



IBM

International Business Machines Corporation (using the trademark **IBM**), nicknamed **Big Blue**,^[6] is an American multinational technology company headquartered in Armonk, New York and present in over 175 countries.^{[7][8]} It is a publicly traded company and one of the 30 companies in the Dow Jones Industrial Average.^{[a][9][10]} IBM is the largest industrial research organization in the world, with 19 research facilities across a dozen countries, having held the record for most annual U.S. patents generated by a business for 29 consecutive years from 1993 to 2021.

IBM was founded in 1911 as the Computing-Tabulating-Recording Company (CTR), a holding company of manufacturers of record-keeping and measuring systems. It was renamed "International Business Machines" in 1924 and soon became the leading manufacturer of punch-card tabulating systems. During the 1960s and 1970s, the IBM mainframe, exemplified by the System/360, was the world's dominant computing platform, with the company producing 80 percent of computers in the U.S. and 70 percent of computers worldwide.^[11]

IBM debuted in the microcomputer market in 1981 with the IBM Personal Computer, — its DOS software provided by Microsoft, — which became the basis for the majority of personal computers to the present day.^[12] The company later also found success in the portable space with the ThinkPad. Since the 1990s, IBM has concentrated on computer services, software, supercomputers, and scientific research; it sold its microcomputer division to Lenovo in 2005. IBM continues to develop mainframes, and its supercomputers have consistently ranked among the most powerful in the world in the 21st century.

As one of the world's oldest and largest technology companies, IBM has been responsible for several technological innovations, including the Automated

International Business Machines Corporation



1972–current logo, by Paul Rand



IBM CHQ in Armonk, New York, in 2014

Trade name	IBM
Formerly	<u>Computing-Tabulating-Recording Company</u> (1911–1924)
Company type	<u>Public</u>
Traded as	<u>NYSE: IBM</u> (https://www.nyse.com/quote/XNYS:IBM) <u>DJIA component</u> <u>S&P 100 component</u> <u>S&P 500 component</u>
ISIN	ISIN: <u>US4592001014</u> (https://isin.toolforge.org/?language=en&isin=US4592001014)
Industry	<u>Information technology</u>
Predecessors	<u>Bundy Manufacturing Company</u> <u>Computing Scale Company of America</u> <u>International Time Recording Company</u> <u>Tabulating Machine Company</u>

Teller Machine (ATM), Dynamic Random-Access Memory (DRAM), the floppy disk, the hard disk drive, the magnetic stripe card, the relational database, the SQL programming language, and the Universal Product Code (UPC) barcode. The company has made inroads in advanced computer chips, quantum computing, artificial intelligence, and data infrastructure.^{[13][14][15]} IBM employees and alumni have won various recognitions for their scientific research and inventions, including six Nobel Prizes and six Turing Awards.^[16]

History

1910s–1950s

IBM originated with several technological innovations developed and commercialized in the late 19th century. Julius E. Pitrap patented the computing scale in 1885;^[17] Alexander Dey invented the dial recorder (1888);^[18] Herman Hollerith patented the Electric Tabulating Machine (1889);^[19] and Willard Bundy invented a time clock to record workers' arrival and departure times on a paper tape (1889).^[20] On June 16, 1911, their four companies were amalgamated in New York State by Charles Ranlett Flint forming a fifth company, the Computing-Tabulating-Recording Company (CTR) based in Endicott, New York.^{[1][21]} The five companies had 1,300 employees and offices and plants in Endicott and Binghamton, New York; Dayton, Ohio; Detroit, Michigan; Washington, D.C.; and Toronto, Canada.^[22]

Collectively, the companies manufactured a wide array of machinery for sale and lease, ranging from commercial scales and industrial time recorders, meat and cheese slicers, to tabulators and punched cards. Thomas J. Watson, Sr., fired from the National Cash Register Company by John Henry Patterson, called on Flint and, in 1914, was offered a position at CTR.^[23] Watson joined CTR as general manager and then, 11 months later, was made President when antitrust cases relating to his time at NCR were resolved.^[24] Having learned Patterson's pioneering business practices, Watson proceeded to put the stamp of NCR onto CTR's

