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Meaning of technology in computer

Metaphysics, Epistemology, and Technology. Archived from the original on 15 January 2023. It serves as a catalyst for social change, economic growth, and cultural transformation. Measures of technological innovation correlates with a rise in greenhouse gas emissions.[85] Pollution, the presence of contaminants in an environment that causes adverse effects, could have been present as early as the Inca Empire. ISBN 978-0262015790. S2CID 84337150. Bibcode:1964Natur.203Q.337T. Archived from the original on 26 September 2022. As a result, philosophical and political debates about the role and use of technology, the ethics of technology, and ways to mitigate its downsides are ongoing. (24 June 2016). Archived from the original on 27 January 2018. Studies in Human Ecology and Adaptation. This can include measures to halt pollution through environmental regulations, capture and storage of pollution, or using pollutant byproducts in other industries.[81] Other examples of environmental technology include deforestation and the reversing of deforestation.[82] Emerging technologies in the fields of climate engineering may be able to halt or reverse global warming and its environmental impacts,[83] although this remains highly controversial.[84] As technology has advanced, so too has the negative environmental impact, with increased release of greenhouse gases, including methane, nitrous oxide and carbon dioxide, into the atmosphere, causing the greenhouse effect. Modern technology increasingly relies on training and education – their designers, builders, maintainers, and users often require sophisticated general and specific training.[61] Moreover, these technologies have become so complex that entire fields have developed to support them, including engineering, medicine, and computer science; and other fields have become more complex, such as construction, transportation, and architecture. "The Many Ethical Implications of Emerging Technologies". However, it also raises concerns about job displacement and the need for new skills in the workforce. But have you ever paused to consider what technology actually is? ^ Lee, Sukhan; Suh, Il Hong (2008). 34–43. ^ Davids, K.; De Munck, B., eds. Archived from the original on 4 April 2007. 117. OCLC 1252833169. Archived from the original on 10 March 2017. PMID 23359739. "A New Generation of Transhumanists Is Emerging". S2CID 247718992. BBC News. Rowman & Littlefield. doi:10.5840/techne19973111. BRILL. "Democracy and Its Discontents". Manuals in Archaeological Method, Theory and Technique. ^ Acemoglu, Daron; Restrepo, Pascual (1 June 2020). Technopoly: The Surrender of Culture to Technology. doi:10.1257/jep.29.3.3. hdl:1721.1/109476. "Philosophy of Technology". The term was previously uncommon in English and mostly referred to the academic discipline, as in the Massachusetts Institute of Technology.[9] In the 20th century, as a result of scientific progress and the Second Industrial Revolution, technology stopped being considered a distinct academic discipline and took on the meaning: the systemic use of knowledge to practical ends.[10] Main articles: History of technology and Timeline of historic inventions Main article: Prehistoric technology A person holding a hand axe Tools were initially developed by hominids through observation and trial and error.[11] Around 2 Mya (million years ago), they learned to make the first stone tools by hammering flakes off a pebble, forming a sharp hand axe.[12] This practice was refined 75 kya (thousand years ago) into pressure flaking, enabling much finer work.[13] The discovery of fire was described by Charles Darwin as "possibly the greatest ever made by man".[14] Archaeological, dietary, and social evidence point to "continuous [human] fire-use" at least 1.5 Mya.[15] Fire, fueled with wood and charcoal, allowed early humans to cook their food to increase its digestibility, improving its nutrient value and broadening the number of foods that could be eaten.[16] The cooking hypothesis proposes that the ability to cook promoted an increase in hominid brain size, though some researchers find the evidence inconclusive.[17] Archaeological evidence of hearths was dated to 790 kya; researchers believe this is likely to have intensified human socialization and may have contributed to the emergence of language.[18][19] Other technological advances made during the Paleolithic era include clothing and shelter.[20] No consensus exists on the approximate time of adoption of either technology, but archaeologists have found archaeological evidence of clothing 90-120 kya[21] and shelter 450 kya.[20] As the Paleolithic era progressed, dwellings became more sophisticated and more elaborate; as early as 380 kya, humans were constructing temporary wood huts.[22][23] Clothing, adapted from the fur and hides of hunted animals, helped humanity expand into colder regions; humans began to migrate out of Africa around 200 kya, initially moving to Eurasia.[24][25][26] Main article: Neolithic Revolution An array of Neolithic artifacts, including bracelets, axe heads, chisels, and polishing tools The Neolithic Revolution (or First Agricultural Revolution) brought about an acceleration of technological innovation, and a consequent increase in social complexity.[27] The invention of the polished stone axe was a major advance that allowed large-scale forest clearance and farming.[28] This use of polished stone axes increased greatly in the Neolithic but was originally used in the preceding Mesolithic in some areas such as Ireland.[29] Agriculture fed larger populations, and the transition to sedentism allowed for the simultaneous raising of more children, as infants no longer needed to be carried around by nomads. Technological determinism is the idea that technologies cause unavoidable social changes.[90]:95 It usually encompasses a related argument, technological autonomy, which asserts that technological progress follows a natural progression and cannot be prevented.[91] Social constructivists[who?] argue that technologies follow no natural progression, and are shaped by cultural values, laws, politics, and economic incentives. In Ottinger, Gwen; Cohen, Benjamin (eds.). It has democratized content creation, allowing anyone with a smartphone to become a creator. Analog computers were invented and asserted dominance in processing complex data. This divide can be seen both globally, between rich and poor nations, and within societies, between urban and rural areas. Innovation and Creativity in Late Medieval and Early Modern European Cities. New York: Viking Press. Routledge. Except for mechanical solutions, all of today's technologies use computers in one way or another. "Sponging dolphins learn from mum". 14 (1): 13–25. In more recent times, the development of computers, the internet, and mobile technologies has revolutionized how you live and interact with the world. ISSN 1758-5880. Archived (PDF) from the original on 4 October 2022. These breakthroughs didn't just improve life—they reshaped society and the economy. doi:10.1016/j.spacepol.2022.101486. Interalia Magazine. "What is Climate Engineering?". doi:10.1080/07341518408581618. ^ a b Shaar, Ron; Matmon, Ari; Horwitz, Liora K.; Ebert, Yael; Chazan, Michael; Arnold, M.; Aumaître, G.; Bourlès, D.; Keddadouche, K. Transaction Publishers. ISBN 978-1444307573. (1993). What Is Technology? Cyberethics explores internet-related issues like intellectual property rights, privacy, and censorship. It began with simple tools like stone axes and evolved into the complex, interconnected world we live in today. University of South Carolina Press. Bibcode:2007Sci...318..765R. 2nd Series. 73 (1/2): 27–56. ^ Wade, Nicholas (15 July 2003). It did not take long to discover that wheeled wagons could be used to carry heavy loads. Archived from the original on 10 September 2022. AI, for instance, is poised to enhance productivity and create new efficiencies across various sectors, from healthcare to transportation. ^ Driscoll, Killian (2006). Primates. S2CID 143784033. ISSN 2589-0042. Global Catastrophic Risks. 45 (2): 295–311. A Treatise on Science Technology and Society. ISSN 0028-7504. (1984). OCLC 38307662. I find the most useful conceptual definition for this study to be that given by Harvey Brooks, who has defined technology ...as 'knowledge of how to fulfill certain human purposes in a specifiable and reproducible way.' ^ Salomon 1984, pp. ^ Cramb, Alan W (1964). 4,000 BCE. Without addressing this issue, technology could exacerbate inequalities rather than solve them. OCLC 476272945. ISBN 978-0865162822. 63: 179–201. 1 (2): 127–157. The story of technology is the story of human ingenuity. Some software developers create applications that allow users to perform certain tasks on PCs or electronic devices. ^ Schmid, Randolph E. From the content you consume to the way you express yourself, technology has become intertwined with your identity. | The American Presidency Project". ^ a b c Taleb, Nassim Nicholas (2012). Social media, instant messaging, and video calls have made it easier to stay connected, but they've also changed the nature of relationships. S2CID 144475553. Research in Philosophy and Technology. H. Past automation has both substituted and complemented labor; machines replaced humans at some lower-paying jobs (for example in agriculture), but this was compensated by the creation of new, higher-paying jobs.[66] Studies have found that computers did not create significant net technological unemployment.[67] Due to artificial intelligence being far more capable than computers, and still being in its infancy, it is not known whether it will follow the same trend; the question has been debated at length among economists and policymakers. Shaar, R.; Matmon, A.; Horwitz, L. doi:10.1177/1744935906064096. 14. K.; Ebert, Y.; Chazan, M.; Arnold, M.; Aumaître, G.; Bourlès, D.; Keddadouche, K. Kuijt, I. cser.ac.uk. 146. cisac.fsi.stanford.edu. Schuurman, E. "Chimpanzee Tool Use". Archived from the original on 10 February 2023. "The Question Concerning Technology". www3.weforum.org. 99.) Retrieved from " generally defined, computer technology is practically a discipline that acts as a connection between several sectors in the fields of computer science and electrical engineering. (1943). Main article: Futures studies Futures studies is the study of social and technological progress. Over time, the development of agriculture, metal tools, and writing systems enabled civilizations to grow. Organized efforts to search for extraterrestrial intelligence have used radio telescopes to detect signs of technology use, or technosignatures, given off by alien civilizations. Environmental technologies focus on making human activities more sustainable. doi:10.1179/tns.1933.002. ^ Boesch, Christophe; Boesch, Hedwige (1984). From the earliest human-made tools to the complex machinery and digital systems of today, each stage in human history has been defined by technological progress. ^ Kurzweil, Ray (2005). "The oldest representation of a Nile boat". ^ a b c d e Lechner, Norbert (2012). The future of technology is bright, but it's up to you to ensure that it's a future that benefits everyone. 