

ELECTRONIC COMPUTERS FOR BUSINESS

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Preface

In the past fifteen years great strides have been made in the development of automatic digital computing machines. They began with the building by I.B.M. and Harvard of the 51-ft. long electromechanical Mark I Calculator, which worked day and night during most of World War II to compute thousands of ballistics tables and solutions to other important but tedious computational problems. Shortly after the war there appeared the first all-electronic machine, the Eniac, capable of performing such computations several thousand times faster than Mark I. Within a few years numerous improved electronic machines had been built, to specifications set by the Atomic Energy Commission and other government agencies, to carry out the vast computations which were becoming ever more necessary in scientific and engineering research.

Before the close of 1953, a number of computers had been produced and sold commercially. Most in the public eye was the Univac, of which 6 had been sold at around \$800,000 apiece during the 1950-1953 period. Eight more Univacs were delivered during 1954. Also, during 1953 and early 1954, the International Business Machines Corporation suddenly produced 18 I.B.M. Type 701 Electronic Data Processing Machines which were rented for about \$20,000 a month each. During the same period, other early entrants into the field had built and sold other large computers as well as many special machines and a group of small computers priced as low as \$50,000.

By 1954, after many false starts, the stage was set for the serious application of the new kinds of machines, bred in the scientific laboratory, to the needs of modern business. On October 22, 1954, in Louisville, Ky., 4893 employees of the General Electric Company received paychecks computed and printed by a Univac. Some 500 man-months of effort had been expended in 18 months of trail-blazing and planning. The computation itself, for one of the most complicated job- and incentive-pay plans in industry, now takes the Univac only 10 hours per week.

Extravagant prophecies have sometimes been made about the future of automatic computers in performing office work and in controlling factories. A number of writers and speakers have drawn gloomy conclusions about the effect of this Second Industrial Revolution on human society. It is difficult as yet to say just how far the application of computing machines may extend, but it can be said with certainty that the changes in the next few years will be gradual and can bring with them increased standards of living for everyone. There is admittedly a danger of displacing people unhappily during the transition period, but, with care, this period can be made quite painless for all concerned.

In any event the wheels are already in motion. We are already beyond the headline stage. Certainly there will be new technological developments in the field, but they will likely be less frequent and less significant than those of the past 15 years. Widespread application of computers in business requires no further new devices -- it requires nothing but careful long-range planning and plenty of hard work.

While parts of it may interest them, this book is not written for those who wish to become electronics engineers or to use computers for scientific problems. It is addressed primarily to those who want to learn enough about the nature of contemporary computing machines to assess their possible usefulness and to see how they might be applied to a given situation in the field of business data-handling. That aspect of the subject which is most likely to concern the business user in some detail -- the task of programming the machine -- is described briefly in Chapter 2, then treated at some length in the last 4 chapters. These chapters may be omitted by readers concerned solely with the problem of evaluating a machine, but it is hoped that they will make the book a useful general introduction to the subject for those destined to become programmers.

We have not attempted to write a comprehensive manual on existing machines, but rather to abstract from the complexities of actual machines the essential principles of their design and use. Individual machines are mentioned in the text only as examples of particular techniques; for full information about them, the reader should consult the manufacturers. We have, however, thought it desirable to present in the form of an appendix a summary of each of the machines that are commercially available or have been announced at the present time.

The reader will not find in this book a model of how to apply electronic computers in any particular business; the subject is still too young to permit such dogmatism. We merely hope that it will put him in a position to envisage what a computer might be expected to do, so that he may consider for himself whether and how it might be applied in his own business.

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