	<u>Computing-Tabulating-Recording Company</u>
<u>Founded</u>	June 16, 1911 (as <u>Computing-Tabulating-Recording Company</u>) <u>Endicott</u> , New York, U.S. ^[1]
<u>Founders</u>	<u>George Winthrop Fairchild</u> <u>Charles Ranlett Flint</u> <u>Herman Hollerith</u>
<u>Headquarters</u>	1 Orchard Road, <u>Armonk</u> , New York, United States
<u>Area served</u>	177 countries
<u>Key people</u>	<u>Arvind Krishna</u> (chairman & CEO) ^{[2][3]} <u>Gary Cohn</u> (vice chairman) ^[4]
<u>Products</u>	<u>Automation</u> <u>Robotics</u> <u>Artificial intelligence</u> <u>Cloud computing</u> <u>Consulting</u> <u>Blockchain</u> <u>Computer hardware</u> <u>Software</u> <u>Quantum computing</u>
<u>Brands</u>	<u>IBM Cloud</u> · <u>IBM Cognos Analytics</u> · <u>IBM Planning Analytics</u> · <u>SQL</u> · <u>Watson</u> · <u>Watsonx</u> · <u>Information Management Software</u> · <u>SPSS</u> · <u>ILOG</u> · <u>Tivoli Software</u> · <u>WebSphere</u> · <u>alphaWorks</u> · <u>Mashup Center</u> · <u>PureQuery</u> · <u>Fortran</u> · <u>IBM Quantum Platform</u> · <u>Mainframe</u> · <u>Power Systems</u> · <u>IBM storage</u> · <u>IBM Q System One</u> · <u>(Full List)</u>
<u>Services</u>	<u>Outsourcing</u> · <u>Professional services</u> · <u>Managed services</u>
<u>Revenue</u>	▲ <u>US\$61.860 billion</u> (2023)
<u>Operating income</u>	▲ <u>US\$8.690 billion</u> (2023)
<u>Net income</u>	▲ <u>US\$7.502 billion</u> (2023)
<u>Total assets</u>	▲ <u>US\$135.241 billion</u> (2023)
<u>Total equity</u>	▲ <u>US\$22.613 billion</u> (2023)
<u>Number of employees</u>	282,200 (December 2023)
<u>Subsidiaries</u>	<u>Pre-WW2 list of subsidiaries</u>

companies.^{[23]:105} He implemented sales conventions, "generous sales incentives, a focus on customer service, an insistence on well-groomed, dark-suited salesmen and had an evangelical fervor for instilling company pride and loyalty in every worker".^{[25][26]} His favorite slogan, "THINK", became a mantra for each company's employees.^[25] During Watson's first four years, revenues reached \$9 million (\$158 million today) and the company's operations expanded to Europe, South America, Asia and Australia.^[25] Watson never liked the clumsy hyphenated name "Computing-Tabulating-Recording Company" and chose to replace it with the more expansive title "International Business Machines" which had previously been used as the name of CTR's Canadian Division;^[27] the name was changed on February 14, 1924.^[28] By 1933, most of the subsidiaries had been merged into one company, IBM.^[29]

Website [ibm.com \(http://ibm.com\)](http://ibm.com)

Footnotes / references
[5]



NACA researchers using an IBM type 704 electronic data processing machine in 1957

The Nazis made extensive use of Hollerith punch card and alphabetical accounting equipment and IBM's majority-owned German subsidiary, Deutsche Hollerith Maschinen GmbH (Dehomag), supplied this equipment from the early 1930s. This equipment was critical to Nazi efforts to categorize citizens of both Germany and other nations that fell under Nazi control through ongoing censuses. These census data were used to facilitate the round-up of Jews and other targeted groups, and to catalog their movements through the machinery of the Holocaust, including internment in the concentration camps.^[30] Nazi concentration camps operated a Hollerith department called Hollerith Abteilung, which had IBM machines, including calculating and sorting machines.^[31]

IBM as a military contractor produced 6% of the M1 Carbine rifles used in World War II, about 346,500 of them, between August 1943 and May 1944. IBM built the Automatic Sequence Controlled Calculator, an electromechanical computer, during World War II. It offered its first commercial stored-program computer, the vacuum tube based IBM 701, in 1952. The IBM 305 RAMAC introduced the hard disk drive in 1956. The company switched to transistorized designs with the 7000 and 1400 series, beginning in 1958. In which, IBM considered the 1400 series the "model T" of computing, due to it being the first computer with over ten thousand sales by IBM.

In 1956, the company demonstrated the first practical example of artificial intelligence when Arthur L. Samuel of IBM's Poughkeepsie, New York, laboratory programmed an IBM 704 not merely to play checkers but "learn" from its own experience. In 1957, the FORTRAN scientific programming language was developed.

1960s–1980s

In 1961, IBM developed the SABRE reservation system for American Airlines and introduced the highly successful Selectric typewriter. Also in 1961 IBM used the IBM 7094 to generate the first song sung completely by a computer using synthesizers. The song was Daisy, Daisy (Bicycle built for two).

In 1963, IBM employees and computers helped NASA track the orbital flights of the Mercury astronauts. A year later, it moved its corporate headquarters from New York City to Armonk, New York. The latter half of the 1960s saw IBM continue its support of space exploration, participating in the 1965 Gemini

flights, 1966 Saturn flights, and 1969 lunar mission. IBM also developed and manufactured the Saturn V's Instrument Unit and Apollo spacecraft guidance computers.

