

DISPOSITION FORM

SECURITY CLASSIFICATION (If any)

~~SECURITY INFORMATION~~
~~TOP SECRET~~

FILE NO.

SUBJECT Comment by Office of Operations on the Report by
the Inspector to the Director on Analytical Machine
Employment

TOC/S

FROM OPNS

DATE 12 Sept 1952

COMMENT NO. 1

1. The report by the Inspector on the employment of analytical machinery is a very effective, detailed study of our present policies and practices in the use of analytical machinery. In the discussion contained therein, a number of related considerations are taken up in considerable detail. In some instances these are considered debatable by O2 but will not be discussed here. In making its comments on this report, the Office of Operations will concern itself solely with the recommendations of the paper. The failure to discuss the points raised in the main body should not be considered as necessarily indicating agreement in the facts and conclusions presented.

2. The Office of Operations is in general accord with the ideas proposed in the study. Of the eight recommendations (a-h) included in the paper, the Office of Operations concurs in all but two and has some specific suggestions to add with regard to how the acceptable recommendations should be implemented. In the case of the two exceptions (paras 7a and 7d), the Office of Operations agrees that the type of action suggested is desirable but believes that the specific method called for should be different from that proposed. These two recommendations deserve detailed comment.

3. Recommendation 7a. This recommendation concerns the planning and scheduling of analytical machine employment.

a. The reason given for transferring high level machine methods activity, i.e. the function of analytical machine employment, planning, and scheduling, from 22 to the Technical Director, Office of Operations, is essentially one of insufficient time available under the present arrangement for making high level machine methods analyses.

b. While it is clear that undertaking studies not now being made requires a diversion of some personnel from methods-programming on current tasks, it should not be assumed that nothing is now being done in high level investigation. Under the present organization an appreciable effort is being made to investigate problems for which there is no obvious machine solution. At least eight man years are currently assigned to such work. In addition, one analyst from AFSA-35 and two from AFSA-34 assist to the extent of their capabilities. These representatives of O3 assigned to O2 on a full-time basis fulfill the requirement expressed in the study for "advisory" membership in planning the employment of analytical machinery.

c. Transfer to the Technical Director of personnel engaged in these activities would certainly tend to reduce or even eliminate their participation in current machine operations. It would also create a gulf between them and the methods-programming group a large part of which we are planning to move down into the branches. For maximum machine effectiveness these two groups must work together

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closely. Moreover, in practice it is often impossible to distinguish the objective of high level methods from the pressing needs of today. It is mandatory that there be the closest association of those skilled in the broad and inventive view with those best informed about detail and intimately familiar with the practical requirements of getting a final report accurate and in time.

d. Careful administrative direction of the high level group is required to prevent undue pressure to "get-the-job-on-the-floor-today" and to minimize too extensive explanation time. This direction might well be accomplished by transferring high level investigative methods to a staff group with 22, namely the Technical Projects Group, where methods would be devised under the guidance of the Machine Processing Divisions's Technical Director.

e. Some administrative separation of high level methods from analytical problems seems inevitable in view of the degree of specialization required in modern cryptanalysis and in view of the impossibility of being close to everything in a large organization. In any event, the methods analyst is at least as close to the analytical problem of the General and Special Processing Divisions when assigned to 22 as when assigned to the Office of Operations Staff.

f. It is the conviction of the office of Operations that the function of machine methods can best be exercised within 22 wherein lie the administrative controls and direction required to make the total machine process effective.

g. It is therefore recommended that the Inspector's recommendation in par. 7a be revised to require:

- Interim?*
02
- (1) That the strength of the Technical Projects Group be raised to fifteen by the transfer of 12 spaces from the Comptroller and from the Plans and Policy Division.
- Interim?*
02
- (2) That five machine methods analysts be transferred from the Methods Branch, where they are now performing functions appropriate to the Technical Projects Group, to that Group and that the remainder of the spaces be filled by transfer of qualified personnel from elsewhere within the Agency.
 - (3) That the expanded Technical Projects Group of the Machine Processing Division concentrate on the mission of drawing up new and better uses for our present and projected machinery.

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4. Recommendation 7d. In this recommendation the basic paper proposes a reorganization of 22 with the essential point of merging the IBM and the RAM Branches.

a. It is quite true that the terms IBM and RAM have long since ceased to be, if indeed they ever were, adequate descriptions of the processing branches now so described. There is, however, administrative convenience in having more than one processing branch. This convenience finds its source not only in the size and present physical locations of machine installations but in certain functional work distinctions. There is no doubt that a reorganization taking these two factors into greater account would have administrative advantages, and if more weight is given to the functional requirement the more satisfactory quarters hoped for in the new building would tend to improve the operability of the Division without necessitating radical organizational changes.

b. There are three principal functional processing groupings that should be recognized.