259: 106907. The earliest known technology is the stone tool, used during prehistory, followed by the control of fire—which in turn contributed to the growth of the human brain and the development of language during the Ice Age, according to the cooking hypothesis. ^ Usai, Donatella; Salvatori, Sandro. ^ Veruggio, Gianmarco (2011). Archived (PDF) from the original on 21 June 2022. (1 January 1933). Cambridge: Cambridge University Press. S2CID 220494877. People working in computer technology develop computer software and hardware and generally have training in the fields of software design, electronics and software-hardware integration, as well as electronics and software engineering. Archived from the original on 1 December 2023. There is a broad range of ethical issues revolving around technology, from specific areas of focus affecting professionals working with technology to broader social, ethical, and legal issues concerning the role of technology in society and everyday life.[94] Prominent debates have surrounded genetically modified organisms, the use of robotic soldiers, algorithmic bias, and the issue of aligning AI behavior with human values.[95] Technology ethics encompasses several key fields: Bioethics looks at ethical issues surrounding biotechnologies and modern medicine, including cloning, human genetic engineering, and stem cell research. The invention of the wheel, writing systems, and agriculture marked significant steps forward in the technological journey. ISBN 978-0049250055. Fast forward to the Industrial Revolution, and you see the beginning of modern technology with the advent of steam engines, factories, and mass production. Scuola di Robotica: 2. ^ a b Johnson, Deborah G.; Wetmore, Jameson M. Dietrich, O.; Notroff, J.; Schmidt, J. Archived from the original on 10 May 2021. ^ a b Bostrom, Nick (6 September 2019). ^ The British Museum. Journal of Political Ideologies. ^ Hallett, Emily Y.; Marean, Curtis W.; Steele, Teresa E.; Álvarez-Fernández, Esteban; Jacobs, Zenobia; Cerasoni, Jacopo Niccolò; Aldeias, Vera; Scerri, Eleanor M. Journal of Econometrics. It isn't just about gadgets or electronics; it's a broader concept that encompasses any innovation that improves how you interact with the world. ^ Anderson, Michael; Anderson, Susan Leigh, eds. Quaternary Science Reviews. ISBN 0-226-53196-1. The Journal of the Royal Anthropological Institute of Great Britain and Ireland. PMID 31292546. Environmental technology, describes an array of technologies which seek to reverse, mitigate or halt environmental damage to the environment. Retrieved 15 January 2023. Computer engineering definition: If you find the areas of information technology and/or computer science interesting and would like to pursue a career in one of the branches, you may have asked yourself exactly what computer technology is. ISSN 0304-4076. ^ Gasser, Aleksander (March 2003). And if our planet is so special, it becomes all the more important to preserve this unique world for ourselves, our descendants and the many creatures that call Earth home." (p. 25 (2): 160–170. "The significance of the composition of excavated iron fragments taken from Stratum III at the site of Kaman-Kalehöyük, Turkey". Whether you're writing an email or managing a global enterprise, IT is at the core of how information flows in today's world. "Cutting Through Environmental Issues: Technology as a double-edged sword". LXVI, no. The first use of iron alloys such as steel dates to around 1,800 BCE.[37][38] Main article: Ancient technology Ancient technology Egyptian technology Indian technology Chinese technology Greek technology Roman technology Iranian technology The wheel was invented c. Anatolian Archaeological Studies. ISBN 978-0521112352. 65 (1): 83–108. 3 (1): 27–44. Heidelberg: Springer International Publishing. doi:10.2139/ssrn.2690435. Computer technology – career opportunities People with a degree in computer technology often earn the highest starting salary in engineering. ISBN 978-0393319378. ^ "Robots and Artificial Intelligence". ISBN 978-9004113510. With great power comes great responsibility, and nowhere is this truer than in technology. "Discovery Processes: Trial Models". In physics, the discovery of nuclear fission in the Atomic Age led to both nuclear weapons and nuclear power. doi:10.1080/13569317.2021.1921940. Some researchers have warned against the hypothetical risk of an AI takeover, and have advocated for the use of AI capability control in addition to AI alignment methods. In Chacon, R. The average was skewed upwards by patents related to the pharmaceutical industry, chemistry, and electronics.[130] A 2021 analysis shows that patents that are based on scientific discoveries are on average 26% more valuable than equivalent non-science-based patents.[131] See also: Tool use by animals, Structures built by animals, and Ecosystem engineer This adult gorilla uses a branch as a walking stick to gauge the water's depth. Feast, Famine or Fighting?. ^ Brooks, H. N. ISSN 0028-0836. It can be understood as the application of scientific knowledge to practical ends. p. The next chapter promises to be even more transformative, requiring us to strike a balance between innovation and ethics, shaping a future that benefits all of humanity. ^ University of Chicago Press Journals (4 January 2006). Archived from the original on 1 September 2022. ISBN 978-0691058870. The New York Review of Books. Cambridge University Press. 6. doi:10.1016/0048-7333(92)90018-Y. Challenges and Ethical Considerations While technology brings many benefits, it also raises critical ethical questions and challenges that you can't afford to ignore. Retrieved 11 September 2022. Osiris. 67. 58 (S16): S303 – S313. J.; Mendoza, R. "The Second Industrial Revolution, 1870–1914" (PDF). "Roots and Core Themes". Research & Education Association. (29 April 2013). Archived from the original on 10 December 2020. (4 October 2007). "Our earliest technology?". Introduction to Nanotechnology. "Voluntary simplicity, involuntary complexities, and the pull of remove: The radical ruralities of off-grid lifestyles". Computer technology – a brief overview Although generally defined, computer technology is practically a discipline that acts as a connection between several sectors in the fields of computer science and electrical engineering. ^ Kramer, Samuel Noah (1963). The journey from the telegraph to smartphones is a testament to human innovation. ^ Skolimowski, Henryk (1966). From the invention of the wheel to modern-day electric vehicles, each innovation has made travel faster, safer, and more efficient. Computer engineers often work to improve their ability to "think" and "see". (2017). pp. Retrieved 10 February 2023 – via Elsevier Science Direct. OCLC 1124046527. More recently, electric and autonomous vehicles are pushing the boundaries of what's possible in transportation. Main article: Technological utopianism Technological utopianism refers to the belief that technological development is a moral good, which can and should bring about a utopia, that is, a society in which laws, governments, and social conditions serve the needs of all its citizens.[112] Examples of techno-utopian goals include post-scarcity economics, life extension, mind uploading, cryonics, and the creation of artificial superintelligence. ^ Kuijt, i., ed. Today, you rely on the internet, social media, and video conferencing to stay in touch with friends, family, and colleagues around the world. Handbook of Research on Technoethics. ISBN 978-0226452388. doi:10.1002/9781118555927.part8. J.; Miethke, J.; Priest, D. (1992). Teich, A.H. (2008). This includes computers, servers, software, and cloud computing. doi:10.1086/368647. The Impact of Technology Technology doesn't just change how you live—it also profoundly impacts society in various ways, reshaping social interactions, economies, and even culture. Starting in the United Kingdom in the 18th century, the discovery of steam power set off the Industrial Revolution, which saw wide-ranging technological discoveries, particularly in the areas of agriculture, manufacturing, mining, metallurgy, and transport, and the widespread application of the factory system.[56] This was followed a century later by the Second Industrial Revolution which led to rapid scientific discovery, standardization, and mass production. The Elusive Transformation: Science, Technology, and the Evolution of International Politics. You can now communicate with someone halfway around the world in seconds, but what does that mean for your social life? Princeton: Princeton University Press. Technology and Society: Building Our Sociotechnical Future (2nd ed.). Center for a New American Security. Bibcode:2009SpPol..25...75B. JSTOR 2118405. You may see a future where machines become more intelligent, transportation becomes autonomous, and healthcare becomes personalized. ISBN 978-3319484020. 13. ISBN 978-0203096604. Fire also enabled smelting, and the use of tin, copper, and iron tools, used for hunting or tradesmanship. ^ Autor, D. Wauconda, IL: Bolchazy-Carducci Publishers, Inc. Retrieved 26 October 2017. In Chisholm, Hugh (ed.). "Child Transport, Family Size, and Increase in Human Population During the Neolithic". A. For instance, the internet brought about the digital age, transforming everything from how you communicate to how businesses operate. fooledbyrandomness.com. doi:10.1068/a4564. ISSN 1076-9757. ^ Brahic, Catherine (15 January 2009). Major techno-utopian movements include transhumanism and singularitarianism. New Boundaries in Political Science Fiction. ^ Persily, Nathaniel; Tucker, Joshua A., eds. Translated by Ross, David. Despite technological advancements, not everyone has equal access to technology. {{cite book}}: ISBN / Date incompatibility (help) ^ a b Moorey, Peter Roger Stuart (1999) [1994]. Princeton University Press. Retrieved 10 September 2022. (1 January 1995). (1 December 2001). 