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Overview

This period paper focuses on the technical issues and technological developments of two important years. These years are 1972 and 1973. In order to collect adequate data about these years, comprehensive research was conducted by reviewing articles from two main publications, *Datamation*, and *Computerworld*. Both of these publications are considered highly reliable and rich in terms of their content. Discussed years of the computer development timeline witnessed considerable amount of achievements in computer industry. These achievements are analyzed in details throughout this paper.

Since the early 1970's there was a dramatic rise of computer usage all around the nation. This rise clearly changed and affected the life of many people and many company policies during these years. In fact, all these changes are caused by the available new technologies of the day. Although most of the technological achievements, hardware improvements and programming language availability of 70's may not look satisfactory, they are highly important in terms of the overall history of computing. In addition, these achievements were advanced enough to handle corporate operations. For instance, "there were over 170 languages in use in the US in 1972."¹ Most of these languages were designed to handle high level of usage and complexity. This situation allowed companies to implement and test computerized systems that will later be developed more. As result this period (1972-1973) became a kind of transition and testing period for many technologies.

¹ Andreas, Philippakes, "Programming Language Usage", *Datamation*, Volume 19, Issue 10, Oct 1973, Page 109.

Major Activities:

This part of the paper includes two subsections, which discuss the entire computer related important achievements, improvements, and events of 1972 and 1973. These subsections are “Activities in 1972”, and “Activities in 1973”. As stated earlier, in order to guarantee data accuracy, only two publications were used as references. These publications are *Datamation* and *Computerworld*.

Activities in 1972:

This year includes many interesting developments in the computer industry. In fact, these developments were not only related to the computer industry but they also affected the daily lives of many people.

In early 1972, there were many discussions about the different problems, which were caused by computer usage. One of these discussions is still a valid and popular subject. This subject was privacy. “In this year, the secretary of Health, Education and Welfare, Elliot Richardson, created a special advisory committee charged it with analyzing harmful consequences that might result from automated personal data systems and which was to make recommendations about safeguards that protect individuals against potentially harmful consequences and afford them redress for any harm.”² The main reason of this was the increasing number of failures and security problems that were experienced during the practice of computer usage. Personal information problems became important for the first time during the computing history.

² Ware, Willis H, “Records, Computers, and The Right OF Citizens”, *Datamation*, Volume 19, Issue 9, Sept 1973, Page 112.

Another important issue that was heavily discussed during 1972 was the problems faced during the practice of “The Credimatic System.” This system, which was first installed in 1968, became difficult to use during 1970’s. The main reason of this difficulty was the enormous increase in the amount of saved data. The maintenance of the system was very hard. “To solve this problem, in 1972, Chilton Corp. decided to use ADR's DatacomC teleprocessing monitor.”³ This is an important issue in terms of improving the quality of the information systems’ products and services.

Thirdly, Dennis Ritchie, who is also one of the creators of Unix, developed in Bell Labs, introduced pipes and filters for the C language in 1972. After this change, in 1973, Unix was transformed to be more reliable and rewritten in C. “The main reason was that C did not depend on specific machine language or assembly language, it was able to port the operating system to other hardware.”⁴

Another important issue that is underlined couple of times in *Datamation*, was the future of computer based careers. This popular discussion of 1972 was about predicting the future changes and developments. The main reason of this discussion is to clearly define the IT jobs of that time period.

In addition, government and private sector involvement with computers is analyzed during this year. Some of the analyses include programmable automation of manufacturing, improvements of US Postal Service, and data system related railroad problems.

³ Anonymous, “Software Collects Kudos from Credit Company” *Computerworld*, Volume 17, Issue 5, Jan 31, 1983, Page Special.

⁴ Sigler, Lee, “Unix’s Infancy: An Operating System Grows at Bell Labs”, *Computerworld*, Volume 18, Issue 39, Sep 26, 1984, Page 75.

Activities in 1973:

This year witnessed many interesting developments in computer industry and was an important milestone in terms of realizing today's computer success. Some major issues, which are related to computer industry, and its technology level, are discussed throughout this part of the paper.

First of all there was a dramatic increase of computer related expenditures in 1973 comparing to 1972. In early 1973, a comprehensive analysis was made in order to calculate this dramatic increase. *Datamation* states that "from a cross section of installations, the actual expenditures for 1972 compared to budgets for 1973, including hardware, software, salaries, and services and data processing industry is healthy and growing stronger at a rate of over 10 percent per year."⁵ This is an important figure because it actually shows the increase in demand for computerized systems.

A second important issue that occurred in 1973 was the first privacy law. This law is an important issue because it was one of its kind. It was designed to provide an efficient and sufficient protection for personal data, which is stored in databases. *Datamation* mentions about this important subject and states that "in 1973, Sweden promulgated the first law to protect individuals from misuse of stored data."⁶ Although this law didn't attract big attention during these years, similar laws and legislation became indispensable for today's governmental environment.

"Superpaint" is another important development that was witnessed. Superpaint is an interesting system that allows people to exchange movie like pictures and photos. This is probably one of the first multimedia type applications, which are capable of creating a

⁵ McLaughlin, Richard A, "A Survey Of DP Budgets For 1973", *Datamation*, Volume 19, Issue 2, Feb 1973, Page 61.