On April 7, 1964, IBM launched the first computer system family, the IBM System/360. It spanned the complete range of commercial and scientific applications from large to small, allowing companies for the first time to upgrade to models with greater computing capability without having to rewrite their applications. It was followed by the IBM System/370 in 1970. Together the 360 and 370 made the IBM mainframe the dominant mainframe computer and the dominant computing platform in the industry throughout this period and into the early 1980s. They and the operating systems that ran on them such as OS/VS1 and MVS, and the middleware built on top of those such as the CICS transaction processing monitor, had a near-monopoly-level market share and became the thing IBM was most known for during this period.^[32]



An IBM System/360 in use at the University of Michigan c. 1969



IBM guidance computer hardware for the Saturn V Instrument Unit

In 1969, the United States of America alleged that IBM violated the Sherman Antitrust Act by monopolizing or attempting to monopolize the general-purpose electronic digital computer system market, specifically computers designed primarily for business, and subsequently alleged that IBM violated the antitrust laws in IBM's actions directed against leasing companies and plug-compatible peripheral manufacturers. Shortly after, IBM unbundled its software and services in what many observers believed was a direct result of the lawsuit, creating a competitive market for software. In 1982, the Department of Justice dropped the case as "without merit".^[33]

Also in 1969, IBM engineer Forrest Parry invented the magnetic stripe card that would become ubiquitous for credit/debit/ATM cards, driver's licenses, rapid transit cards and a multitude of other identity and access control applications. IBM pioneered the manufacture of these cards, and for most of the 1970s, the data processing systems and software for such applications ran exclusively on IBM computers. In 1974, IBM engineer George J. Laurer developed the Universal Product Code.^[34] IBM and the World Bank first introduced financial swaps to the public in 1981, when they entered into a swap agreement.^[35]

IBM entered the microcomputer market in the 1980s with the IBM Personal Computer (IBM 5150). The computer, which spawned a long line of successors, had a profound influence on the development of the personal computer market and became one of IBM's best selling products of all time. Due to a lack of foresight by IBM,^{[36][37]} the PC was not well protected by intellectual property laws. As a consequence, IBM quickly began losing its market dominance to emerging, compatible competitors in the PC market.

In 1985, IBM collaborated with Microsoft to develop a new operating system, which was released as OS/2. Following a dispute, Microsoft severed the collaboration and IBM continued development of OS/2 on its own but it failed in the marketplace against Microsoft's Windows during the mid-1990s.

1990s–2000s

In 1991 IBM began spinning off its many divisions into autonomous subsidiaries (so-called "Baby Blues") in an attempt to make the company more manageable and to streamline IBM by having other investors finance those companies.^{[38][39]} These included AdStar, dedicated to disk drives and other data storage products; IBM Application Business Systems, dedicated to mid-range computers; IBM Enterprise Systems, dedicated to mainframes; Pennant Systems, dedicated to mid-range and large printers; Lexmark, dedicated to small printers; and more.^[40] Lexmark was acquired by Clayton & Dubilier in a leveraged buyout shortly after its formation.^[41]



The IBM Personal Computer (pictured) became one of IBM's best selling products and has had a wide influence on personal computing since its release in 1981.

In September 1992, IBM completed the spin-off of their various non-mainframe and non-midrange, personal computer manufacturing divisions, combining them into an autonomous wholly owned subsidiary known as the IBM Personal Computer Company (IBM PC Co.).^{[42][43]} This corporate restructuring came after IBM reported a sharp drop in profit margins during the second quarter of fiscal year 1992; market analysts attributed the drop to a fierce price war in the personal computer market over the summer of 1992.^[44] The corporate restructuring was one of the largest and most expensive in history up to that point.^[45] By the summer of 1993, the IBM PC Co. had divided into multiple business units itself, including Ambra Computer Corporation and the IBM Power Personal Systems Group, the former an attempt to design and market "clone" computers of IBM's own architecture and the latter responsible for IBM's PowerPC-based workstations.^{[46][47]} IBM PC Co. introduced the ThinkPad clone computers, which IBM would heavily market and would eventually become one of the best-selling series of notebook computers.^[48]

In 1993, IBM posted an \$8 billion loss – at the time the biggest in American corporate history.^[49] Lou Gerstner was hired as CEO from RJR Nabisco to turn the company around.^[50] In 1995, IBM purchased Lotus Software, best known for its Lotus 1-2-3 spreadsheet software.^[51] During the decade, IBM was working on a new operating system, named the Workplace OS project. Despite a large amount of money spent on the project, it was cancelled in 1996.