10 (4): 455–476. JSTOR 3101935. A steam turbine with the case opened, an example of energy technology History of technology By technological eras Premodern / Pre-industrial Prehistoric Stone Age (lithic) First Agricultural Revolution Copper Age Urban revolution Bronze Age Iron Age Ancient Modern Proto-industrialization Second Agricultural Revolution First Industrial Revolution Standardization Second Industrial Revolution Machine Age Jet Age Third Agricultural Revolution Atomic Age Space Age Third Industrial Revolution Digital transformation Information Age Fourth Industrial Revolution Imagination Age Future Post-industrial Singularity Emerging technologies By historical regions Ancient Africa Ancient Egypt Indian subcontinent Ancient China Maya civilization Hellenistic world Roman Empire Byzantine Empire Medieval Islamic world Arab Agricultural Revolution Medieval Europe Renaissance Europe By type of technology History of agriculture History of biotechnology History of communication History of computer hardware History of electrical engineering History of manufacturing History of maritime History of materials science History of measurement History of medicine History of simple machine History of nuclear technology History of transport Technology timelines Timeline of historic inventions Technological revolution Complete list by category Article indices Outline of technology Outline of prehistoric technology vte Technology is the application of conceptual knowledge to achieve practical goals, especially in a reproducible way.[1] The word technology can also mean the products resulting from such efforts,[2][3] including both tangible tools such as utensils or machines, and intangible ones such as software. "Mental map in wild chimpanzees: An analysis of hammer transports for nut cracking". These technological advances led to significant developments in medicine, chemistry, physics, and engineering.[57] They were accompanied by consequential social change, with the introduction of skyscrapers accompanied by rapid urbanization.[58] Communication improved with the invention of the telegraph, the telephone, the radio, and television.[59] The 20th century brought a host of innovations. ^ Luppicini, R. ^ Solow, Robert M. The future of technology is brimming with exciting possibilities and transformative potential. ^ Kompridis, N. Retrieved 26 September 2022. As we embrace new tools and capabilities, ethical considerations surrounding privacy, security, and the impact on jobs become increasingly critical. ISBN 978-3319000770. ""Technik" Comes to America: Changing Meanings of "Technology" before 1930". The use of basic technology is also a feature of non-human animal species. 110. ScienceDaily. PMC 1180321. ^ Grace, K.; Salvatier, J.; Dafoe, A.; Zhang, B.; Evans, O. CiteSeerX 10.1.1.466.2810. Archived from the original on 2 August 2019. Other fields of ethics have had to contend with technology-related issues, including military ethics, media ethics, and educational ethics. Archived from the original on 1 August 2022. Polity. John Wiley & Sons. Retrieved 25 September 2022. What Technology Wants. Meanwhile, advancements in space exploration might mean that colonizing other planets is no longer the stuff of science fiction. Retrieved 19 January 2023. Synthese. The Logic of Writing and the Organization of Society. ^ Sussman, Robert W.; Hall, Roberta L. The International Journal Covering All Aspects of Land Use. 81 (3): 405–419. "Ceramics" . "The emerging field of Technoethics". Retrieved 5 February 2019. 26 March 2009. ISBN 978-1405111621. The backlash against technology is not a uniform movement and encompasses many heterogeneous ideologies.[117] The earliest known revolt against technology was Luddism, a pushback against early automation in textile production. ^ Wrigley, E. They include nanotechnology, biotechnology, robotics, 3D printing, and blockchains. Adell (eds.). S2CID 46975083. Bridging the digital divide requires not only providing access to technology but also ensuring that people have the skills to use it effectively. doi:10.1016/0304-4076(94)01598-T. (2012). JSTOR 1926047. Let's explore the depth of what technology means, its evolution, the various types, and how it impacts your life. (1995). (2005). Constable & Robinson. Retrieved 10 February 2023. Technological advancements have led to significant changes in society. The essay resonated with a large part of the American public.[118] It was partly inspired by Jacques Ellul's The Technological Society.[119] Some subcultures, like the off-the-grid movement, advocate a withdrawal from technology and a return to nature. ISSN 0040-165X. Thinking Through Technology: The Path Between Engineering and Philosophy. 8. Sydney: Primavera Press. ^ Salomon 1984, p. (1989). S2CID 148764971. 29 (3): 3–30. "Future Trajectories: Singularity". New York: Cambridge University Press. 135. (2022). New York: Britannica Educational Publishing. Retrieved 19 June 2020. Retrieved 2 September 2022. C. ^ Dunbar, R. Gribbin, John, "Alone in the Milky Way: Why we are probably the only intelligent life in the galaxy", Scientific American, vol. "Apidima Cave fossils provide earliest evidence of Homo sapiens in Eurasia". ISBN 978-0316484893. J.; Wrangham, R. S2CID 4298952. ^ Black, B. Archived from the original on 29 April 2024. LCCN 88656216. Huesemann, M.H.; Huesemann, J.A. (2011). smarthistory.org. Antiquity. S2CID 135224906. Meanwhile, quantum computing promises to solve problems that today's computers can't even approach. The ancient Sumerians used a potter's wheel and may have invented it.[46] A stone pottery wheel found in the city-state of Ur dates to around 3,429 BCE,[47] and even older fragments of wheel-thrown pottery have been found in the same area.[47] Fast (rotary) potters' wheels enabled early mass production of pottery, but it was the use of the wheel as a transformer of energy (through water wheels, windmills, and even treadmills) that revolutionized the application of nonhuman power sources. "Why Are There Still So Many Jobs? The Sumerian World. ISBN 978-1118014752. ^ "Ironware piece unearthed from Turkey found to be oldest steel". The main technical areas of computer technology are: Applying a systematic technique, method or approach to solve a problem. 10. 130. ISBN 978-0878917044. S2CID 243715477. Below is an answer to these and some other questions related to the field of computer technology. Global Policy. R.; Pearce, David (1989). Retrieved 16 January 2023. Science: The Cognitive Fallacy". Technology portal Bright green environmentalism Ecological modernization Ecomodernism Instrumentation Logology Outline of technology Productivity-improving technologies Raw material Resource Tech ed Technogaianism Techno-progressivism ^ Skolnikoff, Eugene B. As US president Lyndon Johnson said in 1964, "Technology is creating both new opportunities and new obligations for us, opportunity for greater productivity and progress; obligation to be sure that no workingman, no family must pay an unjust price for progress." upon signing the National Commission on Technology, Automation, and Economic Progress bill.[73][74][75][76][77] With the growing reliance of technology, there have been security and privacy concerns along with it. Archived from the original on 22 September 2022. PMID 17916693. doi:10.1086/375407. The Complete History of Wheeled Transportation: From Cars and Trucks to Buses and Bikes. ^ a b Franssen, M.; Lokhorst, G.-J.; van de Poel, I. Retrieved 25 November 2013. doi:10.1086/692113. P. As you look to the future, it's clear that technology will continue to shape your life in profound ways. Boca Raton, Florida: CRC Press. (2008). ^ a b c d e f g Aicher, Peter J. The current trends show that the pace of innovation is accelerating, with emerging technologies poised to redefine industries and daily life. (1 March 2013). Wright, R.T. (2008). Renewable energy sources like wind and solar power are helping reduce reliance on fossil fuels, while advancements in recycling and waste management are addressing environmental degradation. Retrieved 14 February 2023. Almost certainly no, given the chain of circumstances that led to our existence. History and Technology. (28 October 2010). Nanoethics examines issues surrounding the alteration of matter at the atomic and molecular level in various disciplines including computer science, engineering, and biology. JSTOR 40061169. files.eric.ed.gov. A Companion to the Archaeology of the Ancient Near East. Archived (PDF) from the original on 1 October 2009. (1986). Archived from the original on 19 November 2020. Space Policy. Archived (PDF) from the original on 15 January 2023. Archived from the original on 26 August 2016. doi:10.1038/203337a0. (2013). When you think about technology, you might immediately imagine smartphones, computers, or robots. The Precipice: Existential Risk and the Future of Humanity. 1 (2): 113–156. PMID 34622180. 117–118: "The first pole, that of the naturalisation of a new discipline within the university curriculum, was presented by Christian Wolff in 1728, in Chapter III of the "Preliminary discourse" to his Philosophia rationalisis sive Logica: 'Technology is the science of skills and works of skill, or, if one prefers, the science of things made by man's labour, chiefly through the use of his hands.'" ^ Mitcham, Carl (1994). Hoboken, NJ: John Wiley & Sons, Inc. Philosophy of Technology: An Introduction. Nanotechnology will grant us the ability to manipulate matter "at the molecular and atomic scale",[107] which could allow us to reshape ourselves and our environment in fundamental ways.[108] Nanobots could be used within the human body to destroy cancer cells or form new body parts, blurring the line between biology and technology.[109] Autonomous robots have undergone rapid progress, and are expected to replace humans at many dangerous tasks, including search and rescue, bomb disposal, firefighting, and war.[110] Estimates on the advent of artificial general intelligence vary, but half of machine learning experts surveyed in 2018 believe that AI will "accomplish every task better and more cheaply" than humans by 2063, and automate all human jobs by 2140.[111] This expected technological unemployment has led to calls for increased emphasis on computer science education and debates about universal basic income. ISSN 1744-9359. Information technology, particularly optical fiber and optical amplifiers, allowed for simple and fast long-distance communication, which ushered in the Information Age and the birth of the Internet. Moreover, the digital divide poses a substantial barrier, as not everyone has equal access to technological advancements. You encounter technology every day, from the phone in your pocket to the car you drive and even the medical equipment that saves lives. Kelly, K. ^ Deming, D. Visions of Technology: A Century of Vital Debate about Machines, Systems, and the Human World. Whether it's the rise of internet memes or the shift to streaming services, technology is deeply embedded in culture. The Stanford Encyclopedia of Philosophy (Fall 2018 ed.). Modern scholarship has shifted towards an analysis of sociotechnical systems, "assemblages of things, people, practices, and meanings", looking at the value judgments that shape technology.