⁶ Pantages, Angeline, "Déjà Vu a Decade", *Datamation*, Volume 28, Issue 10, Sep 1982, Page 56.

movie scene. “This videographics system designed and built at Xerox in 1973.”⁷ Its main attraction is its ability to generate and play graphics like today’s advanced media players. After 1973, it is redesigned and modified many times. It is reliable and very efficient way of satisfying multimedia needs. That is why even NASA used it. “The system's most recent exposure was during the NASA Pioneer Venus mission when it was used for visualization of space craft maneuvers during the encounter with Venus, for showing activities of the scientific experiments on board, and for illustration of early results obtained.”⁸ In addition, its interface and user friendliness was shocking for many people. This system didn’t require skilled operator or an advanced professional. It was simple, easy to use and quick. On the other hand, it had limitations like multiple overlays, lack of sophisticated color management, flat color zooming, and limited resolution.

Fourthly, the “Winchester disk drive was introduced to market.”⁹ Although this product didn’t attract too much attention in that year, it became more widely used later.

“In addition, during this year, Unix operating system was rewritten in C.”¹⁰ As stated earlier in (page 4), in 1972, preparations of this change were first developed.

An important development that should be underlined is the “Help System”. “Homer Warner led the team of doctors from the University of Utah School of Medicine and the Latter Day Saints Hospital that developed the Help system in 1973.”¹¹ This system allowed doctors to communicate freely among different departments. System includes many different features like linking patients’ rooms, the pharmacy, and the

⁷ Shoup, Richard G., “Superpaint – The Digital Animator”, *Datamation*, Volume 25, Issue 5, May 1, 1979, Page 150.

⁸ Shoup, Richard G., “Superpaint – The Digital Animator”, *Datamation*, Volume 25, Issue 5, May 1, 1979, Page 150.

⁹ Cahman, Micheal, Sojka, Deborah, “As Time Goes By/ Products of Their Times/ The Old Clothes of Advertising”, *Datamation*, Volume 28, Issue 10, Sep 1982, Page 65.

¹⁰ Sigler, Lee, “Un ix’s Infancy: An Operating System Grows at Bell Labs”, *Computerworld*, Volume 18, Issue 39, Sep 26, 1984, Page 75.

¹¹ Warner, Edward, “Expert System Helps Guide Hospital's Physicians Through Life-and-Death Decisions”, *Computerworld*, Volume 18, Issue 28, Jul 9, 1984, Page 18.

hospital's testing facilities. This kind of system facilitated the operations of the hospitals and increased the level of efficiency. In addition, modified versions of this system were still in use all around the country and served medical institutions for long time to increase their productivity.

In 1973, "the state created the Data Processing Authority (DPA) in 1973 to provide for the efficient and effective use of DP in the government."¹² This decision is highly important in terms of understanding the government involvement with computers. During this year, many government organizations and institutions began to heavily interact with computers and created their own systems.

Electronic non-impact printers were another development that has to be considered. These machines provided a great flexibility and an increase in the quality of output for printing tasks. Everything was digitally produced with the process of this system. "This entire field really started in 1973, with the introduction of the Xerox Corp. 1200 computer printing system."¹³

Another development of 1973 was the usage of microfiche and computer related approaches in the airline industry. These approaches had many advantages. They allowed companies to be more flexible and efficient in their service delivery. An enormous decrease occurred in the amount of paperwork. In addition, customer service department expenses began to decrease and daily operations became less expensive for many well-

¹² Jones, Dennis, Flanagan, John, "State Moves to Organize Independent Nets" *Computerworld*, Volume 18, Issue 9, Feb 27, 1984, Page Special.

¹³ Adams, Robert V., "Today's Printers Boast New Flexibility Levels", *Computerworld*, Volume 15, Issue 35, Aug 31, 1981, Page Special.

known airlines. “Since 1973, Continental Airlines estimates they have saved about \$500,000 in operating costs.”¹⁴

Electronic voting is an interesting issue, which is still highly popular. In 1973, the practice of this idea was observed. “Dr. Frank Ryan and his staff designed the House of Representatives electronic voting system that they thought it would help representatives vote faster used for the first time on January 23, 1973.”¹⁵ This system approximately saved 500 hours. This experience is very important for the history of computers.

This year has another important development in computer industry. This development was achieved by IBM. “Company’s Chicago Plaza began to use a computerized energy management system for controlling inside temperature and humidity.”¹⁶ This system allowed company to save up to \$50000 per month. The plaza where this system was installed had 5800 occupants. This project is highly interesting in terms of seeing the effects of computerized systems in human life.

Furthermore, software reliability and DB design issues are some of the popular discussions of this year. The intention of these discussions is usually about setting up guidelines and strong standards for important design and implementation problems.

¹⁴ Anonymous, “Fiche Helps Airline Stow Reports Efficiently”, *Computerworld*, Volume 12, Issue 28, July 10, 1978, Page 44.

¹⁵ Holmes, Edith, “CONGRESSIONAL DP SERVICE SEEN ENMESHED IN POLITICS”, *Computerworld*, Volume 11, Issue 29, July 18, 1977, Page 7.

¹⁶ Hebert, John P., “Windy City’s IBM Plaza Recycles Heat To Conserve” *Computerworld*, Volume 11, Issue 24, June 13, 1977, Page 31.

Conclusion:

In conclusion, both of these years discussed in this paper are highly important in terms of computing history. This importance is caused by the dramatic increase of the technology and its usage among business and other professional environment. 1972-73 period can be considered as a period of transition. Before these years, there were important changes in programming languages (e.g. Pascal programming language), microprocessor design (e.g. first microprocessor The Intel 4004) and memory chip (e.g. Intel 1103 memory chip). These new developments are exploited and exercised during the 1972-73 period to improve the quality of computerized systems and products. After this experimenting period, more changes occurred.

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