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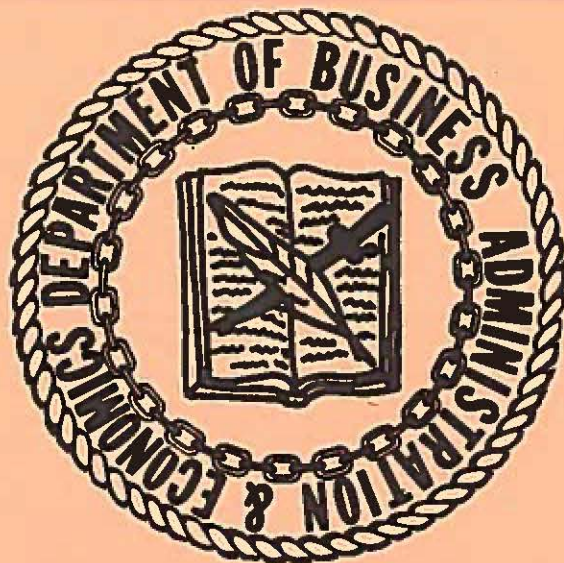
DEPARTMENT OF BUSINESS ADMINISTRATION AND ECONOMICS

MANAGEMENT JOURNAL •

NAVAL POSTGRADUATE SCHOOL

APRIL 1970

MANAGEMENT QUESTIONNAIRE

This questionnaire is designed to provide a feedback on the receptivity of this issue of the management journal. The present journal incorporates many of the suggestions submitted by students reading the other issues.

PLEASE EXECUTE PRIOR TO 15 JUNE 1970

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ARTICLE	INTEREST LEVEL			CONVINCING		CONTENT		RELATIVE TO PRESENT STUDY	
	High	Med	Low	Yes	No	Sat	Unsat	Yes	No
Hospital Costs									
Project Management									
A Trend for Corrections									
Automating-Distribution Process									

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Time to read = _____ minutes.

What management areas interest you?

Constructive remarks:

Other remarks:

(use other side if needed)

Editor

Management Journal

C/O Bus. Admin. & Econ. Office
Code 62

EDITORIAL COMMENT

This is the <u>Management Journal</u>.
Its publication is a result of the continuing interest of
a significant number of Management students and faculty
members.

The organization and editorial policies of the Journal
are still sketchy, its distribution is extremely limited,
and it is too early to predict even partial success. How-
ever, it is hoped that this humble effort may be the
catalyst that ultimately creates a first-class management
publication. Surely, there is a need for such a publica-
tion at the Naval Postgraduate School, and it is considered
that the faculty and students here are every bit as erudite
as those at other institutions that now publish professional
journals.

It has been observed that many otherwise meritorious
papers with a management message to impart often just die
in some briefcase, desk, or file. We wish to capture these
papers and given them continued life in the <u>Management
Journal</u>. Accordingly, faculty members and students who
have such papers are encouraged to forward them to the
Editor of the Management Journal, C/O of the Department of
Business Administration and Economics for consideration for
publication in the future.

EDITORIAL COMMENT

LETTERS TO THE EDITOR

In the effort to expand and improve this editorial undertaking additional features have been added to this current issue of the Management Journal, one of which is the Letters to the Editor. Readers are encouraged to send their observations and comments, other than those entered on the Survey Questionnaire, to the Editor, Management Journal, C/O Office of the Department of Business Administration and Economics.

Editorial policy requires that such letters must be signed to be published although the signature will not be used upon request of the writer. Letters should relate to the broad general areas of management and be limited to two typewritten pages in length.

From: LCDR Allen E. Weseleskey, USN

To: Editor, Management Journal

Subj: A Letter to the Editor Concerning a Management
Laboratory

The U. S. Navy takes great pride in its expanding edu-
cational endeavors within the Service. Many officers and
men have accepted the challenge of education, both on and
off duty, but I feel we have concentrated too much on the
technical aspects, the scientific and quantitative approaches
of learning.

The finished product of our postgraduate system departs
with an excellent stock of professional tools in his spe-
cialty but he is lacking in one vital ability, that is,
presenting himself and his knowledge in a clear, concise,
and illustrative, professional manner. The average naval
officer rarely shows the ability to convey a polished,
clear briefing, or presentation to a group, civilian or
military. His knowledge of his subject may be second to
none, yet his use of various training aids, graphics or
charts is practically non-existent.

The neglect of this area has, on occasion, had a crip-
pling effect on our service, and has cost us the ability
to communicate well within our own service as well as to
our sister services or, more important, our civilian execu-
tive and legislative leaders.

The Naval Postgraduate School needs a Management
Laboratory where these deficiencies can be rectified. Each
naval officer should know what training aids are available
to him and how he can effectively use them; he should be
able to manufacture his own aids from available resources
in many instances. He should be able to demonstrate a
confidence in himself, his knowledge, and the Navy by the
presentation of his material to any audience, military or
civilian. What good is our knowledge if we cannot present
it in a convincing manner that reflects our desires and
goals?