[90][page needed] Cultural critic Neil Postman distinguished tool-using societies from technological societies and from what he called "technopolies", societies that are dominated by an ideology of technological and scientific progress to the detriment of other cultural practices, values, and world views.[92] Herbert Marcuse and John Zerzan suggest that technological society will inevitably deprive us of our freedom and psychological health.[93] Main article: Ethics of technology The ethics of technology is an interdisciplinary subfield of ethics that analyzes technology's ethical implications and explores ways to mitigate potential negative impacts of new technologies. Penguin. 703–760, see page 708. ^ Agar, J. Retrieved 8 November 2016. Use of knowledge for practical goals Not to be confused with Electronics. Bibcode:2003LUPol..20..209G. But as you embrace these changes, it's essential to remain mindful of the challenges and responsibilities that come with such power. (1 May 2021). Because of this, the U.S. Treasury Department sanctioned Blender.io, which marked the first time it has taken action against a mixer, to try to crack down on North Korean hackers.[79][80] The privacy of cryptocurrency has been debated. Archived from the original on 8 August 2014. Social media, digital art, and even the way you experience entertainment have all been shaped by technological advancements. A (13 March 2013). Not only do computer engineers perform the tasks listed above, they also develop strategies to make computers smaller, faster, and more functional. McFarland. www.presidency.ucsb.edu. It enables businesses to operate more efficiently, reduces costs, and opens new markets. 371 (1986): 20110568. doi:10.1098/rsta.2011.0568. igmchicago.org. Oxford World's Classics. Between Politics and Science: Assuring the Integrity and Productivity of Research. Retrieved 10 May 2021. A Brief History of Science. 52–53, 56–57. ^ Gowlett, J. ^ Courtenay, W. ^ a b c d e f g Gregersen, Erik (2012). 20 (3): 209–223. Parrhesia. ISBN 978-3540767282. ^ Jones, Steven E. doi:10.3138/ycl.63.005. "How Computer Automation Affects Occupations: Technology, Jobs, and Skills". Management & Organizational History. Cambridge u.a.: Cambridge Univ. D. At its core, technology refers to the tools, systems, or methods that are developed and used to solve problems, improve processes, and enhance human life. ^ Stearns, P. Wiley. 105. New technologies were developed, including sewage systems, electricity, light bulbs, electric motors, railroads, automobiles, and airplanes. Vol. 25–26. Typically, software developers acquire a bachelor's degree in computer science and have in-depth knowledge of computer programming. "Evolution of Modern Humans: Archaic Homo sapiens Culture". Winona Lake, Indiana: Eisenbrauns. ^ Bresnahan, Timothy F.; Trajtenberg, M. Early on, the internet was seen as a "liberation technology" that would democratize knowledge, improve access to education, and promote democracy. February 1966. ISSN 0067-270X. ^ Anthony, David A. Penguin Random House. Mumford, L. These early technologies laid the groundwork for future advances. But this also comes with challenges, such as the need to reskill workers and address issues of technological unemployment. E. (6 June 2019). 9. Greek-English Lexicon (Abridged ed.). Salomon, Jean-Jacques (1984). ^ "The Future of Jobs Report 2020" (PDF). "Cost–benefit analysis of space exploration: Some ethical considerations". (April 1972). Lucy to Language: the Benchmark Papers. ^ Guston, David H. ^ Müller, G.; Watling, J. Protecting your information in the digital age is not just about creating strong passwords; it's about ensuring that companies and governments have robust cybersecurity measures in place. SSRC Anxieties of Democracy. Technology is a term dating back to the early 17th century that meant 'systematic treatment' (from Greek Τεχνολογία, from the Greek: τέχνη, romanized: tékhnē, lit. ^ Brey, P. Both are integral to modern life, working in tandem to allow you to perform a wide range of tasks. Ljubljana Marshes Wheel with axle (oldest wooden wheel yet discovered as of 2024) After harnessing fire, humans discovered other forms of energy. The early prehistory in the west of Ireland: Investigations into the social archaeology of the Mesolithic, west of the Shannon, Ireland. Allen & Unwin. While technology allows you to communicate more easily, it also raises questions about its impact on face-to-face interaction and emotional well-being. While the invention of vacuum tubes allowed for digital computing with computers like the ENIAC, their sheer size precluded widespread use until innovations in quantum physics allowed for the invention of the transistor in 1947, which significantly compacted computers and led the digital transition. The ecovillage movement seeks to reestablish harmony between technology and nature.[120] Antoine Lavoisier experimenting with combustion generated by amplified sunlight See also: Science and Engineering Engineering is the process by which technology is developed. "Status report: Linkage between technology and science". Wilson, G. 'craft, art' and -λογία (-logíā), 'study, knowledge'.[4][5] It is predated in use by the Ancient Greek word τέχνη (tékhnē), used to mean 'knowledge of how to make things', which encompassed activities like architecture.[6] Starting in the 19th century, continental Europeans started using the terms Technik (German) or technique (French) to refer to a 'way of doing', which included all technical arts, such as dancing, navigation, or printing, whether or not they required tools or instruments.[7] At the time, Technologie (German and French) referred either to the academic discipline studying the "methods of arts and crafts", or to the political discipline "intended to legislate on the functions of the arts and crafts."[8] The distinction between Technik and Technologie is absent in English, and so both were translated as technology. doi:10.1007/BF02382388. ISBN 978-0521653183. ^ Smol, J. As ocean temperatures warm and the acidity of the ocean increases, bleaching and coral die-offs are likely to become more frequent. ^ Childe, V. "Nut-cracking monkeys find the right tool for the job". ISBN 978-0198611868. "The Evolution of the Axe from Prehistoric to Roman Times". Universities and Schooling in Medieval Society. ISBN 978-1590707180. Scientific American. "The Vulnerable World Hypothesis". "Technical Change and the Aggregate Production Function". "The Setting". ^ Crawford, Harriet (2013). ISBN 978-0815630616. ISSN 0039-7857. Technoscience and Environmental Justice: Expert Cultures in a Grassroots Movement. Retrieved 20 January 2024. Archived from the original on 12 March 2017. S2CID 7468879. (ed.). (1957). F. Nature. S2CID 382712. J.; Hoogland, J.; van der Stoep, J. Social Impact Technology has transformed the way people interact with each other. M.; Gamble, C.; Gowlett, J. doi:10.1007/BF00869324. Predictions vary, but it's clear that innovations in areas like AI, biotech, and space exploration will continue to push the boundaries of what's possible. ^ Crump, Thomas (2001). SSRN 2690435. The main technical areas of computer technology are: Networks Cyber security The intelligence of the machine Design Automation biomedical Integrated systems Computer software Computer engineer – roles and responsibilities Since the activity in the field of computer technology is carried out by computer engineers, understanding the roles and responsibilities that these people fulfill can give you a greater awareness of the field. ^ Vince, G. Archived from the original on 27 October 2021. It's about improving the delivery of care to make treatments more effective and accessible. New Scientist. S2CID 234833092. Cham: Springer International Publishing. Mitcham, C. 13 (2): 258–267. S2CID 29968989. (2015). ISBN 978-0813347295. 62: 729–754. science.org. (3 July 2003). Main article: Appropriate technology Some segments of the 1960s hippie counterculture grew to dislike urban living and developed a preference for locally autonomous, sustainable, and decentralized technology, termed appropriate technology. "Nanotechnology may create new organs". By Hassler, Donald M. eISSN 1477-2620. Rhodes, R. ^ Akanuma, Hideo. Ancient Mesopotamian Materials and Industries: The Archaeological Evidence. ISBN 978-0674037731. Retrieved 21 February 2011. 108 (3): 681–716. The Nicomachean Ethics. ^ Kelman, David (1 June 2020). Automation and artificial intelligence are transforming industries, allowing companies to do more with less. ^ Ferraro, Gary P. Against Technology: From the Luddites to Neo-Luddism. ^ Minogue, K. 185–198. Cultural Anthropology: An Applied Perspective. Meanwhile, advancements in biotechnology promise breakthroughs in medicine, agriculture, and environmental sustainability, potentially improving the quality of life for millions. This continues to gradually heat the earth, causing global warming and climate change. ISBN 978-1317445715. In medicine, new technologies were developed for diagnosis (CT, PET, and MRI scanning), treatment (like the dialysis machine, defibrillator, pacemaker, and a wide array of new pharmaceutical drugs), and research (like interferon cloning and DNA microarrays).[60] Complex manufacturing and construction techniques and organizations are needed to make and maintain more modern technologies, and entire industries have arisen to develop succeeding generations of increasingly more complex tools. Bibcode:2021iSci...24j2988H. ISBN 978-0495570523. "Ray Kurzweil Predicts Three Technologies Will Define Our Future". The art of making a pottery consisting of a siliceous sandy body coated with a vitreous copper glaze seems to have been known unexpectedly early, possibly even as early as the period immediately preceding the Ist Dynasty (4000 B.C.). The Industrial Revolution in World History. ^ Liddell, Henry George; Scott, Robert (1996) [1891]. Artificial intelligence is transforming industries by automating tasks, analyzing data, and even making decisions. ISSN 1091-8264. 4,000 BCE,[49] and timber roads leading through the swamps of Glastonbury, England, dating to around the same period.[49] The first long-distance road, which came into use around 3,500 BCE,[49] spanned 2,400 km from the Persian Gulf to the Mediterranean Sea,[49] but was not paved and was only partially maintained.[49] In around 2,000 BCE, the Minoans on the Greek island of Crete built a 50 km road leading from the palace of Gortyn on the south side of the island, through the mountains, to the palace of Knossos on the north side of the island.[49] Unlike the earlier road, the Minoan road was completely paved.[49]Photograph of the Pont du Gard in France, one of the most famous ancient Roman aqueducts[50] Ancient Minoan private homes had running water.[51] A bathtub virtually identical to modern ones was unearthed at the Palace of Knossos.