IBM inventions (clockwise from top-left): the hard-disk drive, DRAM, the UPC bar code, and the magnetic stripe card

In 1998, IBM merged the enterprise-oriented Personal Systems Group of the IBM PC Co. into IBM's own Global Services personal computer consulting and customer service division. The resulting merged business units then became known simply as IBM Personal Systems Group.^[52] A year later, IBM stopped selling their computers at retail outlets after their market share in this sector had fallen considerably behind competitors Compaq and Dell.^[53] Immediately afterwards, the IBM PC Co. was dissolved and merged into IBM Personal Systems Group.^[54]

In 2002 IBM acquired PwC Consulting, the consulting arm of PwC which was merged into its IBM Global Services.^{[55][56]} On September 14, 2004, LG and IBM announced that their business

alliance in the South Korean market would end at the end of that year. Both companies stated that it was unrelated to the charges of bribery earlier that year.^{[57][58][59][60]} Xnote was originally part of the joint venture and was sold by LG in 2012.^[61]

Continuing a trend started in the 1990s of downsizing its operations and divesting from commodity production, IBM sold all of its personal computer business to Chinese technology company Lenovo^[62] and, in 2009, it acquired software company SPSS Inc. Later in 2009, IBM's Blue Gene supercomputing program was awarded the National Medal of Technology and Innovation by U.S. President Barack Obama.

2010s–present

In 2011, IBM gained worldwide attention for its artificial intelligence program Watson, which was exhibited on Jeopardy! where it won against game-show champions Ken Jennings and Brad Rutter. The company also celebrated its 100th anniversary in the same year on June 16. In 2012, IBM announced it had agreed to buy Kenexa and Texas Memory Systems,^[63] and a year later it also acquired SoftLayer Technologies, a web hosting service, in a deal worth around \$2 billion.^[64] Also that year, the company designed a video surveillance system for Davao City.^[65]

In 2014 IBM announced it would sell its x86 server division to Lenovo for \$2.1 billion.^[66] while continuing to offer Power ISA-based servers.^[67] Also that year, IBM began announcing several major partnerships with other companies, including Apple Inc.,^{[68][69]} Twitter,^[70] Facebook,^[71] Tencent,^[72] Cisco,^[73] UnderArmour,^[74] Box,^[75] Microsoft,^[76] VMware,^[77] CSC,^[78] Macy's,^[79] Sesame Workshop,^[80] the parent company of Sesame Street, and Salesforce.com.^[81]

In 2015, its chip division transitioned to a fabless model with semiconductors design, offloading manufacturing to GlobalFoundries.^[82]

In 2015, IBM announced three major acquisitions: Merge Healthcare for \$1 billion,^[83] data storage vendor Cleversafe, and all digital assets from The Weather Company, including Weather.com and The Weather Channel mobile app.^{[84][85]} Also that year, IBM employees created the film *A Boy and His Atom*, which was the first molecule movie to tell a story. In 2016, IBM acquired video conferencing service Ustream and formed a new cloud video unit.^{[86][87]} In April 2016, it posted a 14-year low in quarterly sales.^[88] The following month, Groupon sued IBM accusing it of patent infringement, two months after IBM accused Groupon of patent infringement in a separate lawsuit.^[89]

In 2015, IBM bought the digital part of The Weather Company,^[90] Truven Health Analytics for \$2.6 billion in 2016, and in October 2018, IBM announced its intention to acquire Red Hat for \$34 billion,^{[91][92][93]} which was completed on July 9, 2019.^[94]

In February 2020, IBM's John Kelly III joined Brad Smith of Microsoft to sign a pledge with the Vatican to ensure the ethical use and practice of Artificial Intelligence (AI).^[95]

IBM announced in October 2020 that it would divest the Managed Infrastructure Services unit of its Global Technology Services division into a new public company.^[96] The new company, Kyndryl, will have 90,000 employees, 4,600 clients in 115 countries, with a backlog of \$60 billion.^{[97][98][99]} IBM's

spin off was greater than any of its previous divestitures, and welcomed by investors.^{[100][101][102]} IBM appointed Martin Schroeter, who had been IBM's CFO from 2014 through the end of 2017, as CEO of Kyndryl.^{[103][104]}

In 2021, IBM announced the acquisition of the enterprise software company Turbonomic for \$1.5 billion.^[105] In January 2022, IBM announced it would sell Watson Health to private equity firm Francisco Partners.^[106]

On March 7, 2022, a few days after the start of the Russian invasion of Ukraine, IBM CEO Arvind Krishna published a Ukrainian flag and announced that "we have suspended all business in Russia". All Russian articles were also removed from the IBM website.^[107] On June 7, Krishna announced that IBM would carry out an "orderly wind-down" of its operations in Russia.^[108]

In late 2022, IBM started a collaboration with new Japanese manufacturer Rapidus,^[109] which led GlobalFoundries to file a lawsuit against IBM the following year.^[110]

In 2023, IBM acquired Manta Software Inc. to complement its data and A.I. governance capabilities for an undisclosed amount.^[111] On November 16, 2023, IBM suspended ads on Twitter after ads were found next to pro-Nazi content.^{[112][113]}