And in the same area of communications, where have we
had the orientation to Public Affairs that CNO spoke of in
his recent visit? If we are to progress to bigger and
better jobs, more responsibilities, and so forth, we will
surely have a growing contact with the public and the news
media. The need for training on briefing techniques and
fielding questions is two fold: (a) it has the aspect of
individual career development and (b) the need to utilize
every opportunity to enhance the Navy's image in the public
eye. Again our educational system has rendered the U. S.
Naval officer deficient, in fact, a cripple and a detri-
ment to our own service and the Department of Defense, by

not taking the opportunity to acquaint him with these basics of public communication. Are the sciences, the technical orientations of this institution so blind as to not recognize that with just a little more effort we can polish the precious gem that now graduates from Monterey and put forth a sparkling example who can command the respect and leadership he so richly deserves?

<div align="right">Allen E. Weseleskey,LCDR, USN</div>

EDITOR'S COMMENT:

Dr. J. W. Creighton, Chairman, Department of Business Administration and Economics, has advised the Editors of the Management Journal that he fully supports the recommendations of LCDR Weselesky. Dr. Creighton acknowledges the needs for both a management laboratory and for a method of sharpening the communications skills of future NPGS graduates. It appears that the Management Curricula rating is outstanding in bringing about a significant increase in the information bank of its students. However, one may question whether the school is as successful in assisting the students to acquire the ability to sufficiently convey newly gained knowledge to others. He proposes the possible use of a media through which an officer could develop these skills: an NPGS Television Practice Laboratory. Through the utilization of such an educational tool, a student could develop the communications expertise described by Mr.Weseleskey through a rather powerful pedagogical device--self-criticism.

Implementation of this suggestion for a Television Practice Laboratory might well be the initial step in improving the communication function that is the Hallmark of the educated man.

THE UNHEALTHY RISE OF
HOSPITAL COSTS

by James T. Dalton

*The author indicates reasons for rising
costs and hospital inefficiency. He concludes
on an optimistic note by spotlighting the
emerging role of hospital administration in
the areas of efficiency.*

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from George Washington University, Washington,
D.C.; at present, completing Management Cur-
riculum, Naval Postgraduate School.

I. Introduction

To merely state that the costs associated with health
care services are rising, appears to be the understatement
of the decade. These costs are rising astronomically.
Between June, 1966, and June, 1968, while the general Con-
sumer Price Index was rising by an inflationary 7%, the
medical care index maintained by the Bureau of Labor Sta-
tistics grew at a rate of 14%, and the index of hospital
daily service charges rose by more than five times the gen-
eral Consumer Price Index at over 37%./1
The cost of health care in the United States annually
is about fifty billion dollars or approximately 6% of the
Nation's Gross National Product./2 This is a significant
portion of the Nation's income, and certainly justifies the
recently felt concern by the population over these rising
costs.
The above statistics refer to the total health care
field, including the costs of physicians, dentists, hospi-
tals, nurses, convalescent homes, nursing homes, etc. A
complete analysis of the cost problems associated with the
various components of the industry would require a Master's
thesis vice a short paper of this type. Therefore we will
confine our investigation to one of the major components
of the industry - the hospital.

/1 Einar O. Mohn,"Consumer Challenge to Hospitals,"
Hospital Forum, XI (January, 1969), p. 8.

/2 Ibid, p. 9.

There are, from the last count, 7137 hospitals within the United States that furnish approximately 1 and 2/3 million hospital beds. These hospitals spend in the neighborhood of $19 billion to care for one out of every seven Americans annually./3

About 80% of the hospitals are classified as community, non-profit, acute-care facilities, and it is these facilities which furnish us with most of the meaningful statistics on hospital costs. It is felt that these figures are fairly accurate since these hospitals have nothing to hide, and their reimbursement (mainly from insurance companies and government agencies) is based on these costs. Figure I-1, below, is a statistical analysis of community, non-profit, acute-care facilities between 1963 and 1968:

Figure I-1 Measures of Community Hospital Services/4

Item	1963	1968	% Increase
Hospitals	5,684	5,820	2.4
Beds	698,000	806,000	15.5
Admissions	25,300	27,300	7.9
Inpatient Days	193,600	230,700	19.2
Total Expenses	7,532,000	14,162,000	88.0

Let us examine each of the above statistics to determine how it has, or should have, affected hospital costs.

First of all, it is obvious that since there were only 136 new hospitals constructed over the five years and that during the same time frame 108,000 new hospital beds were added, many of these new beds had to be added to already constructed facilities. This, in itself, may be a reason for some of the cost increases. If you add beds to an already constructed facility, you necessarily increase the demand for the ancillary services which are fixed in size and output capacity. This in turn requires that patients remain in the hospital for longer periods to accomplish the same clinical tests that would have been required before the hospital's expansion. These additional days naturally raise hospital costs. This theory is supported in another way by the above chart. Note that although admissions rose over the period by 7.9%, the inpatient days rose during the same period by 19.2%. This indicates that the average hospital patient remained in the hospital longer in 1968 than his counterpart in 1963.

The most dramatic statistic in Figure I-1 is that concerning the rise in total expenses - 88 per cent. Some of the reasons for this rapid growth will be discussed in the next section of this paper.

/3 "The Nation's Hospitals - A Statistical Profile," Hospitals (Guide Issue - Part II), Volume 43, Number 15 (August, 1969), p. 463.