[51][52] Several Minoan private homes also had toilets, which could be flushed by pouring water down the drain.[51] The ancient Romans had many public flush toilets,[52] which emptied into an extensive sewage system.[52] The primary sewer in Rome was the Cloaca Maxima;[52] construction began on it in the sixth century BCE and it is still in use today.[52] The ancient Romans also had a complex system of aqueducts,[50] which were used to transport water across long distances.[50] The first Roman aqueduct was built in 312 BCE.[50] The eleventh and final ancient Roman aqueduct was built in 226 CE.[50] Put together, the Roman aqueducts extended over 450 km,[50] but less than 70 km of this was above ground and supported by arches.[50] Main articles: Medieval technology and Renaissance technology Innovations continued through the Middle Ages with the introduction of silk production (in Asia and later Europe), the horse collar, and horseshoes. doi:10.1016/j.envsci.2021.07.007. Retrieved 17 May 2008. 1–2. Bibcode:2021ESPol.124..313C. Handbook of Engineering Hydrology: Environmental Hydrology and Water Management. Gordon (1928). The Question Concerning Technology and Other Essays. J.; Verkerk, M. Main article: Technology and society Technological change is the largest cause of long-term economic growth.[62][63] Throughout human history, energy production was the main constraint on economic development, and new technologies allowed humans to significantly increase the amount of available energy. Tool use was once considered a defining characteristic of the genus Homo.[132] This view was supplanted after discovering evidence of tool use among chimpanzees and other primates,[133] dolphins,[134] and crows.[135][136] For example, researchers have observed wild chimpanzees using basic foraging tools, pestles, levers, using leaves as sponges, and tree bark or vines as probes to fish termites.[137] West African chimpanzees use stone hammers and anvils for cracking nuts,[138] as do capuchin monkeys of Boa Vista, Brazil.[139] Tool use is not the only form of animal technology use; for example, beaver dams, built with wooden sticks or large stones, are a technology with "dramatic" impacts on river habitats and ecosystems.[140] See also: Science fiction The relationship of humanity with technology has been explored in science-fiction literature, for example in Brave New World, A Clockwork Orange, Nineteen Eighty-Four, Isaac Asimov's essays, and movies like Minority Report, Total Recall, Gattaca, and Inception. ISBN 978-0226612706. ^ Potts, D.T. (2012). ISSN 0048-7333. Although security measures are placed, some criminals are able to bypass them.[78] In March 2022, North Korea used Blender.io, a mixer which helped them to hide their cryptocurrency exchanges, to launder over $20.5 million in cryptocurrency, from Axie Infinity, and steal over $600 million worth of cryptocurrency from the game's owner. Bibcode:2013RSPTA.37110568W. Technological Utopianism in American Culture (20th Anniversary ed.). In its simplest form, it is humanity's way of applying knowledge to create something that serves a purpose. ^ a b c Eslamian, Saeid (2014). It's not just about individual tools; it's about systems of innovation that continuously drive human progress. ISBN 978-1101218884. "Politics in a Small Room: Subterranean Babel in Piglia's El camino de Ida". "Rupturing Engineering Education: Opportunities for Transforming Expert Identities Through Community-Based Projects". "World's Oldest Wheel Found in Slovenia". (2007). ^ "GovInfo". This later influenced hacker culture and technopaganism. Software, on the other hand, refers to the programs and applications that run on these devices. Encyclopædia Britannica. Political science experts predict that this could lead to a rise in extremism, while others see it as an opportunity to usher in a post-scarcity economy. The Archaeology of Science. These are just a few of the ethical dilemmas that you'll need to grapple with as technology continues to advance. ISSN 0265-9646. JSTOR 2742818. Republic of Slovenia Government Communication Office. S2CID 143813033. Technofix: Why Technology Won't Save Us or the Environment. Edinburgh: Sutherland and Knox. These considerations suggest that we are unique not just on our planet but in the whole Milky Way. Cars, trains, airplanes, and even space travel are all products of this ongoing evolution. The University of Chicago Booth School of Business. S2CID 163033909. 106. "Feasting, Social Complexity, and the Emergence of the Early Neolithic of Upper Mesopotamia: A View from Göbekli Tepe". According to the US Bureau of Labor Statistics, software developers earn an average annual salary of $ 93,350. Archived from the original on 19 October 2022. Retrieved 29 September 2022. Bernstein, Jared (7 October 2014). ^ Marcuse, H. Metanexus Institute. October 2020. doi:10.1086/201274. (2010). Retrieved 19 October 2022. Computer ethics focuses on issues related to computing. It has spawned the dystopian and futuristic cyberpunk genre, which juxtaposes futuristic technology with societal collapse, dystopia or decay.[141] Notable cyberpunk works include William Gibson's Neuromancer novel, and movies like Blade Runner, and The Matrix. But the definition of technology goes beyond just modern-day gadgets. Hershey: Idea Group Publishing. ^ Goody, J. The earliest known use of wind power is the sailing ship; the earliest record of a ship under sail is that of a Nile boat dating to around 7,000 BCE.[39] From prehistoric times, Egyptians likely used the power of the annual flooding of the Nile to irrigate their lands, gradually learning to regulate much of it through purposely built irrigation channels and "catch" basins.[40] The ancient Sumerians in Mesopotamia used a complex system of canals and levees to divert water from the Tigris and Euphrates rivers for irrigation.[41] Archaeologists estimate that the wheel was invented independently and concurrently in Mesopotamia (in present-day Iraq), the Northern Caucasus (Maykop culture), and Central Europe.[42] Time estimates range from 5,500 to 3,000 BCE with most experts putting it closer to 4,000 BCE.[43] The oldest artifacts with drawings depicting wheeled carts date from about 3,500 BCE.[44] More recently, the oldest-known wooden wheel in the world as of 2024 was found in the Ljubljana Marsh of Slovenia; Austrian experts have established that the wheel is between 5,100 and 5,350 years old.[45] The invention of the wheel revolutionized trade and war. The digital divide refers to the gap between those who have access to modern technologies and those who don't. Retrieved 7 November 2016. ^ EPA (19 January 2017). JSTOR 2740977. A 2017 survey found no clear consensus among economists on whether AI would increase long-term unemployment.[68] According to the World Economic Forum's "The Future of Jobs Report 2020", AI is predicted to replace 85 million jobs worldwide, and create 97 million new jobs by 2025.[69][70] From 1990 to 2007, a study in the U.S. by MIT economist Daron Acemoglu showed that an addition of one robot for every 1,000 workers decreased the employment-to-population ratio by 0.2%, or about 3.3 workers, and lowered wages by 0.42%.[71][72] Concerns about technology replacing human labor however are long-lasting. Special Issue in Honor of Nathan Rosenberg. Research Policy. From the first wheel to artificial intelligence, technology has always been about solving problems and improving life. With the rise of cyberattacks, data breaches, and identity theft, data security is more important than ever. Evidence from AI Experts". Turchin, A. In Luppicini; R. This raises important questions about who owns this data and how it should be used. Archived from the original on 24 September 2022. ISBN 978-0-19-921361-0. Pillar of Sand: Can the Irrigation Miracle Last?. S2CID 10624423. www.congress.gov. Journal of Artificial Intelligence Research. New York: HarperCollins. ^ Gottlieb, J. From the invention of the telegraph to smartphones, communication technologies have evolved to make it easier for people to connect across vast distances. "Viewpoint: When Will AI Exceed Human Performance? 39 (3): 312–320. Archived (PDF) from the original on 16 January 2023. American Journal of Human Genetics. Technology and the Future (11th ed.). OUP Oxford. Modern research has turned to investigate the internet's downsides, including disinformation, polarization, hate speech, and propaganda.[65] Since the 1970s, technology's impact on the environment has been criticized, leading to a surge in investment in solar, wind, and other forms of clean energy. Pollution of Lakes and Rivers : a Paleoenvironmental Perspective (2nd ed.). The Hindu. 361–363. "Crows use tools to find food". ISBN 978-1875368051. (1997). ISBN 978-0670022151. The transhumanism movement is founded upon the "continued evolution of human life beyond its current human form" through science and technology, informed by "life-promoting principles and values."[113] The movement gained wider popularity in the early 21st century.[114] Singularitarians believe that machine superintelligence will "accelerate technological progress" by orders of magnitude and "create even more intelligent entities ever faster", which may lead to a pace of societal and technological change that is "incomprehensible" to us. MIT News | Massachusetts Institute of Technology. Environment and Planning A. Working in this area has the additional advantage that the computer engineer can choose between positions in the hardware and software areas or mixing these two areas. 128 (6): 2188–2244. Retrieved 12 November 2020. Environmental Science & Policy. ISSN 1356-9317. ^ Aristotle (2009). Guide to the Aqueducts of Ancient Rome. ^ Cordaux, Richard; Stoneking, Mark (2003). ISBN 978-1538105047. ^ Krieger, Joshua L.; Schnitzer, Monika; Watzinger, Martin (1 May 2019). S2CID 8746462. ISBN 978-1134774661. Who is responsible when a self-driving car crashes, or when an algorithm makes a biased decision? ISBN 978-0199652594. "GNR: Three Overlapping Revolutions". "The Roboethics Roadmap". 1: 229–46. Azania: Archaeological Research in Africa. Archived from the original on 4 December 2016. Information technology (IT) is the use of computers, storage, networking and other physical devices, infrastructure and processes to create, process, store, secure and exchange all forms of electronic data. 319, no. Archived (PDF) from the original on 10 September 2022. ^ a b Rosenberg, Elizabeth; Harrell, Peter E.; Shiffman, Gary M.; Dorshimer, Sam (2019). Today, smartphones serve as all-in-one devices that allow you to talk, text, browse the internet, and more—all from the palm of your hand. Archived from the original on 29 March 2009. 1–18. OCLC 8682103. 