In August 2023, IBM agreed to sell The Weather Company to Francisco Partners for an undisclosed sum.^[114] The sale was finalized on February 1, 2024,^[115] and the cost was disclosed as \$1.1 billion, with \$750 million in cash, \$100 million deferred over seven years, and \$250 million in contingent consideration.^[116]

In December 2023, IBM announced it would acquire Software AG's StreamSets and webMethods platforms for €2.13 billion (\$2.33 billion).^[117]

Corporate affairs

Business trends

IBM's market capitalization was valued at over \$153 billion as of May 2024.^[118] Despite its relative decline within the technology sector,^[119] IBM remains the seventh largest technology company by revenue, and 67th largest overall company by revenue in the United States. IBM ranked No. 38 on the 2020 Fortune 500 rankings of the largest United States corporations by total revenue.^[120] In 2014, IBM was accused of using "financial engineering" to hit its quarterly earnings targets rather than investing for the longer term.^{[121][122][123]}

The key trends of IBM are (as at the financial year ending December 31):^{[124][125]}

Year	Revenue (US\$ bn)	Net income (US\$ bn)	Employees
2014	92.7	12.0	379,592
2015	81.7	13.1	377,757
2016	79.9	11.8	380,300
2017	79.1	5.7	366,600
2018	79.5	8.7	350,600
2019	77.1	9.4	352,600
2020	73.6	5.5	345,900
2021 ^[b]	57.3	5.7	282,100
2022	60.5	1.6	288,300
2023	61.8	7.5	282,200

Board and shareholders

The company's 15-member board of directors are responsible for overall corporate management and includes the current or former CEOs of Anthem, Dow Chemical, Johnson and Johnson, Royal Dutch Shell, UPS, and Vanguard as well as the president of Cornell University and a retired U.S. Navy admiral.^[126] Vanguard Group is the largest shareholder of IBM and as of March 31, 2023, held 15.7% of total shares outstanding.^[127]

In 2011, IBM became the first technology company Warren Buffett's holding company Berkshire Hathaway invested in.^[128] Initially he bought 64 million shares costing \$10.5 billion. Over the years, Buffett increased his IBM holdings, but by the end of 2017 had reduced them by 94.5% to 2.05 million shares; by May 2018, he was completely out of IBM.^[129]

Headquarters and offices

IBM is headquartered in Armonk, New York, a community 37 miles (60 km) north of Midtown Manhattan.^[130] A nickname for the company is the "**Colossus of Armonk**".^[131] Its principal building, referred to as CHQ, is a 283,000-square-foot (26,300 m²) glass and stone edifice on a 25-acre (10 ha) parcel amid a 432-acre former apple orchard the company purchased in the mid-1950s.^[132] There are two other IBM buildings within walking distance of CHQ: the North Castle office, which previously served as IBM's headquarters; and the Louis V. Gerstner, Jr., Center for Learning^[133] (formerly known as IBM Learning Center (ILC)), a resort hotel and training center, which has 182 guest rooms, 31 meeting rooms, and various amenities.^[134]



Pangu Plaza, one of IBM's offices in Beijing, China

IBM operates in 174 countries as of 2016,^[2] with mobility centers in smaller market areas and major campuses in the larger ones. In New York City, IBM has several offices besides CHQ, including the IBM Watson headquarters at Astor Place in Manhattan. Outside of New York, major campuses in the United

States include Austin, Texas; Research Triangle Park (Raleigh-Durham), North Carolina; Rochester, Minnesota; and Silicon Valley, California.

IBM's real estate holdings are varied and globally diverse. Towers occupied by IBM include 1250 René-Lévesque (Montreal, Canada) and One Atlantic Center (Atlanta, Georgia, US). In Beijing, China, IBM occupies Pangu Plaza,^[135] the city's seventh tallest building and overlooking Beijing National Stadium ("Bird's Nest"), home to the 2008 Summer Olympics.

IBM India Private Limited is the Indian subsidiary of IBM, which is headquartered at Bangalore, Karnataka. It has facilities in Coimbatore, Chennai, Kochi, Ahmedabad, Delhi, Kolkata, Mumbai, Pune, Gurugram, Noida, Bhubaneswar, Surat, Visakhapatnam, Hyderabad, Bangalore and Jamshedpur.