/4 Ibid, p. 464.

II. Reasons for Rising Costs

I shall classify and discuss the reasons for the rise in the costs of operating hospitals into two categories: (1) uncontrollable; and (2) controllable. Appendix I is a graphic depiction of the various reasons given for the 88% rise in costs between 1963 and 1968.

Uncontrollable Reasons for Rising Hospital Costs: By uncontrollable, I mean that these reasons cited for the rise in hospital costs would be expected in any other type of enterprise, and would be compensated for, at least partially, by raising retail prices.

The first, and certainly the most dramatic factor, that has caused a rise in hospital costs is in the employee wage area. Not only have the level of wages increased appreciably, but also the number of employees receiving those wages has grown significantly. Between 1963 and 1968, salaries rose from 4.5 billion dollars to 8.4 billion dollars (see Appendix I). It is estimated that 1.9 billion dollars of this increase was caused by higher wage levels, while the other 1.9 billion dollars is attributed to additional employees./5 We can continue to expect these costs to rise since the wage level of hospital employees is still below the average wage level for most other industries.

Two other factors that one can predict will cause wages to continue their upward trend, are unions and government. The unions over the past decade have become firmly entrenched in the health care field, and their demands are beginning to be felt by management. An example of this economic pressure was demonstrated in the strike of hospital nurses in the San Francisco Bay area during the spring of this year. The strike was ended in July and was considered a major victory for organized labor in the hospital field. The nurses received a $50 per month increase in salaries retroactive to 1 January 1969, and a contractual raise of $40 per month commencing on 1 January 1970. Hospital management in the bay area has stated that these costs will be passed on to the consumers by increasing hospital bills by approximately 10% across the board./6

The Federal Government's minimum wage law began to affect hospitals in February of this year. Hospitals employ many minimum-skill workers who, prior to February, were paid below the minimum wage rate in many geographical areas. When forced to raise these wages, management was also forced to raise all wages so that wage differentials could be maintained. It doesn't take three guesses to figure out who must pay these increased wage costs ultimately.

/5 Ibid, p. 467.

/6 "The News at Deadline," Hospitals, Volume 43, Number 14 (July, 1969), p. 38.

3

Another factor contributing to the rising costs of hospital care for which management has no control is the demand for hospital services. As shown in Figure I-1, the demand for hospital services has risen more rapidly than the supply of hospital beds, hence the longer stay per admission in 1968. This rise in demand can partially be atrributed to the population increase and especially to the increase in the population of our senior citizens, who by virtue of their age require more health care than their younger counterparts. But the major stress on demand for hospital services comes from the fact that the Nation's philosophy has evolved from a theory of "need for care" to a "right to care". People now feel, as well they should, that they have an absolute right to health care services and since the vast majority of these services are paid for by "Uncle Sam" (Medicare or Medicade) or third party payers (Blue Cross and Blue Shield), they do not worry about costs. The demand for health care would be graphed almost vertically, and the average citizen, suffering from an acute condition, feels that there is no price level that would stop him from receiving needed and available health care./7 Seymore E. Harris summed up this philosophy by saying:

> Improving standards of living and the spread of insurance, which bring about increased use of hospitals, are probably the two most important factors accounting for the inflation of hospital costs./8

I agree with this statement completely. Hospital utilization has increased tremendously. As an example, Harris points out that in the 1920's, 95% of the babies born in the United States were born in their homes, while in 1964, 95% of the babies born were born in hospitals./9 This could be called a demand-pull type of inflation of prices. The wages argument cited earlier could be classified in the economic sense as a cost-push type of inflation. Either way one looks at this inflation, it is obvious that these costs will continue to rise, and that hospital management will have very little control over these causes of those rises in costs.

Controllable Reasons for Rising Costs. Anytime that inefficiency or low-productivity yield investment are promoted or even tolerated by management, I believe that the

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/7 Herbert E. Klarman, The Economics of Health, p. 25.

/8 Seymour E. Harris, The Economics of American Medicine, p. 184.

/9 Ibid, p. 169.

4

costs associated with these ventures, which must be borne by the consumer, could be controlled. Although there may be many others, I shall devote this portion of the paper to identifying and discussing two of these problem areas: (1) the low-productivity investment; and (2) inefficiency in operations.

There are many examples of the low-productivity investment; the costs of which must be borne by the patients confined to that hospital. Probably the best documented example of this is the cardiac-surgical-suite. In 1966 a survey was taken of the hospitals on the Eastern seaboard, and it ascertained that there were 777 hospitals boasting of having a cardiac-surgical-suite with the physical facilities and personnel capabilities necessary to perform open or closed heart surgery. It was discovered that 229 of these hospitals performed no heart surgery in 1966, and another 477 performed only one surgical procedure requiring these facilities and capabilities during the entire year./10 It doesn't take a mental giant to detect an outflow of cash that could easily be controlled by management. Other examples that come to mind are the intensive care wards and cardiac monitoring centers that all hospitals desire as a prestige factor, but whose utilization rate falls far short of the rate for a regular hospital bed. The costs of these prestige services are paid for by the patient.

