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NPIC/TSSG/RED/SRB:

[Redacted]

4 December 1969

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R&ED ADP ANNEX

In support of, or as a follow-up to, the research and development program, R&ED must increase its internal ADP activities. Contained herein are only those ADP requirements or functions which we propose can be most efficiently accomplished and most readily justified within TSSG operations. Additional ADP requirements more directly related to Center operations will be levied on PSG/AID for their support.

1. The major ADP functions to be performed within R&ED will be to provide computer systems analysis, software and software maintenance, in direct support of the R&D program. The major program areas to be supported are Image Analysis and Manipulation, Imagery Information Technology, and [Redacted] Additionally, support will be required for the selection, integration, and use of small special purpose computers incorporated on equipment developed under several of the R&D programs. The Agency objectives against which these programs are directed and additional detail concerning the programs are contained in the R&D Annex. The planned schedule of work (FY 72-76), in each of these program areas is as follows:

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Image Manipulation - by FY-72, the feasibility and utility of image manipulation will be established and work will concentrate on the expansion of the image manipulation techniques and the develop-

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ment of an operational Automated Image Manipulation System. The major thrusts and progress will be a function of the R&D effort. Functionally, the Image Manipulation process requires an ADP system with a large core and memory, and a noninterruptive processing cycle of a relatively long duration for the manipulation of masses of data. A fully automated system may require near continuous Central Processing Units time in an operational mode. The alternative to providing a computer primarily for image analysis and manipulation use is to provide contract support or effect a time-sharing arrangement with the 494 computer. The time-sharing alternative is under consideration, but there are a number of problems associated with this approach which will probably negate it as a long-term solution. The most serious of which is the probably insufficient machine time availability coupled with marginal core and memory capacity. The alternative of using contractual resources would be prohibitively expensive. Also associated with this task is the need for programming and system analysis personnel. Here again, the alternative is to use AID resources which are already heavily committed to non-R&D production requirements. If the necessary hardware and personnel resources are allocated, the risk will be low.

Image Analysis - by FY-72, [] higher quality black and white emulsion will be in operational use requiring more sophisticated image analysis techniques than those currently in use. Extensive use of microdensitometric techniques will be used requiring the reduction of masses of data and personnel for software production and maintenance. The image analysis effort is closely aligned with

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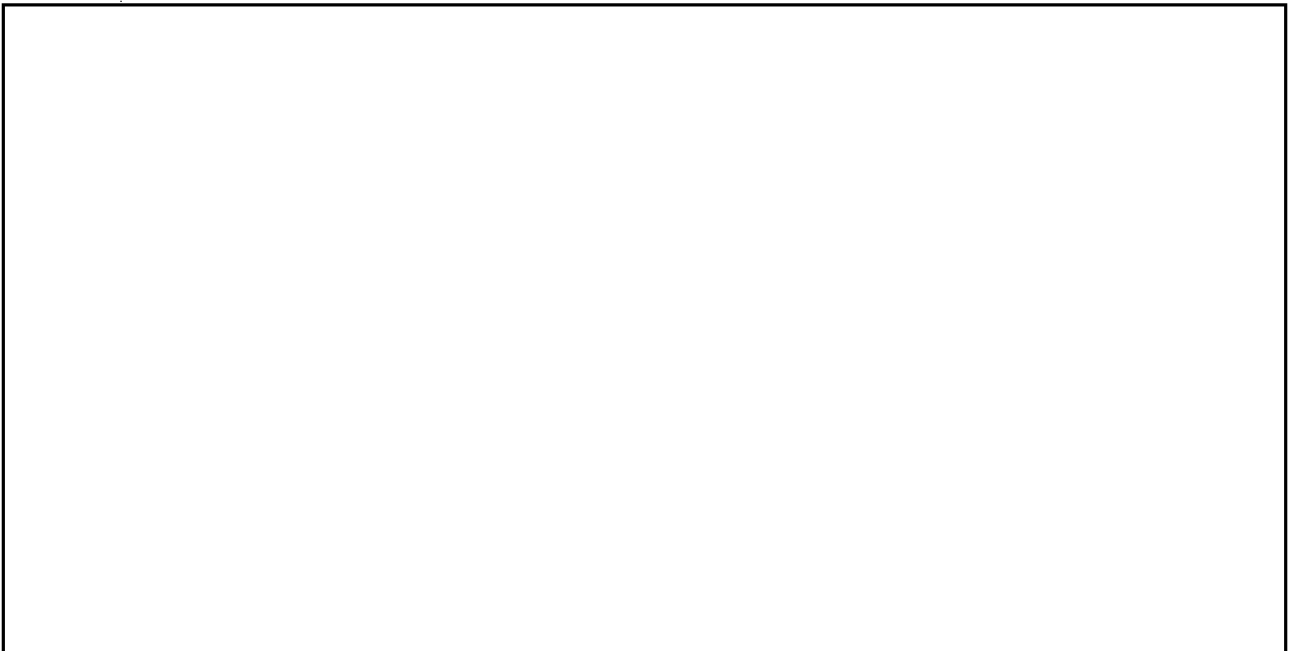
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the image manipulation effort and, therefore, is subject to the same alternatives and considerations. Included also in this area are ADP supporting services required for analyzing unconventional imagery and processing filters through holographic or other hybrid techniques. As with image manipulation, the risk will be very low if the necessary hardware and personnel resources are allocated.