571 (7766). doi:10.1016/j.spacepol.2009.02.008. ISSN 0307-3114. "The relationship between science and technology". From automation to e-commerce, the role of technology in business cannot be overstated. ^ Wrangham, R. Retrieved 22 May 2007. ISSN 0734-1512. Retrieved 13 February 2007. "Standing on the Shoulders of Science" (PDF). Simon & Schuster. New York: Vintage. ISSN 0011-3204. Environmental Technology As the world grapples with environmental challenges, technology is stepping in to offer solutions. "Population Growth and Technological Change: One Million B.C. to 1990". Almost certainly yes, given the speed with which it appeared on Earth. "Energy and the English Industrial Revolution". ISBN 978-0745634692. 91–132. Archived from the original on 21 September 2006. Bibcode:2021QSRv..25906907S. "Introduction: Environmental Justice and the Transformation of Science and Engineering". ^ Sagan, Carl; Druyan, Ann; Leakey, Richard. ^ Grainger, Alan; Francisco, Herminia A.; Tiraswat, Penporn (July 2003). "Man the Tool-Maker". 15–49. The Horse, the Wheel, and Language: How Bronze-Age Riders from the Eurasian Steppes Shaped the Modern World. Syracuse University Press. ^ Al-Rodhan, Nayef. What's the Future of Technology? Heidegger, Martin (1977). doi:10.4324/9781315588605. "Early Voices: The Leap to Language". Archived from the original on 5 December 2020. More recent technological inventions, including the printing press, telephone, and the Internet, have lowered barriers to communication and ushered in the knowledge economy. Blockchain could reshape entire industries by making processes more secure and transparent. Learn more. New York: PublicAffairs. ^ Postel, Sandra (1999). ^ Hansson, Sven Ove (2017). R. The Space Age began with the launch of Sputnik 1 in 1957, and later the launch of crewed missions to the moon in the 1960s. The wheel, electricity, the telephone, and the internet are all innovations that fundamentally changed the world. In addition, many people in this sector are developing strategies for integrating Computer Differences into clothing and fabrics. ^ Oakley, K. Antifragile. ISBN 978-1783486595. ISBN 978-1108835558. The Transhumanist Reader. G. ^ Fleming, Sean (7 May 2021). And engineering ethics deals with the professional standards of engineers, including software engineers and their moral responsibilities to the public.[96] A wide branch of technology ethics is concerned with the ethics of artificial intelligence: it includes robot ethics, which deals with ethical issues involved in the design, construction, use, and treatment of robots,[97] as well as machine ethics, which is concerned with ensuring the ethical behavior of artificially intelligent agents.[98] Within the field of AI ethics, significant yet-unsolved research problems include AI alignment (ensuring that AI behaviors are aligned with their creators' intended goals and interests) and the reduction of algorithmic bias. Wearable health devices, telemedicine, and personalized medicine are just a few examples of how technology is making a difference in healthcare today. Cohen, Benjamin; Ottinger, Gwen (2011). However, this rapid technological progress comes with significant challenges. Conclusion If you have considered a career in computer technology, you must remember that this can be an economic reward in addition to personal fulfillment. phys.org. "The impact of changes in agricultural technology on long-term trends in deforestation". The Thomson Corporation. "Science and Technology". New Society Publishers. "The First Baby Boom: Skeletal Evidence Shows Abrupt Worldwide Increase In Birth Rate During Neolithic Period". Economic Impact Technology has been a driving force in economic growth. Retrieved 13 December 2019. ISBN 978-0865717046. ^ Blackford, R.; Bostrom, N.; Dupuy, J.-P. 25 (2):

151–68. Society for Philosophy and Technology Quarterly Electronic Journal. Current Trends in Technology Technology never stands still. ISSN 0277-3791. It has evolved in response to human needs, creating a path of innovation that continues to accelerate. ^ Hare, Ronald (1970). 124 (Environmental Science & Policy): 313–323. iScience. "The Communication Revolution, 1760–1933". The Singularity is Near. (3 October 2016). (12 December 2012). S2CID 203169705. (1 August 2017). 229–248. ISBN 978-1456815653. JSTOR 2844356. Archived from the original on 2 September 2022. Communication Technology The way you communicate has drastically changed, thanks to technology. Chicago: University of Chicago Press. "Magnetostratigraphy and cosmogenic dating of Wonderwerk Cave: New constraints for the chronology of the South African Earlier Stone Age". Springer New York. From the discovery of X-rays to the development of vaccines and robotic surgery, medical innovations continue to push the boundaries of what's possible in health care. Some of the industries that typically employ computer engineers are: Financial Services Computer manufacturers Chemical company Defense contractors consultation transport manufacturing Consumer Goods It is also important to know that computer engineers can work successfully for both small startups and multinational companies. www.govinfo.gov n. Eventually, the working of metals led to the discovery of alloys such as bronze and brass (about 4,000 BCE). Social Media and Democracy: The State of the Field, Prospects for Reform. The History and Future of Workplace". NBC News. Some thinkers believe that this may shatter our sense of self, and have urged for renewed public debate exploring the issue more thoroughly;[106] others fear that directed evolution could lead to eugenics or extreme social inequality. Ottinger, Gwen (2011). River Flow 2016: Eighth International Conference on Fluvial Hydraulics. Technology became increasingly influenced by science, beginning a cycle of mutual advancement.[55] Main articles: Industrial Revolution, Second Industrial Revolution, and Information Age The automobile, here the original Benz Patent-Motorwagen, revolutionized personal transportation. (1 September 1994). ^ "Remarks Upon Signing Bill Creating the National Commission on Technology, Automation, and Economic Progress. 119: "With the industrial revolution and the important part England played in it, the word technology was to lose this meaning as the subject or thrust of a branch of education, as first in English and then in other languages it embodied all technical activity based on the application of science to practical ends." ^ Schiffer, M. 21 (3): 237–249. The roots of technology stretch back to the dawn of human civilization. With the advancement of technology that has made mobile devices popular, computer engineers are keen to make computing devices more mobile. Archived from the original on 6 March 2022. In business, technology helps streamline operations, reduce costs, and increase productivity. "Control of Fire in the Paleolithic: Evaluating the Cooking Hypothesis". ^ "'Oldest remains' outside Africa reset human migration clock". Additionally, children could contribute labor to the raising of crops more readily than they could participate in hunter-gatherer activities.[30][31] With this increase in population and availability of labor came an increase in labor specialization.[32] What triggered the progression from early Neolithic villages to the first cities, such as Uruk, and the first civilizations, such as Sumer, is not specifically known; however, the emergence of increasingly hierarchical social structures and specialized labor, of trade and war among adjacent cultures, and the need for collective action to overcome environmental challenges such as irrigation, are all thought to have played a role.[33] The invention of writing led to the spread of cultural knowledge and became the basis for history, libraries, schools, and scientific research.[34] Continuing improvements led to the furnace and bellows and provided, for the first time, the ability to smelt and forge gold, copper, silver, and lead – native metals found in relatively pure form in nature.[35] The advantages of copper tools over stone, bone and wooden tools were quickly apparent to early humans, and native copper was probably used from near the beginning of Neolithic times (about 10 kya).[36] Native copper does not naturally occur in large amounts, but copper ores are quite common and some of them produce metal easily when burned in wood or charcoal fires. ^ "U.S. takes aim at North Korean crypto laundering". "It's Not a Skills Gap That's Holding Wages Down: It's the Weak Economy, Among Other Things". Archived from the original on 20 September 2022. The Yearbook of Comparative Literature. Technology influences nearly every aspect of your life, from how you communicate to how you travel, work, and even entertain yourself. Fundamental Issues in Archaeology. S2CID 28785984. 303. ISBN 978-1317116530. ISBN 978-0495030393. (2003). JSTOR j.ctt7rpm1. (2021). Technology, War and Fascism: Collected Papers of Herbert Marcuse, Volume 1. Innovations such as artificial intelligence (AI), biotechnology, and renewable energy are set to redefine how we live, work, and interact. Simple machines (such as the lever, the screw, and the pulley) were combined into more complicated tools, such as the wheelbarrow, windmills, and clocks.[53] A system of universities developed and spread scientific ideas and practices, including Oxford and Cambridge.[54] The Renaissance era produced many innovations, including the introduction of the movable type printing press to Europe, which facilitated the communication of knowledge. ^ a b Lay, M G (1992). The telegraph was the first technology to enable long-distance communication in real-time, followed by the telephone, radio, and television. ^ Villa, Paola (1983). (1855). (1 May 2022). ISBN 978-8131806678. "Earliest fire in Africa: towards the convergence of archaeological evidence and the cooking hypothesis". Second-wave philosophers like Ortega later shifted their focus from economics and politics to "daily life and living in a techno-material culture", arguing that technology could oppress "even the members of the bourgeoisie who were its ostensible masters and possessors." Third-stage philosophers like Don Ihde and Albert Borgmann represent a turn toward de-generalization and empiricism, and considered how humans can learn to live with technology.[88][page needed] Early scholarship on technology was split between two arguments: technological determinism, and social construction. 285. Tokyo: Japanese Institute of Anatolian Archaeology. Archived from the original on 31 March 2021. "Video cameras on wild birds". "Technology vs. Retrieved 11 July 2017. Between the 1970s and 1990s, American terrorist Ted Kaczynski carried out a series of bombings across America and published the Unabomber Manifesto denouncing technology's negative impacts on nature and human freedom. (1976). doi:10.2307/2118405. (2019). Terra Amata and the Middle Pleistocene archaeological record of southern France. "Urgency, uncertainty, and innovation: Building jet engines in postwar America". ISBN 978-0199606504. ^ Bessen, J. The Race between Education and Technology. ^ Vannini, Phillip; Jonathan Taggart (2013). 