

History of Information Technology

History of Information Technology (IT)

An organized overview of the key milestones, technologies, and trends that have shaped modern computing and communication.

1. Foundations (Pre-20th Century)

Era	Milestone	Significance
Ancient & Medieval	Abacus (c. 2500 BC), Antikythera mechanism (c. 100 BC)	Early mechanical devices for calculation and data storage.
17th-18th c.	Pascal's calculator (1642), Leibniz's stepped reckoner (1673)	First true mechanical calculators; laid groundwork for binary arithmetic.
19th c.	Charles Babbage – Difference Engine (1822) & Analytical Engine (1837); Ada Lovelace writes the first algorithm.	Concept of a programmable, general-purpose machine; precursor to modern computers.
Late 19th c.	Telegraph (Morse code, 1830s–1840s), telephone (Bell, 1876)	First long-distance electronic communication systems; introduced the idea of transmitting information as signals.

2. The Birth of Electronic Computing (1930s-1940s)

Year	Development	Core Innovation
1936	Alan Turing – “Turing Machine”	Theoretical model of computation; defines algorithmic processing.
1937-1939	Konrad Zuse – Z1/Z3	First electromechanical and later fully electronic programmable computers (binary, floating-point).
1941	Colossus (British)	First electronic, programmable, digital computer (code-breaking).
1943-1944	ENIAC (USA)	First general-purpose electronic computer; used vacuum tubes, programmed by plug-board.
1945-1946	EDVAC & Von Neumann architecture	Introduced stored-program concept (data & instructions in same memory).

History of Information Technology

Year	Development	Core Innovation
1949	EDSAC (Cambridge)	First practical stored-program computer used for scientific research.

3. The First Generation (Late 1940s-1950s)

Technology	Characteristics
Vacuum tubes	Large, power-hungry, unreliable; limited to a few thousand operations per second.
Magnetic drums & punched cards	Primary storage & input methods.
Programming languages	Assembly, early high-level languages (e.g., FORTRAN 1957).
Key systems	UNIVAC I (first commercial computer, 1951), IBM 701 (1952).

Impact: Initiated commercial data processing (census, banking, scientific calculations) and created the first IT market.

4. The Second Generation (Mid-1950s-1960s)

Advancement	Details
Transistors	Replaced vacuum tubes; smaller, more reliable, lower power consumption.
Core memory	Magnetic core memory provided faster, random-access storage.
Operating systems	Early batch OS (e.g., IBM OS/360) introduced job scheduling.
High-level languages	COBOL (business), ALGOL (scientific), BASIC (education).
Mainframe proliferation	IBM System/360 (1964) standardized hardware & software across models.