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Information Systems: The Toolbox for Accounting;
The Historical Relationship between IS and Accounting.

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Much of the development in information processing grew out of needs to meet specific needs in the area of commerce and accounting. Occasionally, existing computing technology was adapted to accounting needs, but more than often, needs of accounting and commerce spurred the development of information technology.

The technologies listed below represent many of the developments in computing. All were applied to accounting needs, and most were developed initially for accounting purposes.

Cuneiform Writing BC 3000.

This type of writing was in use 3000 to 4000 years ago. Most examples are found in the countries of the fertile crescent. Cuneiform was originally invented for a number of purposes, but chief among those was for recording commercial activity. There were special symbols that represented a sheep, or a cow, or a unit of grain. The marks were pressed by a stylus into clay. The clay was not fired which made them quite fragile. (Interlending and doc supply)

One of the largest collections of these tablets was contained in the museum in Baghdad. Sadly, many were lost during the fall of Baghdad. Many have been recovered, and those that are missing still exist in pictorial form. A significant effort is underway to create a digital library of these items. (1)

The Abacus BC 1000

This ancient computing device was also used mostly for commercial activities. Much like the modern cash register, the abacus can still be found today, used in markets for counting and pricing products and for computing sale totals. (2)

The Abacus seems to have emerged in many places independently. They date from at least 1000 BC. The earlier forms were made by drawing lines in the dirt, placing pebbles on the lines, and then moving them in the counting and computing processes. They generally use a bi-quinary system. Both base 2 and base 5 are employed to represent decimal numbers.

Leonardo Da Vinci AD. 1500.

The question of who invented the first mechanical computing device is still open. There is no evidence that there was ever a working machine, but Leonardo has some drawings that are clearly proposals for a computing device. (3)

Napier Bones`AD 1620.

John Napier invented a computing tool that aided in multiplication. They were called “bones” because they were generally inscribed on wood or ivory. Napier also invented logarithms. In 1621, William Oughtred, an English mathematician and clergyman, used the idea of the bones along with logarithms to invent the slide rule. This device aids in multiplication by adding logarithms. It remained in use for about 300 years. (4)

Leibniz Wheel 1671

This may be the first working device to represent decimal numbers as positions in a gear. Notwithstanding the fact that such gears are plainly visible in Leonardo’s drawings, such a mechanism is called the “Leibniz Wheel.” (5)

Charles Babbage AD 1822.

In the early 19th century, Charles Babbage design and built (at least partially) two different “computing” devices, the Difference Engine, and the Analytic Engine. The first was intended to sum polynomial functions, and the latter was for more general purpose computations.

In recent times, a working model of the analytic engine was constructed and is now working perfectly in a British museum. An interesting note, deliberate errors in the drawings had to be corrected before the machine could be completed. These errors were put in place in case the drawings fell into the wrong hands. There was also some question whether the machine could have been completed in Babbage’s day, so engineering standards of the early 19th century were employed to prove the feasibility of his design. (6)

Herman Hollerith AD 1890.

The 1880 census took most of the decade to tabulate. As the country grew, it was apparent that better technology was needed for census tabulation. They sponsored a contest to develop a technology to improve census tabulation. Herman Hollerith, using punched cards and a statistical counting device won the contest and dramatically improved the census tabulating process.

Later devices were invented to prepare the cards, sort and combine them, to perform calculations, and to tabulate reports. Hollerith sold his inventions to the company that

eventually became IBM. The punch card equipment of IBM and others were the backbone of business computing until the arrival of the digital computer. In later years, IBM called this line of equipment EAM devices. (Electric Accounting Machines). (7)

Comptometer AD 1880.

These mechanical key-driven devices were a great boon to business computing. The internal mechanism was a gear much like the Leibniz wheel that originally appeared in Leonardo's drawings. They were in wide use right up through the 1960's when they were eventually supplanted by digital computers. (8) (9)

Rotary Calculator

The Monroe rotary calculator represented an advance in speed for multiplication and division. The rotary head shifted as the computations moved through different place values. These devices were found in many business situations until recent times. (10)

The Digital Computer AD 1960.

Invented in the 1940's and introduced commercially in the 1960's, the digital computer rapidly became a key element of many businesses. While originally applied to a variety of calculating problems, the success of the digital computer was insured by the many applications in the business world. Virtually all of the original business applications emerged in the financial area.

The Microcomputer AD 1980.

Originally introduced during the 1970's, the microcomputer hit the business world in 1981 when IBM announced the PC. Prior to that event, microcomputers were mostly used in the home for entertainment purposes. One speculation says that the success of Visicalc on the Apple and TRS-80 drove IBM to bring out the microcomputer for business.

Conclusion

It is apparent that in many situations (Cuneiform, Abacus, Comptometer, Rotary Calculator), the needs of accounting and commercial activity were direct drivers for the development of computing technology. Other computing devices were undoubtedly used or adapted to financial purposes. This leads to the assertion that information systems were mostly developed as tools to carry out the functions of accounting.

This relationship can be further demonstrated by two additional observations:

1. Virtually every data processing effort in business emerged in the financial area.

2. The general idea of accounting is to promote an understanding of the business through the flow and analysis of business transactions. As such, they are generally limited to dollar and cents measures. The IS functions to develop a model of the firm with financial and other measures. The goals are similar.

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