4 May 2020. doi:10.2307/1926047. S2CID 143449170. Solar panels, electric vehicles, and water purification systems are just a few examples. doi:10.1080/0067270X.2012.756754. ^ Rincon, Paul (7 June 2005). ^ "About us". ^ Coghlan, H. Archived from the original on 10 March 2024. University of Chicago Press. Foundations of Futures Studies, Volume 1: Human Science for a New Era. Types of Technology Technology is not a monolith; it exists in many forms, each serving a unique purpose. Retrieved 18 October 2022. 318 (5851): 765. "A worked bone assemblage from 120,000–90,000 year old deposits at Contrebandiers Cave, Atlantic Coast, Morocco". Retrieved 14 February 2023 – via Elsevier Science Direct. Science and Technology in World History, Volume 3: The Black Death, the Renaissance, the Reformation and the Scientific Revolution. Software developer Software developers are people who create computer programs. "South Asia, the Andamanese, and the Genetic Evidence for an 'Early' Human Dispersal out of Africa" (PDF). Cultural Impact Technology doesn't just change how you work and communicate—it also influences culture. "Philosophical and Ethical Problems of Technicism and Genetic Engineering". doi:10.1002/9781118555927.part1. Archived from the original on 17 October 2017. New York & London: Routledge. ^ Patterson, Gordon M. Medical technology isn't just about fancy equipment in hospitals. 7 (3): 371–383. 23 (5): 477–486. The ethical implications of innovations like AI, genetic engineering, and autonomous weapons raise important questions about how far you should go in the pursuit of progress. ^ Postman, Neil (1993). Evolution of Technology: Historical Overview Technology has come a long way since the days of stone tools. Retrieved 17 September 2022. doi:10.1038/s41586-019-1376-z. PMC 8478944. 114–115. ISSN 0033-5533. In our modern world, technology is often taken for granted, yet it plays a fundamental role in shaping society. ISSN 0372-0187. (2018). In 2005, futurist Ray Kurzweil claimed the next technological revolution would rest upon advances in genetics, nanotechnology, and robotics, with robotics being the most impactful of the three technologies.[105] Genetic engineering will allow far greater control over human biological nature through a process called directed evolution. ^ Stahl, Ann B. While technology contributes to economic development and improves human prosperity, it can also have negative impacts like pollution and resource depletion, and can cause social harms like technological unemployment resulting from automation. Retrieved 16 January 2022. 30 June 2017. The Review of Economics and Statistics. 72 (6): 1586–1590, author reply 1590–93. "Is life likely to exist elsewhere in the [Milky Way] galaxy? Some of the key innovations in transportation include the invention of the airplane, which made global travel possible, and the automobile, which gave individuals the freedom to move on their own terms. Archived from the original on 19 January 2023. Retrieved 13 September 2022. ^ Dusek, Val (2006). Wadsworth Publishing. ^ McShane, Sveta (19 April 2016). Journal of Political Economy. Springer Science and Business Media LLC: 500–504. "technology". ^ a b de Vries, M. ISBN 978-0306471667. Archived from the original on 9 February 2023. Archived from the original on 17 April 2021. ^ "Stanford Existential Risks Initiative". 47 (3): 486–512. Archived (PDF) from the original on 12 September 2022. While the roles and responsibilities above can give you a deeper awareness of what computer engineers do, the depth and scope of their work is wider. What will the future of technology look like? Some of the most notable milestones in technological history include the invention of the printing press, the steam engine, and electricity. Tooze, A. ^ Union of Concerned Scientists (6 November 2017). S2CID 143970611. Science in the 20th Century and Beyond. W. builtin.com. ^ "How many jobs do robots really replace?". The issue of its origins and definitions". Archived from the original on 14 February 2023. Retrieved 12 September 2022. ISBN 978-1118334294. S2CID 148798286. Archived from the original on 30 December 2017. H±: Transhumanism and Its Critics. 24 (9): 102988. The engineering in beaver dams. In an age where data is the new oil, privacy concerns are at an all-time high. ISBN 0-19-910205-8. ISBN 978-1615307012. In Zalta, E. Technology and Culture. ^ Goldin, C.; Katz, L. 81. (eds.). United Kingdom: Taylor & Francis. Ord, T. Archived from the original on 16 January 2023. The invention of the wheel in the Bronze Age allowed greater travel and the creation of more complex machines. 60: 101486. First came fire, which made edible a wider variety of foods, and made it less physically demanding to digest them. ^ Istvan, Zoltan (1 February 2015). 7 (2): 52–65. Medical Technology Medical technology has saved countless lives and improved the quality of healthcare around the globe. Archived from the original on 25 March 2023. "Hominid dietary selection before fire". Transactions of the Newcomen Society. Human Prospect. Ultimately, the journey of technology is far from over. ISBN 978-1575060422. "A Short History of Metals". Recent Progress in Robotics: Viable Robotic Service to Human: An Edition of the Selected Papers from the 13th International Conference on Advanced Robotics. ISSN 0084-3695. IT refers to the systems and devices used to store, process, and communicate information. ^ Mokyr, J. (2002). While it fosters connections, it also presents challenges such as online bullying and social isolation. Translated by Lovitt, W. Chimpanzee Material Culture. B. Billions of people use different online payment methods, such as WeChat Pay, PayPal, Alipay, and much more to help transfer money. 65–77 [75–76]. Blockchain, the technology behind cryptocurrencies, is creating new ways of securing information and conducting transactions. The New York Times. Harvard University Press. SSRN 3401853. In prehistoric times, technology was as simple as fire, stone tools, and the domestication of animals. doi:10.1007/978-3-319-00077-0_13. Early humans developed basic technologies such as fire, tools for hunting, and methods for building shelter, laying the foundation for everything that followed. S2CID 24073884. The Oxford English Dictionary. ^ Schatzberg, Eric (2006). New Light on the Most Ancient East. ^ McGrew, W. Initiative on Global Markets. To Have and Have Not: Energy in World History. (2014). MIT Press. Archived from the original on 11 July 2019. The Birth of Penicillin, and the Disarming of Microbes. Archived from the original on 16 January 2024. ^ Taleb, N. ISBN 978-1412823791. To Save Everything, Click Here: The Folly of Technological Solutionism. Bibcode:2013EnPlA..45..295V. S2CID 139085606. W.W. Norton & Company. 28. 290. ISSN 0022-3808. ISBN 978-0786490868. 15 April 2022. (2006). Let's dive into the different categories of technology that influence your daily life. Kremer, M. hdl:11245.1/cf2f5b6a-8dc8-4400-bc38-3317b0164499. These innovations have the potential to revolutionize everything from healthcare to finance, offering unprecedented opportunities—and challenges. Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences. "Stone Age Toolmakers Surprisingly Sophisticated". ISSN 0034-6535. doi:10.1111/1758-5899.12718. Transportation Technology Transportation technology has revolutionized how you move through the world. "The Unabomber and the origins of anti-tech radicalism". Archived from the original on 4 October 2022. I. The ease of communication has changed the dynamics of relationships, with social media influencing everything from friendships to romantic partnerships. 05 (11th ed.). ISBN 978-1610391399. ^ Poole, C. ^ "If Robots Take Our Jobs, Will They Make It Up to Us?". doi:10.1353/tech.2006.0201. "Approaches to the Prevention of Global Catastrophic Risks". Is another technological civilization likely to exist today? Some experts predict that in the near future, you could be interacting with AI as naturally as you do with other people. Philosophy of Technology : An Introduction for Technology and Business Students. Journal of Economic Perspectives. LCCN 2009005379. The American Prospect. J. Then came the agricultural revolution: humans no longer needed to hunt or gather to survive, and began to settle in towns and cities, forming more complex societies, with militaries and more organized forms of religion.[64] Technologies have contributed to human welfare through increased prosperity, improved comfort and quality of life, and medical progress, but they can also disrupt existing social hierarchies, cause pollution, and harm individuals or groups. S2CID 195873640. S2CID 5930045. Archived from the original on 8 April 2017. 25 (2): 75–80. 8 (1): 20–33. JSTOR 20116729. "General purpose technologies 'Engines of growth'?". Ways of the World. Technology plays a critical role in science, engineering, and everyday life. ISBN 978-0521423717. Although many customers like the privacy of cryptocurrency, many also argue that it needs more transparency and stability.[78] Technology can have both positive and negative effects on the environment. ^ Wise, George (1985). (2020). ISBN 978-1841192352. Technology (5th ed.). Machine Ethics. Plumbing, Electricity, Acoustics: Sustainable Design Methods for Architecture. www.ucsusa.org. 94–99. ^ Segal, H. 27 (2): 207–225. "What is technology? C (1992). ^ "Technology and the American Economy" (PDF). EURON Roboethics Atelier. Bibcode:1963Natur.199U1042.. doi:10.1126/science.1146788. Retrieved 1 January 2024. The first two-wheeled carts were derived from travois[48] and were first used in Mesopotamia and Iran in around 3,000 BCE.[48] The oldest known constructed roadways are the stone-paved streets of the city-state of Ur, dating to c. For other uses, see Technology (disambiguation). Berkeley: University of California Press. ^ More, M.; Vita-More, N., eds. Current Anthropology. Science. (the study and knowledge of) the practical, especially industrial, use of scientific.... J., eds. Sharma, M. ^ Thomas Michaud (2008). doi:10.1016/j.quascirev.2021.106907. The Sumerians: Their History, Culture, and Character. (2000). 3 (September 2018), pp. In 1975, there was an average of one citation of scientific literature in every three patents granted in the U.S.; by 1989, this increased to an average of one citation per patent. doi:10.1016/S0264-8377(03)00009-7. "Financial Technology and National Security". Questions about the responsible use of AI, the implications of genetic engineering, and the environmental footprint of emerging technologies need careful consideration. ISBN 978-0262539968. Automation had resulted in a need for fewer workers, a process known as technological unemployment. Quarterly Journal of Economics. "The Structure of Thinking in Technology". This event horizon is known as the technological singularity.