

Since the creation of the first computer by Charles Babbage[1] and the development of George Boole's Boolean algebra, the research into the field of computer science has been constantly evolving. This essay focuses on the fact that in recent years research in this field has shifted from scientific to commercial using the examples majorly of Apple Inc and IBM.

Cost was always a very important fact in the manufacturing of computers, Charles Babbage's difference engine (1842) was cancelled due to its high cost [2]. Even computers like the EDVAC with an initial budget of \$100,000 reached the total cost of \$500,000 by the time it was functional [3]. ENIAC, a military contracted computer cost a total of \$500,000 despite its initial contract was signed at \$61,700 [4]. These machines, however were designed for military purposes and not to gain a profit. The first truly commercial computer UNIVAC (1951) was designed by Remington Rand [5] and was marketed to businesses for the use of Logistical and Data processing applications. [5] As a marketing strategy to increase the profit created from the computer, it was used to predict USA's 1952 presidential elections and predicted right [6]. The company sold each computer at a price between \$1,250,000 and \$1,500,000 with a total of 46 systems sold [7]. Almost 25 years later, the first major brand name computer the Apple I was released in 1976. [8] This marked the era of the personal computer.

Apple I was initially sold for \$666.66 [8]. Each computer cost only 500\$ to build and was marked up at 1/3rd the price. It was in 1981 that IBM announced their own personal computer at a \$1,565 which was an exponential reduction from their previous computer's \$9 million price tag. The IBM PC released with a keyboard, colour display and came with MS DOS.[10] At the end of 1982 IBM's sales had hit a system-a-minute every business day [16] This level of competition was going to be continued between Apple and IBM for years to come. During this time most major companies shifted their research into building and competing in this obviously profitable consumer market. [11,12] Research into computers for scientific purposes reduced. By the 1990s IBM and Apple along with Dell and HP were now part of a very competitive market. IBM released the ThinkPad and got a total revenue of \$64.52 Billion. [13] Apple released Apple 2, Lisa and made a \$530 million profit in 1992. [14]

The war between PCs and Apple Macs still continues and with the introduction of smartphones into the market the profits Apple and companies such as Samsung and HTC make are close to billions[15,16,17]. Using IBM as an example of an industry which switched its research we can see that the trend for scientific research reduced. A few medical/scientific specific equipment such as IBM 2991[18] (1972), IBM 2997[19] (1977) were released before the "war" with Apple Inc. Machines for education such as the IBM 1500 was released in 1996 [20].

The biggest reason for the shift in research and development for computers throughout the years has been the profit companies' gain by selling personal computers and smartphones to the general public. Scientific computers, with the exclusion of supercomputers do not gain much attention and often do not produce much profit. Using the examples of IBM and Apple who have been icons throughout the recent tech age we can see that the trend has changed from scientific to commercial just for profit. I believe that research should not depend on the possible profits made, but should be focused towards improving technology on a whole.

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