Other notable buildings include the IBM Rome Software Lab (Rome, Italy), Hursley House (Winchester, UK), 330 North Wabash (Chicago, Illinois, United States), the Cambridge Scientific Center (Cambridge, Massachusetts, United States), the IBM Toronto Software Lab (Toronto, Canada), the IBM Building, Johannesburg (Johannesburg, South Africa), the IBM Building (Seattle) (Seattle, Washington, United States), the IBM Hakozaki Facility (Tokyo, Japan), the IBM Yamato Facility (Yamato, Japan), the IBM Canada Head Office Building (Ontario, Canada) and the Watson IoT Headquarters^[136] (Munich, Germany). Defunct IBM campuses include the IBM Somers Office Complex (Somers, New York), Spango Valley (Greenock, Scotland), and Tour Descartes (Paris, France). The company's contributions to industrial architecture and design include works by Marcel Breuer, Eero Saarinen, Ludwig Mies van der Rohe, I.M. Pei and Ricardo Legorreta. Van der Rohe's building in Chicago was recognized with the 1990 Honor Award from the National Building Museum.^[137]

Products

IBM has a large and diverse portfolio of products and services. As of 2016, these offerings fall into the categories of cloud computing, artificial intelligence, commerce, data and analytics, Internet of things (IoT),^[138] IT infrastructure, mobile, digital workplace^[139] and cybersecurity.^[140]



Blue Gene was awarded the National Medal of Technology and Innovation in 2009.

Hardware

Mainframe computers

Since 1954, IBM sells mainframe computers, the latest being the IBM z series. The most recent model, the IBM z16, was released in 2022.

Microprocessors

In 1990, IBM released the Power microprocessors, which were designed into many console gaming systems, including Xbox 360,^[141] PlayStation 3, and Nintendo's Wii U.^{[142][143]} IBM Secure Blue is encryption hardware that can be built into microprocessors,^[144] and in 2014, the company revealed TrueNorth, a neuromorphic CMOS integrated circuit and announced a \$3 billion investment over the

following five years to design a neural chip that mimics the human brain, with 10 billion neurons and 100 trillion synapses, but that uses just 1 kilowatt of power.^[145] In 2016, the company launched all-flash arrays designed for small and mid-sized companies, which includes software for data compression, provisioning, and snapshots across various systems.^[146]

Quantum Computing

In January 2019, IBM introduced its first commercial quantum computer: IBM Q System One.^[147] In March 2020, it was announced that IBM will build Europe's first quantum computer in Ehningen, Germany. The center, to be operated by the Fraunhofer Society, was still in construction as of 2023, with cloud access planned in 2024.^{[148][149]}



IBM Q System One (2019), the first circuit-based commercial quantum computer

Software

Since 2009, IBM owns SPSS, a software package used for statistical analysis in the social sciences.^[150] IBM also owned The Weather Company, which provides weather forecasting and includes weather.com and Weather Underground,^[151] which was sold in 2024.

Cloud services

IBM Cloud includes infrastructure as a service (IaaS), software as a service (SaaS) and platform as a service (PaaS) offered through public, private and hybrid cloud delivery models. For instance, the IBM Bluemix PaaS enables developers to quickly create complex websites on a pay-as-you-go model. IBM SoftLayer is a dedicated server, managed hosting and cloud computing provider, which in 2011 reported hosting more than 81,000 servers for more than 26,000 customers.^[152] IBM also provides Cloud Data Encryption Services (ICDES), using cryptographic splitting to secure customer data.^[153]

In May 2022, IBM announced the company had signed a multi-year Strategic Collaboration Agreement with Amazon Web Services to make a wide variety of IBM software available as a service on AWS Marketplace. Additionally, the deal includes both companies making joint investments that make it easier for companies to consume IBM's offering and integrate them with AWS, including developer training and software development for select markets.^[154]

Artificial intelligence

IBM Watson is a technology platform that uses natural language processing and machine learning to reveal insights from large amounts of unstructured data.^[155] Watson was debuted in 2011 on the American game show Jeopardy!, where it competed against champions Ken Jennings and Brad Rutter in a three-game tournament and won. Watson has since been applied to business, healthcare, developers, and universities. For example, IBM has partnered with Memorial Sloan Kettering Cancer Center to assist with considering treatment options for oncology patients and for doing melanoma screenings.^[156] Several companies use Watson for call centers, either replacing or assisting customer service agents.^[157]

IBM also provides infrastructure for the New York City Police Department through their IBM Cognos Analytics to perform data visualizations of CompStat crime data.^[158]

In June 2020, IBM announced that it was exiting the facial recognition business. In a letter to congress,^[159] IBM's Chief Executive Officer Arvind Krishna told lawmakers, "now is the time to begin a national dialogue on whether and how facial recognition technology should be employed by domestic law enforcement agencies."^[160]

In May 2023, IBM revealed Watsonx, a Generative AI toolkit that is powered by IBM's own Granite models with option to use other publicly available LLMs. Watsonx has multiple services for training and fine tuning models based on confidential data.^[161] A year later, IBM open-sourced Granite code models and put them on Hugging Face for public use.^[162] In October 2024, IBM introduced Granite 3.0, an open-source large language model designed for enterprise AI applications.^[163]

Consulting

With 160,000 consultants globally as of 2024, it is one of the ten largest consulting companies in the world with capabilities spanning strategy and management consulting, experience design, technology and systems integration, and operations.^[164] IBM's consulting business was valued at \$20 billion, as of 2024.^[165]