The other major controllable cost factor is the inefficient day-to-day operations. Many hospitals still operate the majority of their ancillary services on a five day a week basis. This means that for two days weekly one of the major revenue producing areas in the hospital is inactive.

Hospital beds are inefficiently utilized in many facilities. It has been estimated that an empty hospital bed costs the hospital 3/4 as much as a full bed with the added problem of producing no revenue./11 But as long as specific beds are indentified by sex or specific ailment, the flexibility of the institution will be handicapped, and the costs will be forced upward.

Traditionally, the patient's bill is based on the type of accommodations he has utilized. The patient in a private room pays more than the patient in a semi-private room, who in turn pays more than the patient on the ward. But it may very well be that it is the patient on the ward who requires the most intense and costly treatment. Any other industry would attempt to match costs against revenues, or vice versa, in order to maximize cost effectiveness and minimize waste.

We frequently do not discharge patients on Sundays, since most states require a doctor's signature upon discharge. Therefore, an extra patient day is added on, and the costs associated therewith are passed on to the consumer.

/10 Walter E. Landgraf, "Needed: New Prospective on Health Services," Harvard Business Review, (Sept.,1967), p.76.

/11 Harris, Op.cit., p. 199.

III. The Reasons Hospital Inefficiency is Tolerated

Why do we as rational thinking Americans permit these inefficiencies to exist in hospitals? Any other industry would force into bankruptcy a company which practiced any one of the above performances in its operations. Yet we let hospitals go merrily on their way, raising some complaints, but really not doing much about it. I believe that the answer to this question is partially covered by the following four points:

1. The hospital is a monopoly. That the hospital is a monopoly, at least within a given geographical area, cannot be denied. The entry into the industry is certainly controlled. The tremendous capital expenditures necessary to build a facility, together with the licensing and construction codes, enforced at both the state and local levels, contribute to this controlled entry into the industry. Since the hospital is able to act as a monopoly in setting its prices, the patient in seeking help does not have the opportunity to price the services demanded at various competing hospitals. Instead, he goes to the nearest hospital and checks in, never even thinking of asking the price on the room he is being assigned. This is something he would never do at a local motel or hotel.

2. The hospital is a non-profit enterprise. The very nature of the industry promotes inefficiency. The elimination of the incentives associated with profit maximization reduces the need to effect warranted changes in concepts, organizations and operations./12

3. Hospitals utilize a unique method of payment. Let us examine who pays the hospital bill. Klarman estimated in 1965, that the consumer, or more accurately his insurance, payed 62% of the costs; business employers as part of fringe benefits payed 10.5%; Government, both state and federal, payed 24%, and approximately 3.5% was covered by philanthropy./13 Since that time medicare and medicade have escalated government's share of hospital costs to 33 per cent./14

Since the consumer pays an insurance premium, he feels entitled to more health care services which he demands and receives. This behavior as we pointed out earlier forces costs upward. These inflated costs are passed on to the consumer via a raise in insurance premium. Since he is now paying more for his insurance, he feels that he is entitled to still more services, and the demand-pull spiral continues.

/12 Landgraf, Op.cit., p. 79.

/13 Klarman, Op.cit., p. 10.

/14 William Freitag, "Medicare and the Hospital Revolution," Journal of Accountancy, Volume 127 (January, 1969), p. 41.

4. It is impossible to measure a hospital's product. Cost effective procedures are based on measured output. How does one measure the output of the health care industry in general or hospitals in particular? Should we base output on beds occupied, or average daily census, or the health of the population, or what? There is presently no answer to this question. For one to justify the rising costs, he would only have to say that the "quality of care" had increased sufficiently to offset any rise in costs. Until a useful measure of productivity is formulated and adopted, cost effective operations will be a dream.

IV. Management is Providing Positive Horizons

Throughout this paper I have painted a pretty dismal picture of the future of hospital costs. This is not altogether true. Hospital administration, a relatively new subspeciality in the management discipline, is making itself felt in the areas of efficiency. Several programs have been initiated in an attempt to slow down the rising cost spiral. "Efficiency" and "effectiveness" are words that are slowly creeping into the hospital literature, and one has only to look in one of the twenty or so journals devoted to hospital management to ascertain the level of the art. A few of the more promising innovations that may help to solve the rising cost problem are as follows:

1. Substitute services: Administrators are constantly looking for methods of increasing the utilization of outpatient and home care services, thereby eliminating costly inpatient days.

2. Seven day week: By providing ancillary services on a seven day per week basis, hospitals hope to reduce patient days and at the same time raise additional revenue.

3. Proper utilization of personnel and space: This will hopefully decrease the number of empty beds, thereby raising revenue and spreading the fixed costs over a larger patient base. A recent experiment in a Minnesota hospital, where the patients were moved through three stages within the hospital during their incapacitation, has saved that hospital 14% of its operating costs. Stage I consisted of intensive type care and at any one time was occupied by about 20% of the hospital's census. Stage II consisted of normal or routine care and took care of 60% of the patient load. The remaining patients were considered to be convalescents requiring minimum care and were placed in Stage III./15

/15 Harris, Op.cit., p. 210.

4. _Community health care planning_: This concept, if utilized properly, will eliminate the costly low-productivity, prestige services described earlier. It also eliminated duplication of effort within the same geographical area. The Hill-Burton Act, which provided funds for hospital construction, requires that a community planning group be effectively operating prior to the granting of funds for new construction.

