



Chapter II

The Evolution of Accounting Software

History of Accounting Software

In the late 1950s and early 1960s, mega corporations of the day began to handle data that rivaled government requirements. This data could not be handled manually, let alone cost-effectively. Accounting and financial information, due to its repetitive nature and heavy volume, became a prime candidate for automation. Initial accounting programs were written for mainframe computers, not surprisingly, since IBM and its Big Irons ruled the computer world. Early mainframe computers were large, due to the ferrite core memory, and cumbersome. The processing intelligence was centralized in the mainframe. Mainframes served a large number of users, and data was processed in a batch mode. Users submitted data using dumb terminals and jobs were processed based on the length of the queue and priority of the jobs. Mainframes provided a high level of security and reliability. Minicomputers, pioneered by the Digital Equipment Corporation, had similar capabilities but were smaller and less powerful. Currently, distinctions between mainframes and minis are very blurred, and for our purposes make very little practical difference.

Exhibit 1. Hardware/software cycles

Approximate Time Period	Computer Type	Characteristics of Accounting Software
1960-'75 1975-'85	The Mainframe The Minicomputer	<ul style="list-style-type: none"> • Centralized intelligence; dumb terminals; and batch processing mode; no Graphical User Interface (GUI) support • Flat files or indexed file organization • Hierarchical or network databases • High transaction processing capacity • Large number of users supported
1980-'90	The Microcomputer Local Area Networks	<ul style="list-style-type: none"> • Shared intelligence across network • File sharing architecture • Indexed file organization • Limited transaction processing capacity • Limited users supported
1988-'95	The Client-Server Local Area Networks Wide Area Networks	<ul style="list-style-type: none"> • Mixture of mainframe, mini and PCs supported • Shared intelligence across network • Client-server architecture • Relational database systems • Databases can be centralized or decentralized • High transaction processing capacity • Large number of users supported
>1995	The Client-Server Local Area Networks Wide Area Networks The Browser-Server The Internet and WWW	<ul style="list-style-type: none"> • Mixture of mainframe, mini and PCs supported • Shared intelligence across network or centralized intelligence • Client-server architecture and browser-server architecture • Relational databases, multidimensional databases, object-oriented databases • Databases can be centralized or decentralized • Flexible transaction processing capacity • Large number of users; support for world-wide users

Early accounting software on mainframe- or minicomputer-type systems was written in programming languages such as COBOL, Assembler, FORTRAN and RPG. Data were stored in flat files with fixed formats or indexed file organization structures of the mainframe. Later on, if the database was used, it was a hierarchical or network type. These accounting packages were usually developed by programmers within the company to solve particular problems. These home-grown packages were sometimes adapted and taken to market by the enterprising programmers. As the demands on these systems grew, programs were modified and updated. Generally, there was no life-cycle plan for systems modification, maintenance and update. The resulting systems were rigid, inflexible, unscalable but critical.

Some of these systems still run in the business world and in governments, and are now called *legacy systems*. This term does not have a standard definition, but refers to computer systems based on old hardware and software technology — primarily mainframe-based and powered by second- and third-generation software languages. The term *old* is a relative term, and with time every system has potential to become a legacy system. The Internet had made some systems developed in the 1990s obsolete and even those could be termed as legacy systems. Many businesses are heavily invested in legacy systems and do not have financial wherewithal to reengineer these systems. Legacy systems run mission critical applications, excel in heavy-duty transaction processing, and any system disruptions can have disastrous consequences. On the other hand,

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