Research

Research has been part of IBM since its founding, and its organized efforts trace their roots back to 1945, when the Watson Scientific Computing Laboratory was founded at Columbia University in New York City, converting a renovated fraternity house on Manhattan's West Side into IBM's first laboratory. Now, IBM Research constitutes the largest industrial research organization in the world, with 12 labs on 6 continents.^[166] IBM Research is headquartered at the Thomas J. Watson Research Center in New York, and facilities include the Almaden lab in California, Austin lab in Texas, Australia lab in Melbourne, Brazil lab in São Paulo and Rio de Janeiro, China lab in Beijing and Shanghai, Ireland lab in Dublin, Haifa lab in Israel, India lab in Delhi and Bangalore, Tokyo lab, Zurichlab and Africa lab in Nairobi.



The Thomas J. Watson Research Center in Yorktown Heights, New York, is one of 12 IBM research labs worldwide.

In terms of investment, IBM's R&D expenditure totals several billion dollars each year. In 2012, that expenditure was approximately \$6.9 billion.^[167] Recent allocations have included \$1 billion to create a business unit for Watson in 2014, and \$3 billion to create a next-gen semiconductor along with \$4 billion towards growing the company's "strategic imperatives" (cloud, analytics, mobile, security, social) in 2015.^[168]

IBM has been a leading proponent of the Open Source Initiative, and began supporting Linux in 1998.^[169] The company invests billions of dollars in services and software based on Linux through the IBM Linux Technology Center, which includes over 300 Linux kernel developers.^[170] IBM has also released code under different open-source licenses, such as the platform-independent software framework Eclipse (worth approximately \$40 million at the time of the donation),^[171] the three-sentence

International Components for Unicode (ICU) license, and the Java-based relational database management system (RDBMS) Apache Derby. IBM's open source involvement has not been trouble-free, however (see SCO v. IBM).

Famous inventions and developments by IBM include: the automated teller machine (ATM), Dynamic Random Access Memory (DRAM), the electronic keypunch, the financial swap, the floppy disk, the hard disk drive, the magnetic stripe card, the relational database, RISC, the SABRE airline reservation system, SQL, the Universal Product Code (UPC) bar code, and the virtual machine. Additionally, in 1990 company scientists used a scanning tunneling microscope to arrange 35 individual xenon atoms to spell out the company acronym, marking the first structure assembled one atom at a time.^[172] A major part of IBM research is the generation of patents. Since its first patent for a traffic signaling device, IBM has been one of the world's most prolific patent sources. In 2021, the company held the record for most patents generated by a business for 29 consecutive years for the achievement.^[173]



IBM Fellow Benoit Mandelbrot discusses fractal geometry, 2010.

Patents

As of 2021, IBM holds the record for most annual U.S. patents generated by a business for 29 consecutive years.^{[173][174][175]}

In 2001, IBM became the first company to generate more than 3,000 patents in one year, beating this record in 2008 with over 4,000 patents.^[11] As of 2022, the company held 150,000 patents.^[176] IBM has also been criticized as being a patent troll.^{[177][178][179]}

Brand and reputation

IBM is nicknamed *Big Blue* partly due to its blue logo and color scheme,^{[180][181]} and also in reference to its former *de facto* dress code of white shirts with blue suits.^{[180][182]} The company logo has undergone several changes over the years, with its current "8-bar" logo designed in 1972 by graphic designer Paul Rand.^[183] It was a general replacement for a 13-bar logo, since period photocopiers did not render narrow (as opposed to tall) stripes well. Aside from the logo, IBM used Helvetica as a corporate typeface for 50 years, until it was replaced in 2017 by the custom-designed IBM Plex.



IBM ads at John F. Kennedy International Airport, 2013

IBM has a valuable brand as a result of over 100 years of operations and marketing campaigns. Since 1996, IBM has been the exclusive technology partner for the Masters Tournament, one of the four major championships in professional golf, with IBM creating the first Masters.org (1996), the first course cam (1998), the first iPhone app with live streaming (2009), and first-ever live 4K Ultra High Definition feed in the United States for a major sporting event (2016).^[184]

As a result, IBM CEO Ginni Rometty became the third female member of the Master's governing body, the Augusta National Golf Club.^[185] IBM is also a major sponsor in professional tennis, with engagements at the U.S. Open, Wimbledon, the Australian Open, and the French Open.^[186] The company also sponsored the Olympic Games from 1960 to 2000,^[187] and the National Football League from 2003 to 2012.^[188] In Japan, IBM employees also have an American football team complete with pro stadium, cheerleaders and televised games, competing in the Japanese X-League as the "Big Blue".^[189]

Environmental

In 2004, concerns were raised related to IBM's contribution in its early days to pollution in its original location in Endicott, New York.^{[190][191]} IBM reported its total CO₂e emissions (direct and indirect) for the twelve months ending December 31, 2020 at 621 kilotons (-324 /-34.3% year-on-year).^[192] In February 2021, IBM committed to achieve net zero greenhouse gas emissions by the year 2030.^[193]