5. _Computers_: Electronic data processing has been used for a number of years in the business end of the hospital. One must remember that the administrative aspects of a hospital are very similar to those of a large hotel, and therefore, the business applications applicable to a hotel are very much applicable to a hospital. Presently many of the software houses are attempting to become involved with the clinical side of the hospital and are reporting some progress.

6. _Group Purchasing and Common Services_: In many of the large urban areas boasting several hospitals, it has become mutually advantageous for them to form corporations or groups for common buying in order to take advantage of volume discounts. Additionally they reap the benefits of common-warehousing, cutting down drastically the individual hospital costs for personnel in these areas. One group of hospitals in Chicago has estimated that in 1966 they saved $60,000 doing group purchasing./16 Several of these groups are now in the planning stages of constructing such joint services as common laundries and food preparation operations, with hopes of realizing cost savings via the economies of scale.

These are just a few examples of the forward type thinking within the industry. It is foreseeable that the costs of hospitalization will continue to rise, but it is also thought that the days of the violently escalating prices have passed.

/16 P. Michael O'Sullivan, "Hospitals Try to Cure a High Cost Syndrome," _Business Week_ (July 15, 1967), p. 129.

Nonsalary Expenses

Salary Expenses

Population Growth

Rise in per capita
utilization rates

Billions

of

Dollars

14

12

10

8

6

4

2

0

1963   1964   1965   1966   1967   1968
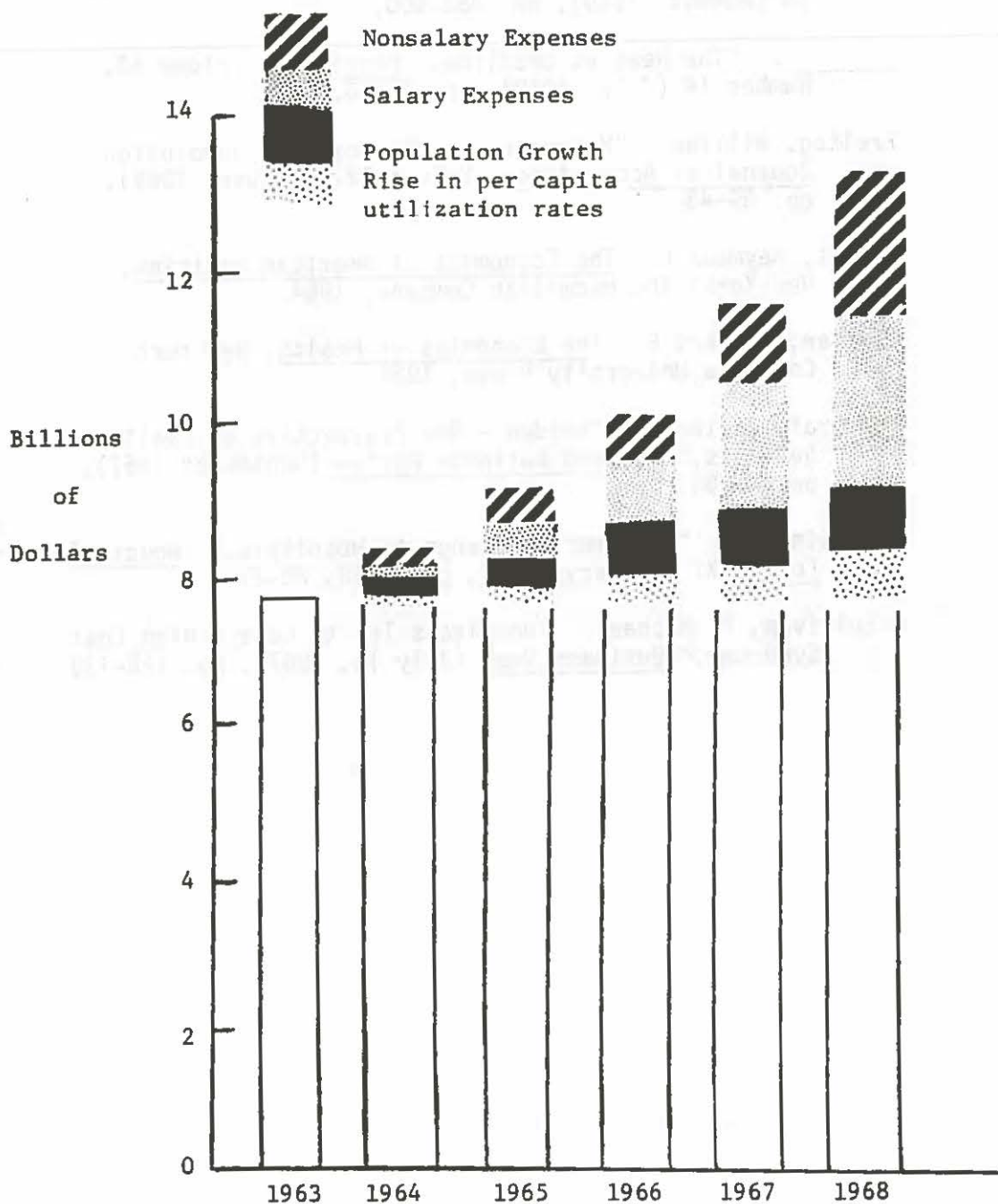
Factors Contributing to Increasing Community Hospital Expenditures.**

**Copied from Hospitals (Guide Issue – Part II), Volume 43, Number
15, (August 1969), p. 470.

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PROJECT MANAGEMENT: A STUDY IN GETTING THINGS DONE

by P. C. Nelson
& W. A. Rucker

This paper has as its purpose an over-view of a relatively new way of getting complex things done. Project Management is the term coined to describe the diagonal cross-ing of organizational lines.