- (1) Editing and punching (card and tape). These require skills and personnel types distinct from other machine processes.
- (2) Production of recurring jobs; and jobs which, regardless of size, call for simple programming only.
- (3) Complex jobs, including the initiation only of certain large jobs and non-recurrent jobs frequently originating from the highest level of methods investigation. These require a high concentration of operators who are capable of rapidly adapting themselves to changing conditions and of grasping the necessary cryptanalytic consideration to process jobs accurately with minimum instructions.

c. All of these functions invite an administrative organization to manage the personnel performing them. They also require methods-programming coordination, at least to decide which group should process a particular job. The administrative advantages in a functional grouping extend to a degree of concentration of methods-programming activity. It is undeniable that a job planner benefits from sharing ideas with other job planners. It is evident that there is a close affinity between jobs-- from the methods-programming viewpoint-- even though the actual program in one case is a production item and in another a complex processing item. Experience has shown that sponsors are most assisted if they do not have to decide what group of methods-programmers to visit but can maintain contact with a particular person or persons.

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d. Transferring some methods-programmers to a machine operating organization would make them organizationally closer to the actual operation of equipment. It would facilitate training of personnel especially when the grade raising and hiring program makes available personnel capable of receiving training of the type envisaged. Until this long range program becomes effective, however, the methods-programmers would have either to continue writing very detailed programs or personally supervising a method which they had developed. In the first instance the gain from presumably easier personal contact would be offset by no decrease in the load of job procedure writing. In the second alternative direct supervision would not replace the requirement for detailed programs for extra shifts, at least, or as protection against sickness or absence of the "brain". To add a supervisory duty could only reduce the number of procedures written. In other words this transfer would not immediately solve any major administrative problem. The desired goal could best be accomplished by increased training and gradual transfer of personnel.

e. It is therefore recommended that par. 7d of the Inspector's report be revised to require:

- (1) That the Methods Branch retain its present functions except as affected by increased activities in the Technical Projects Group and by para. 3 below, with the result that the size of the Methods Branch will eventually be considerably reduced.
- (2) That as rapidly as feasible the function of detailed program completion be decentralized to appropriate processing branches subject to review by the Methods Branch for adequacy.
- (3) That the Processing Branch (IBM) and the Processing Branch (RAM) be abolished and that they be replaced by the following functional branches:
 - (a) 222-Data Recording Branch - Responsible for punch-editing and for punching cards, tapes or other media to be processed within the Division.
 - (b) 223-Machine Production Branch - Responsible for processing recurring jobs and simple small, or large one-time jobs that do not require a high degree of program alteration.
 - (c) 225-Special Projects Branch - Responsible for processing all jobs where the procedures are subject to variation or where complex processing requires especially instructed personnel.

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- (4) That the position of special assistant (22D) for decentralized machine rooms be established as the medium through which the Machine Processing Division's responsibilities in the matter of decentralized machine rooms can be exercised.

5. As regards the recommendations with which O2 is in agreement, the following specific suggestions are made in connection with the implementation of two of them.

a. Paragraph 7b:

- (1) Personnel permanently assigned to operation of equipment now decentralized should be transferred to appropriate segments of the Machine Processing Division.
- (2) Further investigation should be made of the extent to which the Office of Operations should provide machine assistance of any nature for the Office of Communications Security.
- (3) Machine Processing Division should be made responsible for:
 - (a) Assistance in investigating where additional decentralized installations are necessary and practicable.
 - (b) Assistance in establishing an adequate reporting system for showing the utilization of the decentralized installations.
 - (c) Providing necessary logistic services, including full time machine operators and part-time programming consultation.

b. Paragraph 7f:

- (1) Immediate steps should be taken to delay the imminent departure of men now alerted for detachment from AFSA.
- (2) The Machine Processing Division strength should be also augmented by civilian personnel. This is particularly necessary in view of the long delay likely, first, in gaining service agreement to the Inspector's recommendations and second, in filling the spaces once they are authorized.

/s/J. R. Dennis
J. R. DENNIS
Captain, U.S. Navy
Acting Chief
Office of Operations

cc: Inspector
Mach. Proc. Div.

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