PSG/R&RD-197/71
2 June 1971

MEMORANDUM FOR: Chief, Production Operations Staff, PSG

SUBJECT: R&D Planning Report

REFERENCE: TSG/RED-59/71, dated 14 May 1971

The following are comments concerning the R&D projects which we feel may have an effect on R&RD operations as outlined in subject report:

1. General Impression:

Many studies indicate a genuine attempt to deal effectively with current and anticipated problems. But many interrelationships and perhaps duplications exist in some of the projects designed to aid the PI which seems to be leading to a proliferation of systems and methods of handling information. There is great concern with form, but there seems to be little with intellectual problems involved in the content of all those data bases.

2. Attachment I, Page 8, Audio Readout:

Seems to be an imaginative approach. Good idea. If tapes are kept (this was implied later) would they need indexing assistance to organize them for retrieval? Also, it seems unlikely that the light reflected from paper could effect the iris anymore than the light coming through the film into which he is staring.

4. Attachment I, Page 9:

The enforced reason required to organize thoughts so that they can be put in writing may be badly missed. It may mean that the time saved by the PI may be offset by the need to add editors to the first phase input process.

5. Attachment II, Page 10:

Again the audio description is bothersome. We don't believe that "they" have considered the "dynamic" differences between the oral (the audio description) and the graphic (the vidio image). Captions, for

SUBJECT: R&D Planning Report

example, remain, but an oral description no matter how good will have to be recalled or repeated as the image is studied. Management or even a PI supervisor can read and reread briefing notes, but unless he has a very good memory it will be necessary to run and rerun the audio recording. If the oral recording by the PI's were transcribed immediately, and the transcription used with the audio description, it could be very effective.

Such a system as described might be adaptable for other types of info on film, for example, negs of ground photos, PI reports on fiche of high quality, past mission coverage.

Problems might arise regarding how input should be organized - chips, manually controlled, for instance, or does this plan involve only film on a light table.

6. R&D Project List Para II.4, Page 5 - Related Intelligence Data Automation:

Several questions arise regarding the collateral information: Who selects it? How does it get into the data base? What form (information, references to publications, abstracts)? Will there be CR's to select it in haphazard fashion? Will it be chosen by PI's when they can find a free moment?

The implications for better subject control of information and publications, SDI and selective dissemination of reports, and interrelationships with R&RD handling of collateral data - are pretty far reaching. More information on the project is needed, but it seems to be of considerable interest to PSG in so far as available collateral data will influence the PI/analysts' intellectual skills.

7. R&D Project List, Paragraph II.7, Page 6:

Film checkout and Locator system. This should be consolidated with II-3.

25X1

Chief, Research and Reference Division, PSG

Distribution:
Orig. & 1 - Addressee
2 - PSG/R&RD

SECRET

NPIC/PSG/RD-101-71
24 May 1971

MEMORANDUM FOR: Chief, Production Operations Staff, PSG

SUBJECT: Comments Re R&D Projects of PSG/RD Interest

REFERENCE: TSG/RED-59-71 Dated 14 May 1971

The following represent questions or comment on those items of especial interest to PSG/RD. Overall emphasis should be placed on the importance of the continuous coordination of developmental information between TSG/RED and those elements of PSG that are or will be concerned with resultant equipment, processes and materials.

II. Imagery Information Technology

1. Automated Page Composition Device

A recent study on the potential for automation in this area indicates that AID could come up with an on-line cathode ray tube (CRT) device which would give PSG/RD the same capability in approximately two years. If a higher management level deems it appropriate to spend the money for an off-line device, as in this proposal, it is said to be available to us in approximately one year. If the equipment in this proposal lives up to expectations and will indeed assist in oversize tabular composition, then PSG/RD concurs in this expenditure.

10. Fold Machine for PI Reports

The requirement for a folding machine beyond current capabilities in PSG/RD seems to have been overstated. A new [redacted] folder was purchased in 1969 which has so far been able to handle any oversized job we have had. Continued investigation then, in this area, is not requested and should be dropped.

25X1

11. Pre-Drafting Machine - Line Drawing

PSG/RD personnel are hazy on this equipment. What is a pre-drafting machine? This proposal should enjoy a token consideration only; one that could perhaps best be handled by RD personnel at equipment shows and seminars.

SECRET

SECRET

NPIC/PSG/RD-101-71

SUBJECT: Comments Re R&D Projects of PSG/RD Interest

III. Image Analysis and Manipulation

1. False Color Toning

PSG/RD endorses further effort to evaluate different surrounds for purposes of contrast enhancement to improve detectability and/or mensuration of that object.

4. Non-Conventional Imagery Quality Standards

Although PSG/RD was not identified as an interested party to this activity, the photo lab is definitely interested in any effort to establish quality standards for the control of non-conventional reproduction materials.

