Information and communications technology

**Information and communications technology** (**ICT**) is an extensional term for [information technology](https://en.wikipedia.org/wiki/Information_technology) (IT) that stresses the role of [unified communications](https://en.wikipedia.org/wiki/Unified_communications) and the integration of [telecommunications](https://en.wikipedia.org/wiki/Telecommunications) ([telephone](https://en.wikipedia.org/wiki/Telephone) lines and wireless signals) and computers, as well as necessary [enterprise software](https://en.wikipedia.org/wiki/Enterprise_software), [middleware](https://en.wikipedia.org/wiki/Middleware), storage and audiovisual, that enable users to access, store, transmit, understand and manipulate information.

ICT is also used to refer to the [convergence](https://en.wikipedia.org/wiki/Convergence_(telecommunications)) of audiovisuals and [telephone networks](https://en.wikipedia.org/wiki/Telephone_network) with [computer networks](https://en.wikipedia.org/wiki/Computer_network) through a single cabling or link system. There are large economic incentives to merge the telephone networks with the computer network system using a single unified system of cabling, signal distribution, and management. ICT is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite systems and so on, as well as the various services and appliances with them such as video conferencing and distance learning. ICT also includes analog technology, such as paper communication, and any mode that transmits communication.

ICT is a broad subject and the concepts are evolving. It covers any product that will store, retrieve, manipulate, transmit, or receive information electronically in a digital form (e.g., personal computers including smartphones, digital television, email, or robots). [Skills Framework for the Information Age](https://en.wikipedia.org/wiki/Skills_Framework_for_the_Information_Age) is one of many models for describing and managing competencies for ICT professionals for the 21st century.

Etymology

The phrase "information and communication technologies" has been used by academic researchers since the 1980s. The abbreviation "ICT" became popular after it was used in a report to the UK government by [Dennis Stevenson](https://en.wikipedia.org/wiki/Dennis_Stevenson,_Baron_Stevenson_of_Coddenham) in 1997, and then in the revised [National Curriculum](https://en.wikipedia.org/wiki/National_Curriculum_(England,_Wales_and_Northern_Ireland)) for England, Wales and Northern Ireland in 2000. However, in 2012, the [Royal Society](https://en.wikipedia.org/wiki/Royal_Society) recommended that the use of the term "ICT" should be discontinued in British schools "as it has attracted too many negative connotations". From 2014, the National Curriculum has used the word computing, which reflects the addition of [computer programming](https://en.wikipedia.org/wiki/Computer_programming) into the curriculum.

Variations of the phrase have spread worldwide. The United Nations has created a "[United Nations Information and Communication Technologies Task Force](https://en.wikipedia.org/wiki/United_Nations_Information_and_Communication_Technologies_Task_Force)" and an internal "Office of Information and Communications Technology".

Monetisation

The money spent on IT worldwide has been estimated as US$3.8 trillion in 2017 and has been growing at less than 5% per year since 2009. The estimate 2018 growth of the entire ICT is 5%. The biggest growth of 16% is expected in the area of new technologies ([IoT](https://en.wikipedia.org/wiki/Internet_of_things), [Robotics](https://en.wikipedia.org/wiki/Robotics), [AR](https://en.wikipedia.org/wiki/Augmented_reality)/[VR](https://en.wikipedia.org/wiki/Virtual_reality), and [AI](https://en.wikipedia.org/wiki/Artificial_intelligence)).

The 2014 IT budget of the US federal government was nearly $82 billion. IT costs, as a percentage of corporate revenue, have grown 50% since 2002, putting a strain on IT budgets. When looking at current companies' IT budgets, 75% are recurrent costs, used to "keep the lights on" in the IT department, and 25% are the cost of new initiatives for technology development.

The average IT budget has the following breakdown:

* 31% personnel costs (internal)
* 29% software costs (external/purchasing category)
* 26% hardware costs (external/purchasing category)
* 14% costs of external service providers (external/services).

The estimate of money to be spent in 2022 is just over US$6 trillion.

Technological capacity

The world's technological capacity to store information grew from 2.6 (optimally compressed) [exabytes](https://en.wikipedia.org/wiki/Exabytes) in 1986 to 15.8 in 1993, over 54.5 in 2000, and to 295 (optimally compressed) [exabytes](https://en.wikipedia.org/wiki/Exabytes) in 2007, and some 5 [zetta bytes](https://en.wikipedia.org/wiki/Zettabyte_Era) in 2014. This is the informational equivalent to 1.25 stacks of [CD-ROM](https://en.wikipedia.org/wiki/CD-ROM) from the [earth](https://en.wikipedia.org/wiki/Earth) to the [moon](https://en.wikipedia.org/wiki/Moon) in 2007, and the equivalent of 4,500 stacks of printed books from the [earth](https://en.wikipedia.org/wiki/Earth) to the [sun](https://en.wikipedia.org/wiki/Sun) in 2014. The world's technological capacity to receive information through one-way [broadcast](https://en.wikipedia.org/wiki/Broadcast) networks was 432 [exabytes](https://en.wikipedia.org/wiki/Exabytes) of (optimally compressed) information in 1986, 715 (optimally compressed) [exabytes](https://en.wikipedia.org/wiki/Exabytes) in 1993, 1.2 (optimally compressed) [zettabytes](https://en.wikipedia.org/wiki/Zettabytes) in 2000, and 1.9 [zettabytes](https://en.wikipedia.org/wiki/Zettabytes) in 2007. The world's effective capacity to exchange information through two-way [telecommunication](https://en.wikipedia.org/wiki/Telecommunication) networks was 281 [petabytes](https://en.wikipedia.org/wiki/Petabytes) of (optimally compressed) information in 1986, 471 [petabytes](https://en.wikipedia.org/wiki/Petabytes) in 1993, 2.2 (optimally compressed) [exabytes](https://en.wikipedia.org/wiki/Exabytes) in 2000, 65 (optimally compressed) [exabytes](https://en.wikipedia.org/wiki/Exabytes) in 2007, and some 100 [exabytes](https://en.wikipedia.org/wiki/Exabytes) in 2014. The world's technological capacity to compute information with humanly guided general-purpose computers grew from 3.0 × 10^8 MIPS in 1986, to 6.4 x 10^12 MIPS in 2007.