

Electronic News[®]

THE INDUSTRY'S WEEKLY NEWSPAPER • A FAIRCHILD PUBLICATION

Printed in U. S. A.

Copyright, 1963, by Fairchild Publications, Inc.

TEN CENTS

One Year \$3
Payable in Advance

Vol. 8 WHOLE No. 393 ★ ★ ★

NEW YORK 3, N. Y., MONDAY, SEPTEMBER 2, 1963

Norris of CDC Sees Drastic Change Ahead For Computer Firms

By DOLORES PLESTED

DENVER. — Only six of the 12 major companies in the computer business are likely to survive in the next 10 years, William C. Norris, president of Control Data Corp., Minneapolis, estimated last week in his keynote address before the 18th annual conference of the Association for Computing Machinery at the Denver Hilton.

In determining who would survive thinking has to be in terms of the world, he said, for development will be on a worldwide basis. Both foreign and domestic companies must be considered, he pointed out.

The criteria for survival listed by Mr. Norris included singleness of purpose, dedication and depth of understanding of top management, technical strength, market strength on a worldwide basis, and manufacturing competence.

Expanding on the importance of singleness of purpose, he said that the more diversification a company has "the less well it seems to do in the computing business," because they have less time to spend on it.

"People at the top level should have time to put their full energies on computers."

Earlier, calling the computer industry advances "truly phenomenal," he stated that nearly \$5 billion worth of standard computer systems were in operation in the United States by the end of 1962, yielding a yearly gross income to computer companies in excess of \$2 billion during 1962.

Value of installed systems in the United States, and income therefrom will increase 4-6 fold over 1962, by 1970, he said in quoting "conservative estimates." The foreign market will approach that of the United States in yearly sales by 1970, he predicted.

New Concepts.

Significant advances will come primarily from engineering involving the development of new concepts of machine organizations plus new wiring and packaging schemes, he said. He emphasized the impact of the development of mass random access memories which would "open up new fields of application" and permit the development of "thinking" and "self educating" processes in computers.

He sees revolutionary developments in memory systems.

Mr. Norris announced that Control Data's new large 6600 computer system is based on some radical new developments which represent "real breakthroughs" allowing circuit speeds to be pushed significantly upward.

As far as size goes, he believes maximum sizes have not been reached as yet in computers, and said they plan to build some larger than the 6600 to handle large problems. Most of the significant advances in the field come from big machines, he stated.

He cited a need for small, lower priced computers for use in both "satellite" computer systems (where many small computers are used to communicate with a single large computer) and for other uses where small computers may be used by literally thousands of users.

There is a need for large volume production to bring costs of such small computers down to a "low enough point" to satisfy the needs of "small users."

The need for new ideas in input/output equipment was pointed out as he said the cost of input/output equipment kills off potential computer users.

Primitive Equipment.

He said, "It is apparent to everyone that present input/output equipment is very primitive compared to the sophistication of the computer itself."

He did not predict that present input/output equipment would be replaced in the next 10 years saying that some of it will be around for a long time. Customers and computer manufacturers have too much invested to replace present input/output equipment for some time.

He did predict for the next 10 years a rapid development of a

Denver Parley on Computers Warned Big Shakeout on Way For Makers

"second generation of input/output equipment" based on cathode ray tube "visual techniques" for real time problems, other visual sensory techniques, the wider use of film in addition to cards and tape to store information, the wider use of visual displays, the results of which can be stored on film, and the development of audio communication equipment for both input and output.

He emphasized that the development of input/output equipment will remain a more difficult problem than problems relating to the development of central computers.

Input/output requirements involve not only the electronic art but also the sciences of mechanics, light and, eventually, sound.

Regarding softwares, he said his firm today was spending as much money on software as hardware, and pointed out that to an increasing extent software must be planned and developed more closely in concurrence with hardware developments.

Language Needs.

He predicted the use of standard languages such as Cobol, Algol and Fortran as an "absolute necessity." He visualized that machine efficiencies increase and as the "cost of computing becomes penny heap, like electricity," the "inefficiencies in instances due to standard languages will become of less importance."

Touching on standards, he said they were presently using standards set by a manufacturer, but feels there should be a different source for standards. "They should be set by computer people not by any manufacturer, and we will accept industry standards as they develop," he said.