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Very large organizations, with their usual pyramidal structures for the routine handling of mundane tasks, are notably unsuccessful in the efficient accomplishment of a highly complex task. Parkinson has elucidated this very aptly with regard to bureaucracy, but it is broader than that--it applies to the military and to industry as well. In the military sector, among the most renown of the individuals who have been able to accomplish a highly complex task is Admiral Rickover. His penchant for cutting across organizational lines is widely known, as is his willingness for stepping on toes as necessary to get the task accomplished. It is the formalization of this diagonal cross-ing of organizational lines that lies at the essence of project management.

If the development of the nuclear-powered submarine and its subsequent mating with the Polaris missile come to mind as examples where our institutions have succeeded, it is useful and instructive to remember some instances where they have failed.

The attempted development of the Drone Anti-submarine Helicopter in the 1950's is such an example. The project to develop this concept (DASH) was attempted through "normal" organization. It floundered and floundered until,

in exasperation, the Chief of Naval Operations demanded to see the individual in charge of the DASH Project. As it turned out, there was no one in charge. . .responsibility could be narrowed down to a group of bureau chiefs, but not to some single individual.

Another example of this was the Surface-to-Air Ship Missile System that never really "got off the ground" until one man was placed in charge and given authority to match this huge responsibility.

This paper has as its purpose an overview of this relatively new way of getting complex things done. The general concepts and guidelines will first be discussed, then it will be shown how these procedures compare to what is being practiced in industry and government.

Project Management Concepts

The experiences of World War II, stimulated by the increasing complexities and costs of development of weapons, coupled with the arrival of the notion that a weapon is not just a weapon but a "system", taught lessons and produced improved approaches to management within the DOD, one of which was the concept of "Project Management". Project Management is the application of exceptional, centralized and integrated management by a team of technical and business management experts, having the resources at their disposal to get a job done. It has in mind the accomplishment of a single, specific objective or the accomplishment of closely related objectives, and the subsequent disestablishment of the project organization. Its princinal ingredients of success are managerial and technical skill, resources to do the job, the full cooperation of all concerned, and control. It is a "team" effort with all participants pulling together with a sense of urgency permeating the entire effort. It is a game of "trade-offs" and competition between hardware "systems". In short, Project Management is--or should be--a limited application of a sound management discipline applied to urgent, costly and complex effort. Specifically, the concept includes the notions of:

A. Centralized, Exceptional Executive Authority and Control

It is a departure--conceptually and traditionally--to vest centralized, executive authority in a single individual who is in undisputed control over the total effort associated with the life cycle of a system's development, production, test, installation, check out, and support, etc. Yet this is one of the major concepts of Project Management. It equates to the management of the "Manhattan Project" and other notable examples of centralized management. It means that one individual has the authority to move across conventional, functional lines to get a job done. This is not in a "coordination" capacity. It is in an executive capacity. Usually someone in this capacity carries with him--in military terms--the authority of a "Commander" or a "Department Head", or a "Chief".

12

B. Government-- Industry "Team" Effort

Although the Project Management Office is the "systems"
manager under the Project Management concept, the concept
is hopefully extended to include industry "Project Manage-
ment" teams with a counterpart Project Manager whose authori-
ties equate to the Government's Project Manager. As in the
case of the government PM, the industrial PM hopefully will
have the authority to cross functional lines of the plant
to get the job done. By this procedure it is hoped that
increased attention will be paid to the project in the plant,
quicker reaction time to problems acquired, channels of
communication shortened, authority centralized, decision-
making hastened, and a superior motivation developed--the
same reasons that exist for establishing Project Management
in the Government. In the implementation of this concept,
it is immediately recognized that there is a marked dif-
ference among industrial firms as to its acceptability.
some industrial firms may wholeheartedly implement the con-
cept on a voluntary basis, some might require it to be "put
in the contract", some may voluntarily implement it on a
modified basis.

C. Product or Deliverable End Item Management

Traditionally, both Government and industry are organi-
ized along functional lines; e.g., development, production,
sales, finance, support, etc. Therefore, this is the way
that management traditionally acts and thinks. The emphasis
is on skills, people, organizations and money. In Project
Management people and skills are not forgotten, but they
are thought of in terms of their contribution to a thing,
a product, a deliverable end item. For example, in contem-
plating the budget, the "system" and all of its components
are contemplated simultaneously and on an integrated basis.
Product oriented work breakdown structures are developed
to serve as the structure around which management planning
is structured.

