

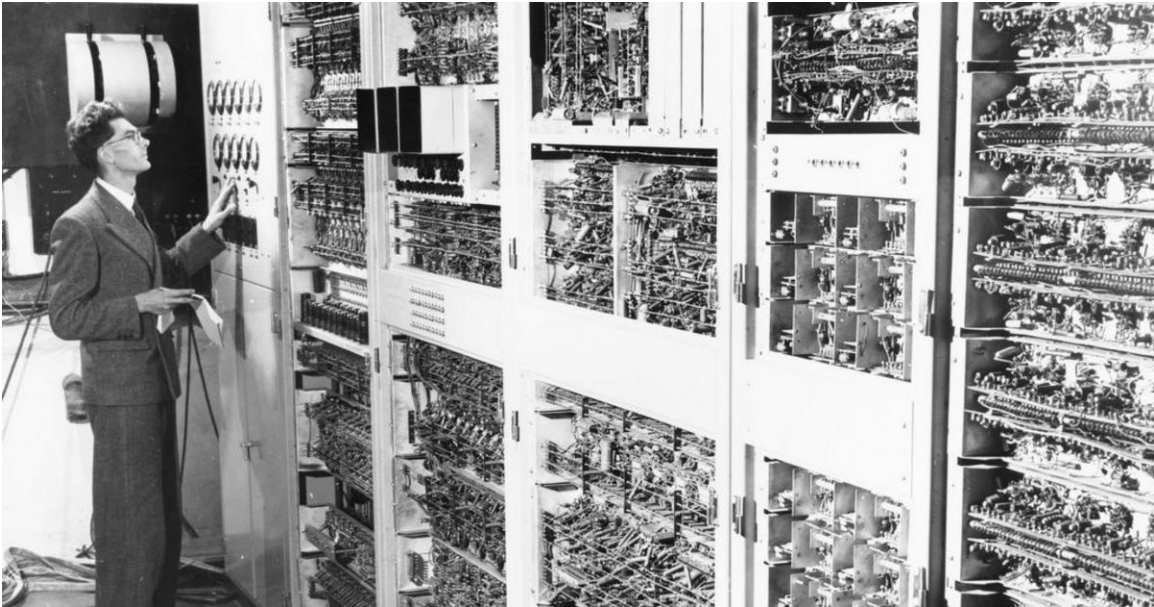
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Skills for academic success

