that respond to human movements. These simulated environments are usually visited with the aid of an expensive data suit which features stereophonic video goggles and fiber-optic data gloves" (Greenbaum, 1992; quoted in Steuer 1992, 5); "The creation of the effect of immersion in a computer-generated three-dimensional environment in which objects have spatial presence" (Bryson quoted in Reilly 2004, 787); "a siulation of a virtual environment which according to some must have an 'immersive' quality encouraging the feeling of being present in the environment" (LaPlante 2001, 522)	We welcome recommendations!	"A lifelike artificial environment with various online applications such as computer games, simulations for training purposes (for airline pilots, for example), virtual tours, animations, architectural design, and advanced advertising" (Doyle 2016)	"A virtual reality is defined as a three dimensional interactive computer-generated environment that incorporates a first-person perspective. This means, first of all, that the attribute of full immersion is not taken to be an essential property for systems to qualify as virtual reality systems. Likewise, inter- action through data gloves is not held to be essential, as interaction may also take place through a mouse or joystick. Stereo vision is likewise not held to be essential. Essential features of virtual reality, as defined here, are interactivity, the use of three dimensional graphics, and a first-person perspective" (Brey 1999, 6).	We welcome recommendations!
VULNERABILITY	susceptibility to harm or attack	"Any mechanism that could lead to a breach of the security of a system in the presence of a threat. Vulnerabilities may arise unintentionally due to inadequacy of design or incomplete debugging. Alternatively the vulnerability may arise through malicious intent, e.g. the insertion of a Trojan horse" (Butterfield and Ngondi 2016).	"Vulnerability analysis focuses on identifying (and reducing) the vulnerability of engineered systems to both natural (e.g., weather-related) and man-made (e.g., sabotage, terrorism) disruptions" (Goldsim.com)	"susceptibility to developing a condition, disorder, or disease when exposed to specific agents or conditions" (APA).	"vulnerability as a claim to special protection should be understood as an identifiably increased likelihood of incurring additional or greater wrongs" (Hurst 2008, 195).	"measure of the extent to which a community, structure, service or geographical area is likely to be damaged or disrupted, on account of its nature or location, by the impact of a particular disaster hazard" (United Nations Statistics Division); "The propensity or predisposition to be adversely affected." (IPCC 2012); "Weakness in an information system, system security procedures, internal controls, or implementation that could be exploited or triggered by a threat source" Source(s): FIPS 200 (Adapted from CNSSI 4009)

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VULNERABLE GROUPS	communities whose susceptibility to harm or attack is known to be greater than that of others	We welcome recommendations!	We welcome recommendations!	"the HHS Office for Human Research Protections lists the following as examples of potentially vulnerable populations: (1) children and minors; (2) cognitively impaired persons; (3) prisoners; (4) traumatized patients; (5) terminally ill patients; (6) elderly and aged persons; (7) economically disadvantaged persons; (8) underrepresented or at-risk persons; (9) students or employees whose instructors or employers are engaged in research; (10) international, non-English speaking persons; and (11) fetuses, human in vitro fertilization and pregnant women".	The International Council on Harmonisation Tripartite guidelines for ethical governance of clinical research list the following as vulnerable groups: "1. members of a group with a hierarchical structure such as medical, pharmacy, dental and nursing students, subordinate hospital and laboratory personnel, employees in the pharmaceutical industry, members of the armed forces, and persons kept in detention; 2. patients with incurable diseases, 3. persons in nursing homes, 4. unemployed or impoverished persons, 5. patients in emergency situations, 6. ethnic minority groups, 7. homeless persons, 8. nomads, 9. refugees, 10. minors, and 11. those incapable of giving consent" (Hurst 2008, 193).	ReliefWeb defines Vulnerable groups as "Aged persons, children, IDPs (internally displaced persons), Persons with Disabilities, Refugees, Women"; ICH defines "vulnerable subjects" as "Individuals whose willingness to volunteer in a clinical trial may be unduly influenced by the expectation, whether justified or not, of benefits associated with participation, or of a retaliatory response from senior members of a hierarchy in case of refusal to participate. Examples are members of a group with a hierarchical structure, such as medical, pharmacy, dental, and nursing students, subordinate hospital and laboratory personnel, employees of the pharmaceutical industry, members of the armed forces, and persons kept in detention. Other vulnerable subjects include patients with incurable diseases, persons in nursing homes, unemployed or impoverished persons, patients in emergency situations, ethnic minority groups, homeless persons, nomads, refugees, minors, and those incapable of giving consent."

TERM	ORDINARY LANGUAGE	COMPUTATIONAL DISCIPLINES	ENGINEERING	ECONOMICS & SOCIAL SCIENCES	ETHICS & PHILOSOPHY	INTERNATIONAL LAW & POLICY
WEAPON SYSTEM	"A weapon system consists of a weapon and the items associated with its employment" (Schmitt 2013, 3)	We welcome recommendations!	We welcome recommendations!	An autonomous weapon system is: "a weapon system that, once activated, can select and engage targets without further intervention by a human operator. This includes human-supervised autonomous weapon systems that are designed to allow human operators to override operation of the weapon system, but can select and engage targets without further human input after activation" (Department of Defense 2012, Directive 3000.09, quoted in Schmitt 2013, 5).	We welcome recommendations!	The precise definition of what constitutes such a weapons system remains a matter of debate within CCW. A recent ICRC meeting on the subject defined 'autonomous weapon system' as any weapon that can independently select and attack targets, and therefore have autonomy in the 'critical functions' of acquiring, tracking, selecting and attacking targets. (See report.) On a website devoted to a discussion of the ethics of such systems, the Department of Defense of the United States is cited as defining an automated weapons system as "a weapon system(s) that, once activated, can select and engage targets without further intervention by a human operator". (UNOG: A/RES/69/79); "A combination of one or more weapons with all related equipment, materials, services, personnel, and means of delivery and deployment (if applicable) required for self-sufficiency". Source(s): NIST SP 800-60 Vol 1 Rev. 1
WELLBEING	With reference to a person or community: the state of being healthy, happy, or prosperous; Physical, psychological, or moral welfare; (OED)	We welcome recommendations!	We welcome recommendations!	The OECD recommends two areas of individual wellbeing dimensions that can be broken into eleven dimensions: "Material Living Conditions include income and wealth, jobs and earnings, and housing. Quality of Life: health status, work and life balance, education and skills, social connections, civic engagement and governance, environmental quality, personal security, and subjective well-being". The OECD suggests that these wellbeing domains are sustained over time by natural capital, economic capital, human capital, and social capital (OECD 2011, 6); "a state of happiness and contentment, with low levels of distress, overall good physical and mental health and outlook, or good quality of life" (APA)	"Wellbeing [is] the balance point between an individual's resource pool and the challenges faced... In essence, stable wellbeing is when individuals have the psychological, social and physical resources they need to meet a particular psychological, social and/or physical challenge. When individuals have more challenges than resources, the see-saw dips, along with their wellbeing, and vice-versa" (Dodge, Daly, Huyton, and Sanders 2012, 229-230).	"A context- and situation-dependent state, comprising basic material for such not always easy to define thing as a good life, freedom and choice, health, good social relations and security. Determinants of well-being are defined as the inputs into the production of well-being, such as food, clothing, potable water, religious faith and access to knowledge and information." Sources: E: Ecosystems and Human Well-being: A Framework for Assessment, Appendix 4, Glossary; "The physical and mental integrity of the subjects participating in a clinical trial." (ICH)

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