12. Archival Color Image Study

PSG/RD will endorse an effort to improve the archival quality of color acquisition films. It appears that this is largely a problem which the manufacturer would be expected to resolve, however it should be pointed out that this material will maintain its color definition more reliably if stored in a controlled temperature/humidity atmosphere.

V. Reproduction

2. Dry-Process Color Reproduction Material

It appears to PSG/RD that development of this material is a must if we are to reproduce multiple copies of expected inputs in a meaningful time frame.

3. Dry Silver Processor

Today's wet process environment serves to answer current photo lab requirements and probably will continue to do so in the foreseeable future. With the advent of proposed near real time systems the wet process will probably not be fast enough and will have to be augmented or replaced by some sort of dry process. Continued participation in the development of this processor is endorsed by PSG/RD.

6. Dry Silver 40" Paper Processor

PSG/RD is currently awaiting T&E of inhouse equipment. The photo lab is going to be given the chance to do its own testing on this equipment in a production atmosphere.

SECRET

SUBJECT: Comments Re R&D Projects of PSG/RD Interest

V. Reproduction (Continued)

7. Dry Silver Processing Implementation Plan

It would of course be advantageous for the photo lab to know what equipment, processing and materials it will be expected to utilize in future systems. Continued coordination of pertinent information regarding all of these proposals is desirable.

8. Step and Repeat Contact Printer

PSG/RD feels that the requirement for this equipment has not been fully identified. It is currently dependent upon decision by higher authority whether this proposal will be in a go or no go status.

9. 30 Inch Print Straightener

This problem has been helped immeasurably by procedural change in PSG/RD. The prints are kept flat in the photo lab instead of rolled up and delivered to IEG as in the past. The prints are picked up by VPB personnel when they are ready to be mounted on briefing boards. VPB has reported a definite improvement in ease of mounting these prints as a result of this change. While the problem of print curl has not been eliminated, it is felt that the expenditure of thousands of dollars to correct this fault is not justified.

15. Cloupeaux Contrast Enhancement Printer

PSG/RD feels that this equipment will do nothing more than accomplish a job already being done on other equipment in the photo lab, namely providing density cuts of underexposed ON materials. Further explanation of this proposal, in case we don't fully understand it, is necessary for PSG/RD to endorse its continuation.

16. Photo Products Pollution Control

PSG/RD does recycle hypo solutions after the silver recovery process. It would seem that a process to remove toxic chemicals from the waste water would also lend itself to recycling, although not as readily as does the hypo. A question arises. Why purify waste water and then throw it away?

SECRET

NPIC/PSG/RD-101-71

SUBJECT: Comments Re R&D Projects of PSG/RD Interest

V. Reproduction (Continued)

17. Wet Processing Technology

PSG/RD is currently working with APSD to improve wet processing chemical formulae for automated production machine usage. [redacted] will soon be releasing a three step color chemical process for color print reproduction to replace the seven step process inhouse today. Continued development research is desirable. 25X1

[redacted] 25X1

Deputy Chief, Reprographics Division, PSG

Distribution:
Original - Addressee
2 - PSG/RD

SECRET

NPIC/TSG/ESD-027/71
27 May 1971

MEMORANDUM FOR: Special Assistant for Plans and Applications, RED/TSG, NPIC

SUBJECT : FY-72 R&D Planning Conference Report and Preliminary Project List Comments

1. Tabulation of projects which are of direct or indirect interest to ESD:

I.3. Calibrated Test Imagery, ESD/D.

I.9. Experimental Design Support, ESD/D.

I.13. Color Stereo Test Development, ESD/D.

I.16. P.I. Environmental Test Area, ESD/I.

III.3. Color Image Quality Standards, ESD/D.

III.4. Non-Conventional Imagery Quality Standards, ESD/D.

III.11. Image Evaluation/Manipulation-Scientific Support, ESD/D.

IV.20. P.I. Colorimetric Measuring Device, ESD/I.

IV.30. Illumination Characteristics for B&W and Color Imagery, ESD/I.

V.10. Sensitometric Viscous Processor, ESD/D.

V.12. Unconventional Film Evaluation, ESD/D.

V.18. Sensitometric Processor Modification, ESD/D.

V.20. Dry Silver Resolution Limits, ESD/I.

VI.2. Comparator Automatic Pointing System, ESD/I.

SUBJECT: FY-72 R&D Planning Conference Report and Preliminary Project List Comments

VI.6. HPSC Pointing Investigation, ESD/I.

VII.1. Vibration Elimination Implementation, ESD/D.

VII.2. Universal Comparator Calibration Device, ESD/D.

VII.3. Two-axis Calibration Grid, ESD/D.

VII.4. Advanced Photometer, ESD/D.

VII.5. Specialized Acceptance Test Equipment, ESD/D.