A REPORT ON THE TIMELINE OF COMPUTING

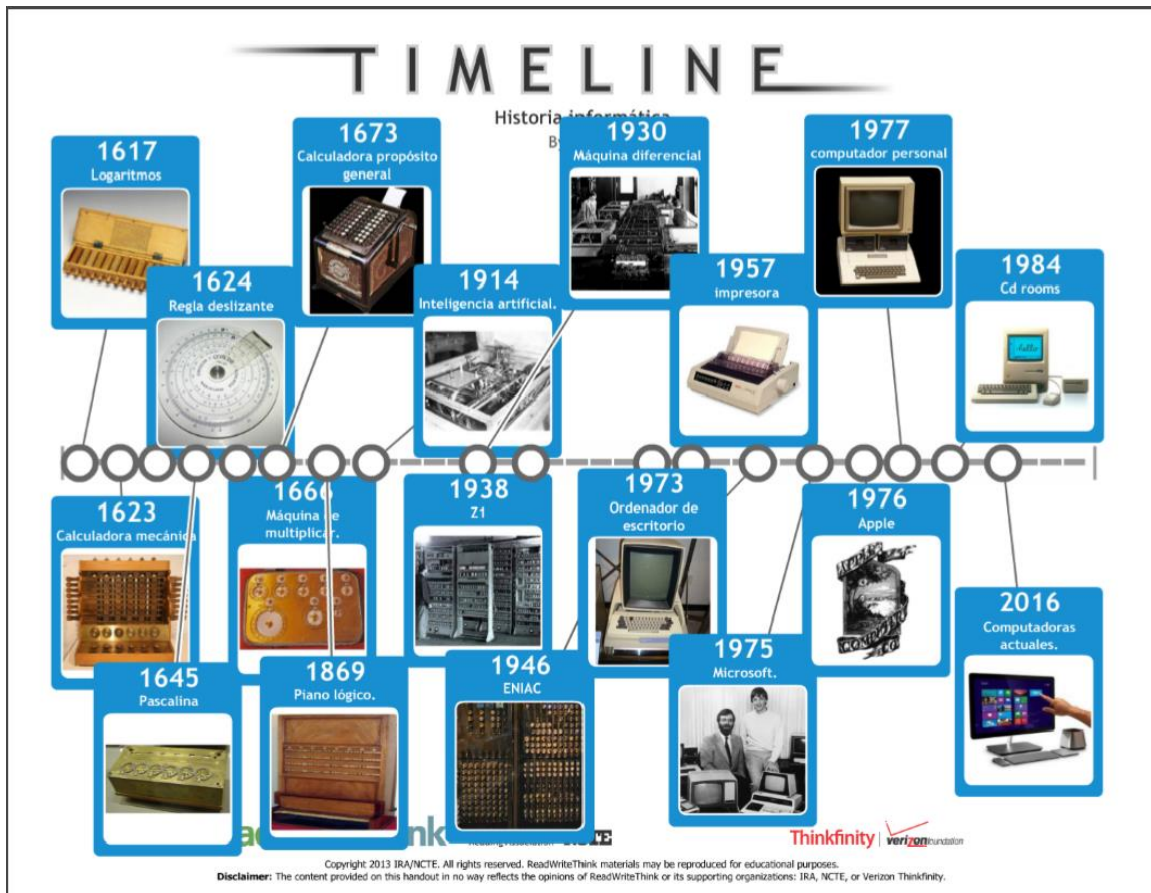
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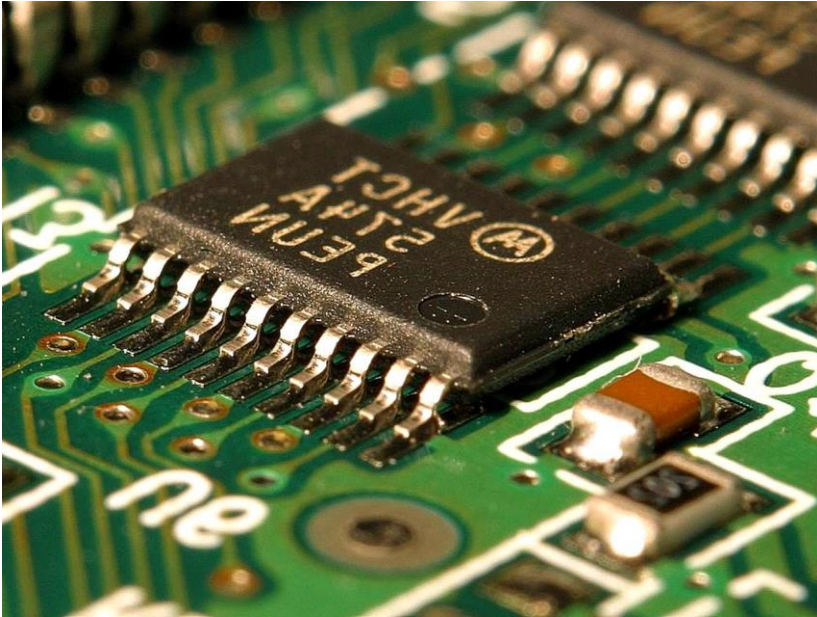
CONTENTS PAGE



CHARLES BABBAGE (1791-1871)

CONTENTS PAGE





Circuit chip made from silicone developed in (1959) by Robert Noyce



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Introduction

A timeline for computing and the development of the silicon chip

We see how the innovation and invention of the computer has changed from the very first Computers that were created to the computers of today and they have moved forward to be accessible to all not purely for academics but for the public at large.

In 1876 James Thompson' brother of lord Kelvin invented the mechanical and disc integrator wheel that became that would solve linear equations. Mechanical and disc integrator devices were used during World War 1 for gunner calculations in 1919 improved by Hannibal Ford.[4]

Some 60 years before that in August (1890) a new science magazine featured equipment. for the new punch card system used to tabulate the American census.

When scholars started researching the history of computers in the 1970s, they were drawn to the large computer only one of its kind known today as the 'dinosaur', These were the first to resemble a computer and they were used for scientific and military operations as they were programmed to be used for their number-crunching ability and they were the first to work at lightning speed of electronics. [2]

Historians discovered and mapped outlines where the desktop calculators were built by Blaise Pascal and Gottfried Leibniz was a philosopher in the seventeenth century and their work led to desktop calculators in the nineteenth century. [2] According to the historian, analogue computers and electromechanical calculators were specifically for scientific and engineering applications. The need for faster computing led to the more modern computer. During the Second World War, computers were still used by scientists and atomic weapons. During this time Charles Babbage's design was recognized as being very modern and this was recognised in the computers built during the Second World War [3]. It is now clear that Babbage made assumptions about 'What is a computer?' 'What is its relation to the digital age of today?' Babbage never completed his work partly due to the engineering of the time. [3]

A different culture designed its version of the calculator, pebbles, calculi, which is the Latin term for calculator or counting top and ABCUS all of which have survived into this century. Calculators came into being when Pascal in 1642 invented a calculator that

could add numbers and move them into columns. Latinize extended Pascal's invention a few decades later by devising a calculator that could multiply as well as add.

Designers but they are largely used for word processing and business records [2].

During the early nineteenth century, the population increased, and urbanization in the West resulting from the Industrial Revolution the scale of business expanded. As did the need for communication, information collecting, and processing. The government had difficulty in numerating their numbers, the telegraph had difficulty with its message traffic.

