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The ORD Career Service Panel has asked MAG to look into the question of program evaluation. During the past several months we have looked into the matter and read many papers and a book on the matter. We have not been able to produce a formula for program evaluation. We have explored the question of why it seems to be such a difficult problem.

One of the observations we had is that most R&D evaluation is done by an analysis of return on investment (ROI). In the intelligence community no value has been assigned to intelligence reports or international estimates. That in turn makes it difficult to use any ROI method.

One key reason we have come up with is that most of our R&D work is removed once or more from the final consumer. Many of our products go from us to an engineering organization and we have a smaller control over the final customer use of that product. A simplified process is exhibited in Figure 1. We find that we have to justify a project before the process begins and then despite whatever point ORD's role ends we have to explain or evaluate in terms of the ultimate product produced whether by us or another organization. This is a critical point especially when we realize when one of the key criteria in determining project success is whether the project results in ultimate adoption of the product for consumer use.

How do we increase the probability of ultimate consumer use?

How do we show a customer the possibility of a product?

How do we convince the customer that the technology proposed makes sense?

How do we find what the customer's problems are?

What his needs are?

#### CONTACT

Contact has implications. It means:

A. Sensitivity to major consumer problems--they will expect us to grasp their priorities; to know what their most difficult jobs are.

B. Conscienceness of multi-disciplinary application (matching) of technological possibility to their problems--they will expect us to be above internal ORD parochialism.

C. Delivery of the most cost effective solution (product) to apply against the problem:

(1) It may not be the best technical solution.

(i) Better technology may take more time

(ii) Better technology may cost more

(2) It may mean scrapping the R&D project

(i) To pursue a different technological path to the solution

(ii) To wait concerning this problem to attack another problem because:

(a) The cost may be high

(b) The technology may not be here yet

Contact has advantages. It means:

A. A better chance of understanding the consumers problem.

B. A better chance of applying the right technology.

C. A better chance of maintaining the customer interest all the way.

D. A better chance of selling the product.

### SUGGESTIONS AND RECOMMENDATIONS

1. Division staff chiefs should undertake internal programs to assure systematic and increased contact. This should be put into their respective LOI's by D/ORD and they in turn should put such a contact requirement into the LOI's of individual project officers.

2. The Management Staff should undertake a program of basic project officer education. A requirement of each project officer should be to take the course "Project Officer in the Contract Cycle". Perhaps ORD could work out an arrangement with OTR to offer this course on a part-time basis in Ames Building. Then MS should make other information available which will explain the process, the paper requirements such as the notebook, the contract inspection reports, etc.

3. PAS should be a clearing house for interdisciplinary projects or projects requiring a different discipline than the main contact division.

4. We strongly recommend that the Director of Research and Development implement a plan which will permit divisions to cut projects off in midstream without penalty, i.e., the division should have the capability to apply the remaining

fund to another technological approach of the same problem or to the next priority unfunded problem on that division's list. We feel this is one the key reasons why certain projects are not cut off earlier. This would require that the Contract Staff would have to write the type of contract which would enable such cutoffs.