Imagery Information Technology - the major function to be performed will be to provide system analysis and software support to the R&D efforts to be undertaken in this program area. The major thrust will be to achieve more automation in the material handling and reporting processes. The objective of these efforts will be to provide more timely and efficient support to the PI while holding manpower requirements and cost to a minimum. The alternative would be to obtain the services contractually.

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taining this system design and analysis knowledge within TSSG, we can perform a coordinating and consulting service to other ADP-related components of the Center.

2. The ADP related resources required by R&ED will gradually increase from the present level to a plateau by mid-FY/73, excluding any accelerated signal processing requirements such as would be necessary for a [] In preparing this resources summary, it is assumed that it is R&ED's responsibility to establish the requirements and justify the necessary expanded ADP equipment and services, and that AID will be responsible for the operation, space, supporting services, maintenance, etc., for the expanded ADP facility. It will, however, be necessary for R&ED to maintain a small ADP unit, working in close coordination with AID, to perform the necessary system design analysis and programming considerations in support of the R&D effort. By FY-73, the R&ED ADP unit will have a sufficient workload to warrant approximately 16 hours a week machine time in support of the R&D program. This machine time will have to be arranged in such a manner to allow the R&ED personnel ready access to the AID computer complex without undue interruption by operational requirements. Initially, IBM 360/50 support will have to be obtained at ORD/DDS&T or OCS/DDS&T until approximately mid-FY/73, when it will be necessary to procure a 360 system, or its equivalent. The estimated monthly rental cost on a suitable 360 system will range from [] initially to approximately [] during FY-76. A breakdown of R&ED resource requirements by Fiscal Year is as follows:

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a. Personnel

FY-70	One ADP Applications Supervisor	GS-14
	One Computer Science Specialist	GS-13
FY-71	As above, plus one Mathematician	GS-13
FY-72	As above, plus one Computer Programmer	GS-12
FY-73 thru FY-76	(Total R&ED Complement - 6 people)*	
	One ADP Applications Manager	GS-15
	One Computer Science Specialist	GS-14
	Two Mathematicians	GS-13
	Two Programmers	GS-12

b. Contracts

FY-70 - none

FY-71 - none

FY-72 - for work required to format software and incorporate special subroutines for operational use. Company unknown.

FY-73 thru FY-76 - none anticipated.

c. Space Requirements

FY-70	200 sq.ft.
FY-71	280 sq.ft.
FY-72	360 sq.ft.
FY-73 thru FY-76	550 sq.ft.

*Note: With the projected expanded ADP facility in FY-73, it will be necessary for R&ED to reorient and slightly expand their complement of personnel.

MEMORANDUM FOR:

Original as delivered to [redacted]

[redacted] *for inclusion in the
7556-ADP Summary as of this
date.*

8 December 69
(DATE)

FORM 10-101
1 AUG 64

REPLACES FORM 10-101
WHICH MAY BE USED.

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1 AUG 64 WHICH MAY BE USED.

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