[115] Major figures of techno-utopianism include Ray Kurzweil and Nick Bostrom. Technics and Civilization. Jr.; Owens, F. Techno-utopianism has attracted both praise and criticism from progressive, religious, and conservative thinkers.[116] See also: Luddite, Neo-Luddism, and Bioconservatism Technology's central role in our lives has drawn concerns and backlash. "Science fiction and politics: Cyberpunk science fiction as political philosophy". Environmental technology, or "green tech," includes innovations that aim to reduce pollution, conserve resources, and promote sustainability. ISBN 0-684-86311-1. "Robots and Jobs: Evidence from US Labor Markets". Archived from the original on 14 August 2020. 203 (4943): 337. (31 July 2018). The Essentials of Ancient History. It often requires problem-solving under strict constraints.[121] Technological development is "action-oriented", while scientific knowledge is fundamentally explanatory.[122] Polish philosopher Henryk Skolimowski framed it like so: "science concerns itself with what is, technology with what is to be."[123]:375 The direction of causality between scientific discovery and technological innovation has been debated by scientists, philosophers and policymakers.[124] Because innovation is often undertaken at the edge of scientific knowledge, most technologies are not derived from scientific knowledge, but instead from engineering, tinkering and chance.[125]:217–240 For example, in the 1940s and 1950s, when knowledge of turbulent combustion or fluid dynamics was still crude, jet engines were invented through "running the device to destruction, analyzing what broke [...] and repeating the process".[121] Scientific explanations often follow technological developments rather than preceding them.[125]:217–240 Many discoveries also arose from pure chance, like the discovery of penicillin as a result of accidental lab contamination.[126] Since the 1960s, the assumption that government funding of basic research would lead to the discovery of marketable technologies has lost credibility.[127][128] Probabilist Nassim Taleb argues that national research programs that implement the notions of serendipity and convexity through frequent trial and error are more likely to lead to useful innovations than research that aims to reach specific outcomes.[125][129] Despite this, modern technology is increasingly reliant on deep, domain-specific scientific knowledge. "Theories of Technology as Extension of Human Faculties". doi:10.1086/203106. Baum, S. OCLC 246896490. (2004). Retrieved 31 March 2007. Computer engineers play an important role in various software and hardware aspects of the computer process, including the creation of individual supercomputers, personal computers and microprocessors. (1 May 2009). Mountain and arctic ecosystems and species are particularly sensitive to climate change... Economic Perspectives on Employment & Labor Law EJournal. 6 May 2022. Within the realm of IT, software and hardware are the two main components. doi:10.1017/9781108890960. ^ "H.R.11611 – An Act to establish a National Commission on Technology, Automation, and Economic Progress". ISBN 978-1570037368. Whether it's the internet connecting you to the world or medical devices saving lives, technology has the power to alter societies. Hachette Books. (2009). Oxford University Press. ISBN 978-0520096622. Conclusion Technology is an ongoing journey, one that reflects the human desire to innovate and improve. ISBN 978-1135522391. ISBN 978-0471079354. Palomar College. doi:10.1038/1991042e0. Archived from the original on 11 September 2022. 48 (1): 5–30. ^ Simpson, J.; Weiner, Edmund, eds. doi:10.1007/978-3-319-48402-0_5. The Ethics of Technology: Methods and Approaches. TECHNOLOGY definition: 1. doi:10.2307/3101935. doi:10.1086/705716. 19. doi:10.1613/jair.1.11222. 3. Morozov, Evgeny (2013). Recent years have brought about a rise in social media's cultural prominence, with potential repercussions on democracy, and economic and social life. Singularity Hub. Retrieved 28 October 2024.{{cite web}}: CS1 maint: date and year (link) ^ Chaudhry, Imran Sharif; Ali, Sajid; Bhatti, Shaukat Hussain; Anser, Muhammad Khalid; Khan, Ahmad Imran; Nazar, Raima (October 2021). From social media platforms to smart devices, the amount of data being collected about you is staggering. ^ O'Neil, Dennis. What is technology?: an inaugural lecture delivered in the University of Edinburgh on November 7, 1855 (1st ed.). Brown, Lesley (ed.). Press. Springer Science & Business Media. ISBN 0-691-08631-1. St. Louis: University of Southampton Institutional Research Repository. 1963. hdl:1721.1/130324. Rochester, NY. ^ Di Nucci Pearce, M. Artificial intelligence (AI), blockchain, and quantum computing are just a few examples of emerging technologies that are reshaping the future. It's fascinating to reflect on how technology has evolved over the millennia. "Climate Impacts on Ecosystems". B., eds. ISBN 9780306471667. Life in Neolithic Farming Communities: Social Organization, Identity, and Differentiation. Bibcode:2022SpPol..6001486G. (24 September 2021). "Egypt's Nile Valley Basin Irrigation". In short, technology is anything created to make life easier or more efficient. (2011). ^ Austin, David; Macauley, Molly K. ^ Harvati, Katerina; Röding, Carolin; Bosman, Abel M.; Karakostis, Fotios A.; Grün, Rainer; Stringer, Chris; Karkanas, Panagiotis; Thompson, Nicholas C.; Koutoulidis, Vassilis; Moulopoulos, Lia A.; Gorgoulis, Vassilis G.; Kouloukoussa, Mirsini (2019). ^ Narin, Francis; Olivastro, Dominic (1 June 1992). "Discounting, Buck-Passing, and Existential Risk Mitigation: The Case of Space Colonization". Since the invention of the wheel, technologies have helped increase humans' economic output. ^ a b c d e Bell, W. "Dynamic common correlated effects of technological innovations and institutional performance on environmental quality: Evidence from East-Asia and Pacific countries". It aims to explore the range of plausible futures and incorporate human values in the development of new technologies.[99]:54 More generally, futures researchers are interested in improving "the freedom and welfare of humankind".[99]:73 It relies on a thorough quantitative and qualitative analysis of past and present technological trends, and attempts to rigorously extrapolate them into the future.[99] Science fiction is often used as a source of ideas.[99]:173 Futures research methodologies include survey research, modeling, statistical analysis, and computer simulations.[99]:187 Main article: Global catastrophic risk Existential risk researchers analyze risks that could lead to human extinction or civilizational collapse, and look for ways to build resilience against them.[100][101] Relevant research centers include the Cambridge Center for the Study of Existential Risk, and the Stanford Existential Risk Initiative.[102] Future technologies may contribute to the risks of artificial general intelligence, biological warfare, nuclear warfare, nanotechnology, anthropogenic climate change, global warming, or stable global totalitarianism, though technologies may also help us mitigate asteroid impacts and gamma-ray bursts.[103] In 2019 philosopher Nick Bostrom introduced the notion of a vulnerable world, "one in which there is some level of technological development at which civilization almost certainly gets devastated by default", citing the risks of a pandemic caused by bioterrorists, or an arms race triggered by the development of novel armaments and the loss of mutual assured destruction.[104] He invites policymakers to question the assumptions that technological progress is always beneficial, that scientific openness is always preferable, or that they can afford to wait until a dangerous technology has been invented before they prepare mitigations.[104] Main article: Emerging technologies Experimental 3D printing of muscle tissue Emerging technologies are novel technologies whose development or practical applications are still largely unrealized. Now that you know what computer technology is, you can determine if this is an appropriate and beneficial career path for you. OCLC 907132694. ISBN 978-1466552500. doi:10.1016/j.isci.2021.102988. ^ "Robots and AI Taking Over Jobs: What to Know | Built In". Chichester: John Wiley & Sons. ^ Bostrom, Nick; Cirkovic, Milan M. ISBN 978-0226550275. ^ Salomon 1984, pp. Archived from the original on 15 November 2016. They used a lead sulfide flux in the smelting of ores, along with the use of a wind-drafted clay kiln, which released lead into the atmosphere and the sediment of rivers.[86] Main article: Philosophy of technology Philosophy of technology is a branch of philosophy that studies the "practice of designing and creating artifacts", and the "nature of the things so created."[87] It emerged as a discipline over the past two centuries, and has grown "considerably" since the 1970s.[88] The humanities philosophy of technology is concerned with the "meaning of technology for, and its impact on, society and culture".[87] Initially, technology was seen as an extension of the human organism that replicated or amplified bodily and mental faculties.[89] Marx framed it as a tool used by capitalists to oppress the proletariat, but believed that technology would be a fundamentally liberating force once it was "freed from societal deformations". Ensuring that the benefits of technology are shared broadly will be essential for fostering an inclusive future. ^ Albion, Robert G. Goodheart-Wilcox Company. ^ "U.S. ties North Korean hacker group to Axie Infinity crypto theft". Retrieved 11 November 2016. 199 (4898): 1042–1043. doi:10.2307/2844356. 171–175. ^ Rutz, C.; Bluff, L.A.; Weir, A.A.S.; Kacelnik, A. "Understanding is a Poor Substitute for Convexity (Antifragility)" (PDF). Archived from the original on 8 November 2016. Brookings. Laxmi Publications Pvt Limited. doi:10.1016/0048-7333(94)01001-3. PMID 12817589. This has both enriched cultural diversity and raised concerns about the spread of misinformation and the commodification of art. ^ a b Scranton, Philip (1 May 2006). L.; Olszewski, Deborah I.; Hajraoui, Mohamed Abdeljalil El; Dibble, Harold L. Retrieved 4 October 2022. Archived from the original on 4 September 2017. "Technology's challenge to democracy: What of the human" (PDF). ^ Hall, Harry Reginald Holland (1911). Wikidata Q26221492. Hardware consists of physical devices like computers, smartphones, and servers. Information Technology When you think of technology in the 21st century, information technology (IT) likely comes to mind first.

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