D. Integrated Management

This means that the "thing," the product, the system,
the item that one is managing is managed as an integrated
whole and not in isolated parts. The first steps of man-
agement, however primitive, look through the glass to the
end product operating at some place, by someone, in certain
quantities and requiring certain support. Constraints and
interfaces are carefully assessed from the beginning in
terms of "systems" impact. Systems engineering, integrated
logistics, and integrated financial control under this
concept become bywords of management.

E. Other Basic Considerations

Functional support. Though the concept of Project
Management places across-the-board authority and control into
the hands of the Project Manager, it does not place across-
the-board manpower resources into the hands of the Project
Manager. In other words, the concept is that the Project
Manager will have a limited staff and will be supported by
responsive functional specialists who remain in their own
corps organizations.

Functional parity. In order that the Project Manager
and his staff may be able to effectively cut across all
functional lines, the concept is that the Project Manager
and his staff will have the rank/grade, experience and
qualifications to accomplish this without built-in constraints.

Resource Control. A most important concept is that
the Project Manager have control over all resources allo-
cated to his project; most importantly, funds.

Well-Publicized Project and Organization. Unless con-
strained by security, it is expected that the existence of
a project will be well-publicized in the scientific, indus-
trial and educational community. It is expected that the
total "team", both Government and industry, will be identi-
fiable by placing names in telephone directories, planning
documents, and other appropriate documents. It is also ex-
pected that news' stories will be printed and other PIO
activities accomplished.

Limited Application. It is not intended that Project
Management concepts and disciplines be applied to other
than the highest priority projects, most complex projects
and most costly projects.

Disestablishment. Once the primary objectives of a
project have been accomplished, the concept is that any
vestige effort be folded back into "Normal" management;
e.g., back into conventional, functional organizations.
Normally, this will be accomplished by a "Transition Plan."
/1

F. Discussion of the Concepts of Project Management

The form of a bureaucracy is almost universally hier-
archial, whereas the management of project activities re-
quires horizontal and diagonal relationships. In such an
organization, managers and technicians deal horizontally
with peers and associates at different levels in the same
organization and with outside organizations. To follow
the "chain of command" would be unwieldly, time consuming,
and costly and would disrupt and delay the work. Horizontal

/1 United States Navy, Naval Material Command, Navy
Project Manager's Management Manual (Initial Draft), NAVMAT
NOTICE 5000 of 16 April 1968, (Washington: Headquarters
Naval Material Command, 1968), pp. 2-6.

and vertical contacts grow out of the necessity to get the job done; they are seldom charted, and yet they are necessary to a smooth flow of work in the organization. These relationships have been called the "informal organizaton," but this is a misnomer. There may be little informality; the standards of performance may be just as stringent as those in the formal structure. In many cases, these relationships have sufficient strength and permanency to become de facto the modus operandi of the organization.

The acceptance of horizontal-vertical relationships between members of an organization requires changes in the organizational form. The realignment of tasks, the restructuring of the formal hierarchical structure, and the de jure recognition of a hybrid organizational form have been accomplished in many of today's corporations. In weapons-system management, rigid hierarchical structuring has been abandoned in favor of closely integrated project groups. An informal structure to manage the "stream of projects" has its pitfalls, however, since the administration of a project raises unique problems that preclude normal coordination, communication and control. As a project grows, the system of working through informal contacts becomes inadequate to cope with the severity and frequency of management relationships. Large projects require close coordination, since seemingly insignificant errors can boomerang into large costs and schedule slippages. Project organization must reflect how all things fit together, but this fitting together must not become a sacred organizational chart, with its job descriptions and task divisions, that turns into a fence rather than serving as a guide for accomplishing the job. Too often the manager thinks of his organization as an independent entity, completely self-sufficient in its environment. The manager of large projects must have a new approach to his job:

> His way of thinking must permit him to utilize new knowledge in management literature which recognizes that a strictly vertical approach to management is not necessary.

> He must become reoriented away from the purely functional approach to the management of human and nonhuman resources.

> He must be able to visualize this role beyond his company's (or unit's) internal operations and to understand how the project relates to its environment and to other projects in it.

> He must understand that purposeful conflict may very well be a necessary way of life as he manages his project across many vertical organizational lines.

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He must recognize that project management is
a dynamic activity where major changes are
almost the order of the day./2

G. Comparison of Project Management and Traditional
Management

One must first understand the framework of the project
environment and the phenomena found in it if he is to
really understand the concept. This framework points up
the salient differences between the role of the Project
Manager and that of the traditional functional manager.
While these differences are possibly more theoretical than
actual, differences do exist, and they affect the manager's
modus operandi and his philosophy. The differences in the
viewpoints of the project and functional managers are out-
lined in the table which follows. This comparison high-
lights a singular characteristic of the project manager;
i.e., he must manage activities that include extensive
participation by organizations and people not under his
direct (line) control.

