

Programming Research
September 1, 1957

MEMORANDUM TO: Mr. J. C. McPherson

SUBJECT: Present Status of FORTRAN

Survey Results

Recently the Applied Science Representatives associated with each 704 installation were asked to report on the use of FORTRAN at their installation. So far, replies covering 35 installations have been received. The following facts have been drawn from these reports

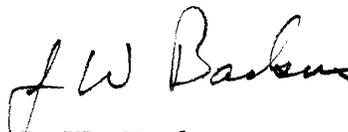
1. Of the 35 installations, 9 do not have drums and therefore cannot use FORTRAN.
2. In addition to the 9 drumless installations, 3 installations have problems of a special nature for which FORTRAN was not intended.

The following comments apply to the remaining 23 installations.

3. 70% of these installations presently use FORTRAN to prepare at least 20% of their programs.
4. 35% now use FORTRAN for at least 50% of their programs. (see appendix A)
5. Although specific estimates of future use were often not given, usually some information was contained in the reports which indicated the expected use. Our estimates indicate that 19 (83%) of these 23 plan to use FORTRAN for at least 50% of their programs, (the average installation of these 19 will use the system for an estimated 69% of their programs)
6. Those programs for which FORTRAN is not used are most frequently the few very large, very complicated bread-and-butter jobs in the installation (e. g. reactor codes) which use most of the available machine running time, and those jobs which use many subroutines written before FORTRAN was available. (It is felt the availability of FORTRAN II will eliminate the majority of these areas of non-use)

Conclusions

1. The survey reported above and visits to a number of 704 installations indicate that within the next six months more than half the scientific problems being solved on the 704 will be programmed by FORTRAN.
2. The system is being widely accepted.
3. The plans for FORTRAN II cover virtually all the weaknesses in FORTRAN which have been pointed out by customers.
4. Customers estimate the time and money required for programming at between 1/2 to 1/10 the time and money formerly required.


J. W. Backus

JWB:rw

Appendix A

Customers using FORTRAN for more than half their new problems as of August 20, 1957:

1. M. I. T. (50%)
2. Council for Economic and Industrial Research (50%)
3. University of California Radiation Laboratory,
Livermore (50%)
4. Boeing (50%)
5. Curtiss-Wright (50%)
6. G. E. - Aircraft Nuclear Propulsion (66%)
7. United Aircraft (66%)
8. Los Alamos Scientific Laboratory (75%)