

the forum

The Forum is offered for readers who want to express their opinion on any aspect of information processing. Your contributions are invited.

THE SIGNIFICANCE OF WIMMIX

The article entitled "WIMMIX: It's the Biggest, but Will It Be the Best?", (DATAMATION, Oct. '69, pp. 84-90), was recently read with great interest by the writers from two standpoints: as senior analysts with a leading computer manufacturer and as former Air Force officers associated with SPADATS (NORAD) and the Intelligence Data Handling System (IDHS).

It is encouraging from both our viewpoints to see that WWMCCS is stirring such interest among equipment manufacturers and ultimately warrants treatment at length in one of the industry's most popular trade magazines. There is certainly no argument that the effects of the WWMCCS selection will be felt throughout the industry in general, and may well pave the way for standardized machine-independent software for all government and civilian computer systems. The net result in terms of vendors' interests could be that the general market might become more truly competitive, rewarding price/performance excellence with purchase orders involving no hidden software conversion costs to the consumer.

The question could be posed, however, concerning the relevance of this point to the forthcoming WWMCCS buy. That is, if software compatibility were the pervasive consideration as the earlier article suggested, then a reasonable course of action might be for DOD to procure several hundred additional 1410 systems and color them "WWMCCS." We, however, interpret the situation somewhat differently. WWMCCS represents a new, refined and integrated approach to a much-needed world-wide force control and scientific computational capability with-

in the Department of Defense. The ultimate effectiveness of WWMCCS depends on many factors—including a new operational concept for all major commands which is responsive to the C&C problems generated by advanced



weapons systems, real-time sensor systems, a myriad of weapon employment options and reduced decision times which did not apply at the time the present computer systems were installed. The new WWMCCS systems, at least at major command levels, are likely to be considerably different in function from the systems to be replaced. This point might explain why the WWMCCS planners appear to be more concerned with evolution of a new system than emulation of an older one.

This article will not fall prey to "speculating on remote contingencies" (courtesy Robert S. McNamara) such as predicting the outcome of the WWMCCS hardware procurement or listing reasons why one vendor should be considered more or less seriously than others. The referenced article has treated this subject in articulate detail, and any comments here would probably seem parochial and argumentative. We could point out, however, that it would be possible to divide WWMCCS into functional areas (e.g., scientific, intelligence, general dp, etc.) where little or no software transferability would be required. The WWMCCS procurement action could then be single-source in these categories without compromising the basic reasons for the World-Wide buy. (Single-source, contrary to the implications of "WIMMIX:", is not equivalent to sole source as a procurement action.)

As is accurately described in "WIMMIX:", the installation of these new computer systems is planned over some five years. With the adoption of JOVIAL J3 as the official USAF command and control language, those programs which will be transferred to the new computers could be converted to J3 in the intervening time. In fact, this process is presently under way in many military installations, and can be expected to begin in others—particularly those affected by the immediate WWMCCS buy—as soon as the approved option is released. Thus the "apparent decision to disregard system conversion costs" by DOD is not translatable into tremendous queues of unconverted and unusable programs, but rather means that much of the conversion which is necessary can be and is being gradually absorbed in the pre- and trans-WWMCCS acquisition period.

Therefore, the language standardization phase of WWMCCS can serve many more useful purposes than the alleged "sincere effort . . . to overcome IBM's bidding advantage" on the part of DOD. Evolution in command and control systems can be expected to continue beyond the 1969 WWMCCS concept, and software standardization costs at the present time could realistically be amortized over a longer period than the months until RFP date or the few years until full operational capability is realized. In any case, it is doubtful that the over-all cost of WWMCCS system development will be evaluated on a retroactive basis and consider the conversion of programs which could

have been written in (or converted to) a higher level language during the past two or three years.

The argument about long-term amortization of software conversion costs also applies to the intelligence data processing community, though the requirement for mass replacement is certainly decreased by the 40 or so sole source acquisitions permitted in the past two years. It would probably provoke little controversy to state that the For-

matted File System (FFS) is not the latest word in information retrieval systems, or to point out that virtually all FFS installations have experienced difficulty in satisfying user requirements for intelligence data management. This is not intended as an argument that IBM, the developers of FFS, should be categorically deposed from intelligence. Rather, it is another example that requirements have changed in the past five or seven years, and that saving all programs developed for a particular machine is not and should not be the paramount consideration in determining the

over-all cost of WWMCCS.

Future WWMCCS replacement will probably be on a three- to six-year cycle, and it seems eminently reasonable for DOD and the military commands to begin now to prepare for the eventuality that one vendor will not always have the most appropriate hardware for all future military command and control applications. Notable in this respect is the extensive reprogramming effort under way by personnel assigned to the Aerospace Defense Command (ADC). The Space Detection and Tracking System (SPADATS) software is being rewritten in JOVIAL to make better use of the existing Philco machines and to afford ADC and NORAD true flexibility in selecting the equipment best suited to the tremendous computational and data processing requirements of program 496L (SPADATS) and 425L. (The 496L workload, incidentally, is not handled adequately by a single Philco 2000/212, but is distributed over four such machines.) This programming effort is not aimed at unseating the present vendor, but is in consonance with a two-year-old AF directive which dictates that all new programs should be written in the JOVIAL language to simplify programmer training, program development and maintenance, as well as to achieve the desired machine independence.

Similarly, it is difficult to translate WWMCCS into an effort to depose the existing suppliers of DOD's computer systems. The World-Wide Military Command and Control System may force some advancements in hardware state-of-the-art and software transferability, but this can be considered incidental to the new DOD and JCS operational concepts which gave birth to WWMCCS itself. In short, WWMCCS appears to be a practicable solution to the compounding problems of present-day command and control within the Department of Defense. It will no doubt be the subject of many treatises on possible methods of development, management and support of large scale intercommunicating computer complexes using standardized languages.

If these subsequent articles can avoid the temptation to interpret WWMCCS strictly as cpu's, machine dependent software, or as a single-source opportunity for a particular vendor, then the industry and the DOD users together will profit from a greater understanding of what WWMCCS is and how its computer support can best be implemented.—L. K. GEISEL, B. L. HARRISON

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