Insurance companies failed to provide insurance policies to the masses. [2] Novel ideas worked, in the beginning, to solve the problem before an American company brought in the typewriter and filing system plus the desktop calculator to remedy the problem. The desktop calculators were initially only used by the wealthy but were soon being mass-produced and large businesses were using them before the smaller retailers started using them. In the US a punch card table system was introduced to cope with the 1890 census. [2]

Analog computers were also developed in the 19th century and were very big in the 1930s Engineers built simplified models of their work and measured the values they

needed to calculate, they were used to design electric power networks dams and aircraft. [2] Even though they were well used they were of no use to the military during the war as they were not fast enough. The military was prepared to pay to have the Computers. They needed to build but the process was too slow, they needed human intervention and they were built with a special purpose and could not be used in any way. and the computers were not ready in time for the war to aid with the building of the [2]Atomic bomb By the time of the Korean War military and science research value of The computer was greatly appreciated, and a small number of computers were built, they Were placed in atomic laboratories, aerospace manufacturing, and research universities. University students who had built the most important machine during the war the ENIAC. They saw that the computer could be used for more than number crunching and they left the university to develop it further.

[2] John von Newmann in 1945, set out a report on the basic function of the computer And that report is still used today, a decade later saw great innovation and change in the processing speed of the computer, more storage space, and less need for repairs. The report led by Eckert and Mauchly had been looking at ways the computer could work

faster. One way was to use a perforated tape, but this was too slow for the ENIAC machine and the process could only be faster if the information was typed faster at lightning speed [4]. The successor of the ENIAC the ADVARC is the blueprint of computers to the present day. Today's computers are far ahead of the first-ever built computer on all levels. [2]

By 1943 when the ENIAC was being built the British already had a computer in being. The catering firm J.S. Lyon had installed a commercial computer the Leo, well before the Americans found their first customers for the ENIAC. [3] In Germany, 1950 Konrad Zuse Was perfecting what he had built during World War 11. Whatever lead the Europeans had become lost to the Americans. One reason for this is Kenneth Flamm Suggested that the Europeans had paid limited funds into what they were unsure of As they did not want to send money on untried or tested equipment. [3]

After the World War designers found the drum to be inexpensive, reliable, and rugged to use but it was a slow memory device. This led to the designers looking at research from Germany and the United States rediscovered and designed the drum but this

time using magnetic rather than capacitive techniques. The leaders of this were engineering associates who were asked to look at this further [3] In 1947 advances were made where a drum was used where they had glued oxidised paper. Within two years they were building drums 4.3 34 inches in diameter with a capacity of two million bits In the 1950s the first generation of computers began with computers being manufactured and sold in modest quantities. This lasted a decade and this type of computer used vacuum tubes for storage. [4]

Before 1955 we used typewriters with carbon paper and punch cards. The preferred aid was the comptometer for arithmetic manufactured by Felt and Tarrant of Chicago. It performed addition and with a skilled operator could supply a sum every few seconds. [4]

In the United States, there were 6,000 general-purpose computers installed at the end of 1960. The computers were descendants of the ADVARC and the IS version as not a lot has changed since Von Neuman in the 1940s as storage is still internal other ways there have been significant changes as vendors push sales of their products. [4]

Flexible electronics have advanced over the years as devices to print thin film have appeared but the increasing demand for flexible bendier electronics has made design

more difficult to achieve due to the thin brittle nature of the silicon chip due to this the ultra-thin silicon chip is gaining interest. Silicon chip is the invention of Robert Noyce of Silicon Valley in 1959, he was a risk taker and a daring entrepreneur. [5]He is the co-founder of Fairchild Semiconductor in 1968 with Gordon Moore, they launched their own new company named Intel, which is twice as profitable as its competitors and today is the largest producer of the semiconductor chips in the world he co invented the integrated circuit, which is the heart of any modern computer, automobiles mobile phones, advanced weapons, and video games. [5]

Moore's Law is a techno-economic that has allowed the information technology to double the performance of digital electronics every two years. Advances in the silicon

lithography has enabled the miniaturization of electronics, as they continue to reach large scale the fabric cost is ever increasing the technology drive of Moore's Law for the past 50 years is failing and is anticipated to flatten by 2025 [6]. As we the consumer in society have grown rapidly dependent and predictable electronics with the rise of the big data and data centres like Google and Facebook scientific discovery and national security. Other areas of the economic development are avionics the automotive industry

for self-driving cars. The end of the lithographic scale threatens to end the \$4 trillion electronics industry. An investment is needed now for the future of computing to fund the study for replacement materials. [6]

conclusion

From writing the report it is clear how much computing has developed and the need for the digital world has grown with computers becoming more available to the public as well as larger industries. The ever-evolving innovation in the automobile industry and other areas are putting a huge strain on supply and demand which may be a shortage if there is no funding soon. Computers will not be able to evolve further or have the option to all that is available now.

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