

NORTHROP CORPORATION

Northrop Building, Beverly Hills, California, CRestview 4-8061

12 July 1966

Brig. General Richard T. Knowles
Chief of Staff
II Field Force Vietnam
APO San Francisco, California 96266

Dear General Knowles:

May I thank you, first of all, for your courtesy in receiving me so promptly during my recent visit to Vietnam and for the extremely comprehensive briefings you and your people in the TOC gave me. It is both clear and reassuring that you have a staff which is energetic, dedicated, and professional.

Ever since my return I have been in the most active contact with our technical people. With them I have pursued the questions you raised and which center on the possibility that "automating" the displays of the TOC would be costly in terms of money, maintenance and operations personnel, communications, power, and other critical resources, yet would not substantially improve your capability to manage the flow of tactical operational information, hence battlefield activities. We have concentrated on examining various operational tasks and have attempted to distinguish specific instances where we can, through the use of modern display techniques, virtually guarantee an increased command capability with state-of-the-art equipment, and to do so without unduly burdening the supply of the critical resources above. We have tried not to be influenced by the fact that it is presently "fashionable" to provide computer-driven displays, but have drawn heavily on demonstrably successful installations we have recently made.

We conclude, on this basis, that we can, in fact, make a meaningful contribution within your TOC, and at a reasonable cost.

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Let me discuss, as a first example, the display you use to show surveillance operations. Two points are significant: First, the display is cluttered; second, dynamics (including history, and Air Force equivalents) cannot be displayed for conference or briefing purposes. Likewise, as a second example, the large ground situation display; while unit locations (particularly headquarters) show up well, the dynamics again, do not. Information on unit readiness is not convincingly shown. Individual operations are shown by small black "pointed rectangles" which are numbered. To find out what any one of these means, one must turn his attention away from the display and get even the most primitive information about the operation from one of the knowledgeable staff people. I feel pretty sure that the briefing of relief personnel is an operation all its own; that "catching up" on what has been put in hand, and the basis on which actions were taken in the previous few hours, is a process which causes many interrupted hours of sleep and a constant dim worry that the crucial person will not have been fully informed before he has to act.

(I hope you will forgive me if any of the above sounds as if I'm saying any operations are not being well performed by your TOC now. This is manifestly not the case. The difficult and time-consuming processes of posting, updating, and presenting material for decision making, with which we can deal, are subordinate to the decision-making process itself: it is in this latter process that your staff is really impressive.)

Now; how could Northrop help? As you know, we are prepared to supply displays which can be manually and computer driven.

Again referring to the surveillance display, as an example of possibilities, we could immediately do the following:

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- (1) Show the same display you now show, posting new operations speedily, accurately, and with appropriate logging.
- (2) As each operation is completed:
 - (a) Eliminate the surveillance symbol.
 - (b) Print a record (which can be used as a log) of what was covered, by what means.
 - (c) When results are ready, state where and in what form the information is to be found.
- (3) On demand, select a class of surveillance (say by type of sensor) and display all areas covered by that class for a limited period of time.
- (4) Given a target area, show mission numbers, dates of coverage, where and in what format its information is available for all missions which covered that area for a limited time in the past.
- (5) If fed by the In-Country TACC, show potentially conflicting Air Force coverage as a forced display.
- (6) Show availability, other readiness, and deployment status of surveillance equipment.
- (7) Select any given mission and display its coverage or pattern at increased scale. Describe present (immediate) status. List results so far known.

The crudest of costing techniques show that, as a result of automating only this one display, you would possibly require

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five percent fewer aircraft hours per month for your surveillance purposes. It would also be possible to produce information in the above categories within minutes and with no dependence on human memory. You and your staff would be able to view developments in "fast time" and derive trend intelligence from this capability. Every change of personnel could be updated in a short period of time, on every action and plan initiated in the previous several hours.

I need hardly point out that the general situation display and the other mission or area specific displays would be amenable to equivalent automation and produce significantly greater operational results. Regarding these displays, we can either (1) reduce the present number of situation displays and do a more dynamic job, or, (2) automate exactly those displays you have and require fewer personnel, or, (3) automate those same displays and guarantee a currency, accuracy, and flexibility which will exceed your present situation by several orders of magnitude. Information from, say, the surveillance display could be transferred to the ground situation display, and vice-versa, if both were created by our equipment.

I would also like to suggest in the strongest possible terms that if you, from the TOC, fed an equivalent display in AF TACC's and DASC's, protection of ground forces would be greatly enhanced.

I promised to forward to you a description of the process which would be appropriate to match equipment and other necessities to your needs. Such a document is now being developed by our Nortronics Division which will forward it directly to you after coordination within management. It is expected that it will be available in late July or early August. I should also note that similar material will be furnished to Colonel Talbott, USAF, at the In-Country TACC of the 7th Air Force. Likewise, we intend

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to provide a description of a very minimal system to Colonel P. Gardiner, USAF, of the Air Force Advisory Group (ODC) in case such equipment is deemed necessary for Vietnamese Air Force operations.

I have not yet been able to pursue the questions of base protection. I recognize now how crucial a requirement this is and wish to insure (as I can in the case of displays) that any contribution we make is a real one.

Again, I would like to thank you for your help and interest. I hope you will feel free to ask for any support, personal or professional, with which I could be of service to you here in the States.

Sincerely,



John H. Fisher
Administrator
Defense Systems Analysis

JHF/bmc