VII.6. T&E Data Sheets, ESD/D.

VII.7. Viewing System Efficiency Measurement, ESD/D.

VII.8. Optical Equipment MTF Analyzer, ESD/D.

2. The Test and Evaluation Category is of primary importance to ESD. The projects listed under this category are adequate and pertinent to the Division mission and functions. Specific comments regarding this category follow:

VII.1. Vibration Elimination Implementation. It appears that Category IV would be more appropriate for this item.

VII.2. Universal Comparator Calibration Device. Shouldn't this item be "new" instead of "follow-on"?

VII.3. Two-axis Calibration Grid. TEB questions the achievement of calibration for orthogonality. If it is achieved, we will need the grid if the Universal Calibration Device (VII.2.) does not prove successful. Also, please note that IEG/PHD recently initiated procurement of a precision two-axis grid through RED/R. Atkinson.

VII.4. Advanced Photometer. This seems to describe our Gamma 2020 in all respects except for the portability/ruggedness requirement. The Gamma 2020 would be awkward to carry on trips.

SUBJECT: FY-72 R&D Planning Conference Report and Preliminary Project List Comments

3. The following Projects have Industrial Engineering overtones or implications and therefore should be monitored by ESD, especially since the Division FY-72 Budget includes a line item for Industrial Engineering Contract Services.

I.16. P.I. Environmental Test Area.

IV.25. 1540 Light Table Use Analysis.

25X1

Deputy Chief
Engineering Support Division, TSG, NPIC

Distribution:
Original - Addressee ✓
2 - NPIC/TSG/ESD

IAS - 86/71
1 June 1971

MEMORANDUM FOR: Chief, RED/TSG/NPIC

SUBJECT : IAS Review of Preliminary FY-72 R&D Project List

REFERENCE : Memorandum NPIC/TSG/RED-59/71 dated 14 May 1971

As requested, we have reviewed the Preliminary FY-72 R&D Project List from an IAS viewpoint and list below those projects which are of "direct" and "indirect" interest to us:

Direct Interest

1. Image Comparison Microstereoscope
2. 1520 Roll Film Light Table
3. B&W Dry Silver Reversal Material
4. PI Dry Silver Contact Printer
5. Advanced PI (30x, 50x) Enlarger Printer
6. Step & Repeat Contact Printer
7. EOI Mensuration Study
8. Primary & Collateral EOI Imagery Displays

Indirect Interest

1. Illumination/Magnification Effects on Mensuration
2. Calibrated Test Imagery
3. Manipulated Imagery Intelligence Value Study
4. Photographic Emulsion Intelligence Value Study
5. Imagery Interpretation Research SOA Review
6. Advanced PI Equipment Design Study
7. Operational Personnel Test Program
8. Stereo Height Measurement Training
9. Target Recognition Training Program
10. Color Stereo Test Development
11. PI Environmental Test Area
12. Related Intelligence Data Automation
13. Anti-Vibration Device
14. Optical Image Manipulation (OIM) System
15. Digital Image Manipulation (DIM) System

IAS - 86/71

SUBJECT: IAS Review of Preliminary FY-72 R&D Project List

Indirect Interest (Continued)

16. Chemical Image Manipulation
17. Hybrid-Automated Image Manipulation System
18. Electronic Image Manipulation (EIM)
19. Electro Static Holddown for 1540 Light Table
20. Collateral Imagery Display System
21. Mod 28 Rhombold Positioning System
22. Semi-Automatic Comparator Pointing Aid
23. Dry-Process Color Reproduction Material
24. Compact, High-Speed 9 1/2" Dry-Silver Processor
25. Dry Silver 40" Paper Processor
26. Comparator Automatic Pointing System
27. Comparator Variable Density Reticle
28. Micro D Applications to Mensuration
29. Vibration Elimination Implementation
30. Universal Comparator Calibration Device
31. Two-Axis Calibration Grid
32. EOI Collateral Materials [redacted] 25X1

[redacted] 25X1

Deputy Director
Imagery Analysis Service

Distribution:
Orig & 1 - Addressee
25X1 1 - [redacted] III, SA/PA/RED
1 - ODir/IAS

IEG-160/71
3 June 1971

MEMORANDUM FOR: Chief, Technical Services Group, NPIC

ATTENTION : Acting Chief, Research Engineering Division, TSG

SUBJECT : Prioritization of Preliminary FY-72 R & D Project List

REFERENCE : NPIC/TSG/RED-59-71 dated 14 May 1971

1. The FY-72 R & D Planning Conference Report has been reviewed and appropriate changes have been made on the attached copy. Also shown is an attempt to realistically prioritize the list of tasks according to the anticipated work load expected during the FY-72 period.