People and culture

Employees

It is among the world's largest employers, with over 297,900 employees worldwide in 2022,^[194] with about 160,000 of those being tech consultants.^[165]

IBM's leadership programs include Extreme Blue, an internship program, and the IBM Fellow award, offered since 1963 based on technical achievement.^[195]

Notable current and former employees

Many IBM employees have achieved notability outside of work and after leaving IBM. In business, former IBM employees include Apple Inc. CEO Tim Cook,^[196] former EDS CEO and politician Ross Perot, Microsoft chairman John W. Thompson, SAP co-founder Hasso Plattner, Gartner founder Gideon Gartner, Advanced Micro Devices (AMD) CEO Lisa Su,^[197] Cadence Design Systems CEO Anirudh Devgan,^[198] former Citizens Financial Group CEO Ellen Alemany, former Yahoo! chairman Alfred Amoroso, former AT&T CEO C. Michael Armstrong, former Xerox Corporation CEOs David T. Kearns and G. Richard Thoman,^[199] former Fair Isaac Corporation CEO Mark N. Greene,^[200] Citrix Systems co-founder Ed Iacobucci, ASOS.com chairman Brian McBride, former Lenovo CEO Steve Ward, and former Teradata CEO Kenneth Simonds.

In government, Patricia Roberts Harris served as United States Secretary of Housing and Urban Development, the first African American woman to serve in the United States Cabinet.^[201] Samuel K. Skinner served as U.S. Secretary of Transportation and as the White House Chief of Staff. Alumni also



New IBM employees being welcomed to a bootcamp at IBM Austin, 2015



Employees demonstrating IBM Watson capabilities in a Jeopardy! exhibition match on campus, 2011

include U.S. Senators Mack Mattingly and Thom Tillis; Wisconsin governor Scott Walker;^[202] former U.S. Ambassadors Vincent Obsitnik (Slovakia), Arthur K. Watson (France), and Thomas Watson Jr. (Soviet Union); and former U.S. Representatives Todd Akin,^[203] Glenn Andrews, Robert Garcia, Katherine Harris,^[204] Amo Houghton, Jim Ross Lightfoot, Thomas J. Manton, Donald W. Riegle Jr., and Ed Zschau.

Other former IBM employees include NASA astronaut Michael J. Massimino, Canadian astronaut and former Governor General Julie Payette, noted musician Dave Matthews,^[205] Harvey Mudd College president Maria Klawe, Western Governors University president emeritus Robert Mendenhall, former University of Kentucky president Lee T. Todd Jr., former University of Iowa president Bruce Harreld, NFL referee Bill Carollo,^[206] former Rangers F.C. chairman John McClelland, and recipient of the Nobel Prize in Literature J. M. Coetzee. Thomas Watson Jr. also served as the 11th national president of the Boy Scouts of America.

Five IBM employees have received the Nobel Prize: Leo Esaki, of the Thomas J. Watson Research Center in Yorktown Heights, N.Y., in 1973, for work in semiconductors; Gerd Binnig and Heinrich Rohrer, of the Zurich Research Center, in 1986, for the scanning tunneling microscope,^[207] and Georg Bednorz and Alex Müller, also of Zurich, in 1987, for research in superconductivity. Six IBM employees have won the Turing Award, including the first female recipient Frances E. Allen.^[208] Ten National Medals of Technology (USA) and five National Medals of Science (USA) have been awarded to IBM employees.

Workplace culture

Employees are often referred to as "IBMers". IBM's culture has evolved significantly over its century of operations. In its early days, a dark (or gray) suit, white shirt, and a "sincere" tie constituted the public uniform for IBM employees.^[209] During IBM's management transformation in the 1990s, CEO Louis V. Gerstner Jr. relaxed these codes, normalizing the dress and behavior of IBM employees.^[210] The company's culture has also given to different plays on the company acronym (IBM), with some saying it stands for "I've Been Moved" due to relocations and layoffs,^[211] others saying it stands for "I'm By Myself" pursuant to a prevalent work-from-anywhere norm,^[212] and others saying it stands for "I'm Being Mentored" due to the company's open door policy and encouragement for mentoring at all levels.^[213] The company has traditionally resisted labor union organizing,^[214] although unions represent some IBM workers outside the United States.^[215]

See also

- List of electronics brands
- List of largest Internet companies
- List of largest manufacturing companies by revenue
- Tech companies in the New York City metropolitan region
- Top 100 US Federal Contractors
- Quantum Energy Teleportation using IBM superconducting computers

Notes

- a. As of 2024.
- b. IBM's financial statements from the 2021 annual report have adjusted revenue, income numbers, employee count for the previous years to account for discontinued operations related to the separation of Kyndryl.

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