ADM-10.5

DD/S&T-060-67

6 JAN 1967

MEMORANDUM FOR: Executive Officer, DD/S&T

SUBJECT : Recommendation for Online Remote Terminal in DD/S&T Area (System Center)

1. The need for an effective and efficient management information system has been highlighted during the past year by the results and limitations of the existing system for computer processing of contract information. While it can and does provide some useful information, this system as it is now organized does not fully pass the first two of the three primary tests of effectiveness, viz., timeliness, accuracy and relevance.
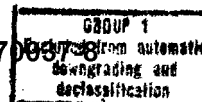
2. Timeliness is offset by the necessity to input new and revised data into the system in the batch-processing mode, only, and by the lack of means for direct access to the information in storage. Accuracy is handicapped by lack of direct control over the key-punching process. Both requirements can be measurably improved by using any one, or a combination, of available remote terminal devices which give online access to the computer and its storage units. In addition, such devices provide an immeasurable improvement in the man/machine relationship (an area of customer psychology that is too frequently overlooked) without degrading the efficiency of the central computer. In fact, we have already reached the stage in a rapidly advancing technology where communications and display design and hardware are more important to integrated or total information systems than new, more powerful computers. A total, integrated system enables management to manage an enterprise, not just account for it.

3. Two more or less abstract, but nonetheless real, considerations must be added to the argument for an online, remote terminal. If we accept the proposition that management information and control systems can function efficiently only in an online mode, then it follows that DD/S&T, as the top management echelon in the Agency's science and technology field, should lead in the experimental development and usage of such applications. Additionally, when and if the Agency M.I.S. (now under development) becomes a reality, integration of the DD/S&T system

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into the larger one will be more smoothly facilitated by the combined
assets of some existing hardware, software and usage experience.

4. The urgency of a hardware procurement request, the choice
of hardware models, the development of software and the need for a
secure communication line between the terminal and the computer center
are all subject to the influence of a variety of complex factors
related to the current posture of OCS. As to urgency, only last week
an OCS spokesman defined the total plan of OCS for a time-shared system
with remote terminals in terms of and limited to the twelve customer
installations listed in their 6 June 1966 memorandum to the Director of
Communications. He strongly suggested that additional requirements for
remote terminals must be surfaced in the very near future. As to the
security specifications for communication lines between terminals and
computer center, no hard and fast guidance has been provided to date
by OC or OS although this was promised to OCS by 15 September 1966. As
to software development, OCS support is critically limited by a shortage
of experienced personnel. They forecast that the next 18 months will
be considered an experimental period in the use of the terminals now
planned for.

5. More detailed consideration must be given here to the choice
of hardware among the many available models. No two people with whom
this matter has been discussed, including two OCS "authorities," have
agreed on the same model. Because of a basic desire within OCS manage-
ment to simplify as much as possible the hardware compatibility problem
some fine equipment produced by Control Data Corp. and a very elaborate
ITT unit (currently available at no cost from DOD) will not be
recommended; nor will the product of any manufacturer other than IBM
be further considered here. IBM offers four models (two CRT and two
keyboard/printer units) which are described as follows:

> 2250 - a 21 inch CRT with display area of 12 by 12
> inches allowing maximum display of 52 rows of
> 74 characters (3848 total characters) as well
> as graphic plots - rental, $1600/mo.

> 2260 - a CRT capable of displaying 12 rows of 80
> characters (960 maximum) with no graph capability -
> rental $50/mo.

> 1050 - a remote keyboard/printer console with option to
> add paper tape punch, card punch, etc. Basic unit
> rental, $190/mo.

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2741 - a simpler keyboard/printer without above options; basically a Selectric typewriter with 15 inch carriage - rental, $90/mo.

6. In view of the complexity of problems involved, the choice of an initial unit from those listed above can fairly easily be narrowed down to a choice between the 2260 and the 2741. Both can be considered to be effective input devices for daily updating of the master file (necessary for timeliness and accuracy). Certain characteristics of the 2260 give it a slight advantage in this respect. It is also considerably faster in retrieval and display of desired information but does not provide "hard" copy at the remote site. On the other hand the 2741 provides only "hard" copy but its speed would not allow it to be used for volume reports of the type obtained from the current batch processing mode. So a comparison at this point of the advantages and disadvantages of both units would tend to favor the 2260, the unit that OCS is beginning to experiment with. However, the 2260 requires a coaxial cable for its communication line while the 2741 requires only a telephone line. While the security qualifications of either type of line have not been established, it is reasonable to assume that they can be fixed for a telephone line much sooner than for a coaxial cable.

7. Another consideration is the fact that ORD (IPRD) is ready to begin developing the program required to use the COMARS file in an online mode and this application can be available in the next three or four months. While it is being written for the 1050 unit, the program will also be compatible with the 2741. Further, the manufacturer's software will be available for the 2741 in April; therefore, all things considered, we should be able to have a 2741 in actual productive operation by summer whereas the 2260 may not be effective for as much as a year later.

8. In view of the facts now available, admittedly incomplete, it is recommended that we immediately place OCS under obligation to procure, install and make operational a 2741 remote terminal in the DD/S&T Information Center at the earliest practicable date.

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Comptroller
Directorate of
Science and Technology

Addressee - Orig. & 1
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