2. Specific changes or suggestions:

a. Project II 5 - First Phase Verbal Report Study. Would like to see scope of the project modified, as indicated on the attached document.

b. Project II 6 - Photo and Audio Recording/Reporting System. A suggested rewrite is shown.

c. Project III 6, III 7, III 8 and III 10 - Should be modified to make it clear that the image manipulation is to be used by IEG for image interpretation. The desired changes have been noted.

d. One project, IV 18, has received the "A" rating. A related project is currently being worked by the Applied Mathematics Branch, AID/PSG as a means of rapidly reading out missile impact craters and new targets. Correlated displays (new imagery and symbology) offer the hope of a really great improvement in PI productivity. This project should receive priority. Work on this project should be closely coordinated with project IV 26 (UV Project Light Table).

e. The requirement stated in paragraph V-5 (Advanced PI (30X, 50X) Enlarger Printer) can be satisfied by device in project V-1. An enlarged negative is produced with the Polaroid camera. This is then used to produce enlarged prints which can be to 105X. With the advent of the 30X Polaroid copy camera we will have the capability to go to 450X. Far more than is required in the foreseeable future.

IEG-160/71
3 June 1971

SUBJECT: Prioritization of Preliminary FY-72 R & D Project List

f. Project II 3, IV 16, and VIII 5 are essentially the same. Project I-13 and I-10 should be combined.

[redacted]

25X1

Acting Chief
Imagery Exploitation Group, NPIC

Attachments:
Criteria for TPB Evaluation of Preliminary FY-72 R&D Project List
Report on the FY-72 R&D Planning Conference, Part 1 & 2

Distribution:
Orig & 1 - Addressee w/att
1 - NPIC/PPBS w/att
2 - NPIC/IEG wo/att
1 - NPIC/IEG/OD wo/att
1 - NPIC/IEG/OD/TPB w/att

27 May 1971

Criteria for TPB Evaluation of Preliminary FY-72 R & D Project List

Evaluation

A. Valuable project. Work should procede without delay and should take priority.

B. Desirable project. Should be pursued to completion in accordance with a systematic schedule based on current priorities.

C. Peripheral project. Should be pursued at minimum cost and lowest priority consistant with maintaining project momentum.

D. Questionable project. Value is dependent on how much it will cost IEG in money and man-hours to produce results.

E. Project whose possible value to IEG must be confirmed by further details. Further investigation required.

F. Project which has little apparent value to IEG.

G. Can be accomplished by IEG.

IEG-160/71
3 June 1971

MEMORANDUM FOR: Chief, Technical Services Group, NPIC

ATTENTION : Acting Chief, Research Engineering Division, TSG

SUBJECT : Prioritization of Preliminary FY-72 R & D Project List

REFERENCE : NPIC/TSG/RED-59-71 dated 14 May 1971

1. The FY-72 R & D Planning Conference Report has been reviewed and appropriate changes have been made on the attached copy. Also shown is an attempt to realistically prioritize the list of tasks according to the anticipated work load expected during the FY-72 period.

2. Specific changes or suggestions:

a. Project II 5 - First Phase Verbal Report Study. Would like to see scope of the project modified, as indicated on the attached document.

b. Project II 6 - Photo and Audio Recording/Reporting System. A suggested rewrite is shown.

c. Project III 6, III 7, III 8 and III 10 - Should be modified to make it clear that the image manipulation is to be used by IEG for image interpretation. The desired changes have been noted.

d. One project, IV 18, has received the "A" rating. A related project is currently being worked by the Applied Mathematics Branch, AID/PSG as a means of rapidly reading out missile impact craters and new targets. Correlated displays (new imagery and symbology) offer the hope of a really great improvement in PI productivity. This project should receive priority. Work on this project should be closely coordinated with project IV 26 (UV Project Light Table).

e. The requirement stated in paragraph V-5 (Advanced PI (30X, 50X) Enlarger Printer) can be satisfied by device in project V-1. An enlarged negative is produced with the Polaroid camera. This is then used to produce enlarged prints which can be to 105X. With the advent of the 30X Polaroid copy camera we will have the capability to go to 450X. Far more than is required in the foreseeable future.

IEG-160/71
3 June 1971

SUBJECT: Prioritization of Preliminary FY-72 R & D Project List

f. Project II 3, IV 16, and VIII 5 are essentially the same. Project I-13 and I-10 should be combined.

25X1

[redacted]

Acting Chief
Imagery Exploitation Group, NPIC

Attachments:
Criteria for TPB Evaluation of Preliminary FY-72 R&D Project List
Report on the FY-72 R&D Planning Conference, Part 1 & 2

Distribution:
Orig & 1 - Addressee w/att
1 - NPIC/PPBS w/att
2 - NPIC/IEG wo/att
1 - NPIC/IEG/OD wo/att
1 - NPIC/IEG/OD/TPB w/att