PHENOMENA	PROJECT VIEWPOINT	FUNCTIONAL VIEWPOINT
Line-staff organizational dichotomy	Vestiges of the hierar-chical model remain, but line functions are placed in a support position.	Line function have direct responsibility for accomplishing the objectives; line com-mands, and staff ad-vises.
Scalar principle	Elements of the verti-cal chain exist, but prime emphasis is placed on horizontal and diagonal work flow. Important business is conducted as the task requires.	The chain of authority relationships is from superior to subordi-nate throughout the organization. Central and important business is conducted up and down the vertical hierarchy.
Superior-subordinate relationship	Peer-to-peer, manager-to-technician, associ-ate-to-associate, etc. relationships are used to conduct much of the salient business.	This is the most im-portant relationship. If kept healthy, suc-cess will follow. All important business is conducted through a pyramiding structure of superiors and sub-ordinates.

/2 David I. Cleland and William R. King, Systems
Analysis and Project Management (New York: McGraw-Hill
Book Company, 1968), pp. 152-153.

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PHENOMENA	PROJECT VIEWPOINT	FUNCTIONAL VIEWPOINT
Organizational objectives	Management of a project becomes a joint venture of many relatively independent organizations --thus, the objective becomes multilateral.	Organizational objectives are sought by the parent unit (an assembly of suborganizations) working within its environment. The objective is unilateral.
Unity of direction	The project manager manages across functional and organizational lines to accomplish a common interorganizational objective.	The general manager acts as the one head for a group of activities having the same plan.
Parity of authority and responsibility	Considerable opportunity exists for the project manager's responsibility to exceed his authority. Support people are often responsible to other managers (functional) for pay, performance reports, promotions, etc.	Consistent with functional management; the integrity of the superior-subordinate relationship is maintained through functional authority and advisory staff services.
Time duration	The project (and hence the organization) is finite in duration.	Tends to perpetuate itself to provide continuing facilitative support./3

Project Managers in the Hierarchy

Although industry uses the words "program" and "project" as synonyms, one must take care when referring to the with regard to the DOD. This section will seek to elucidate the "place" of the PM in the Navy.

Relationship of the Project Manager with the Program Coordinator

Detailed description of the Planning, Programming and Budgeting System (PPBS) is not within the scope of this paper. Briefly, the term "programming system" is defined as the total process of developing, submitting, and implementing approved programs. It involves the analytical studies, planning, determination of objectives, program development, budget analysis and, upon implementation, the control of resource inputs to achieve a desired military output.

/3 Ibid., p. 246.

Selected programs within OPNAV are given management supervision by the appropriate Program Sponsor through the designation of a Program Coordinator (PC). The PC is chartered to function as the representative, through the appropriate Deputy, of the CNO, and has the responsibility to see that the program is complete and fulfills the requirements expressed and approved by the CNO. The designation of the PC is similar in concept to the designation of a Project Manager within the Naval Material Command. The technical aspects of a program are "run" by the Project Manager with such guidance as the Program Coordinator may provide.

Program Coordinators are assigned by Program Sponsors and approved by the VCNO. The PC functions as the direct representative of the Program Sponsor and, with the assistance of the Program Coordination Group, is responsible for the development of a complete and fully-integrated program centering on the production of a material item or system which is the direct responsibility of the Project Manager. Generally, then, a Project Manager will report to a Program Coordinator./4

If one thinks, with regard to a particular project, of a "Project Team" consisting of Project Manager, Program Coordinator and Program Sponsor.. . . then a typical depiction of the overall concept with regard to the Navy is shown in exhibit one./5 This does not show all possible cases.

Levels of Project Management Designation

The Secretary of the Navy has delegated to the CNO and the Commandant of the Marine Corps the authority to:

1. Select and establish Designated Projects which meet the proper criteria (to be discussed subsequently),

2. Select and appoint individuals as Designated Project Managers,

3. Designate the official to whom a "Designated" PM will report, and,

4. Prepare and Issue the Project Charters.

Projects will normally be established at the Systems Command level except in special cases which involve unusual interfaces or conditions. When it is determined

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/4 Navy Project Manager's Management Manual, pp. 11-12.

/5 United States Navy, Naval Material Command, Project Management in the Navy (MAT 0111), (Washington: Headquarters Naval Material Command, 1968), p. 14.

PROJECT TEAM

	CHIEF OF NAVAL MATERIAL		

COMMANDER
NAVAL ELECTRONIC
SYSTEMS COMMAND

COMMANDER
NAVAL AIR
SYSTEMS COMMAND

COMMANDER
NAVAL SHIP
SYSTEMS COMMAND

DEPUTY COMMANDER
PLANS & PROGRAMS
& COMPTROLLER

——————— COMMAND
———— PROJECT MGT
— — COORDINATION

PROJECT
OFFICE

ELEX 05:
DEPUTY
COMMANDER
COMMODITY
ACQUISITION

ELEX 04:
DEPUTY
COMMANDER
INSTALLATION
& MAINT.

AIR 05:
ASSISTANT
COMMANDER
MATERIAL
ACQUISTION

AIR 04:
ASSISTANT
COMMANDER
LOGISTICS
FLT SUPPORT

AIR 02:
ASSISTANT
COMMANDER
CONTRACTS

SHIPS 05:
DEPUTY
COMMANDER
SHIP
ACQUISIT.

SHIPS 06:
DEPUTY
COMMANDER
ENGINEER-
ING

SHIPS 04:
DEPUTY
COMMANDER
FLEET MAINT.
& LOGISTICS

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that critical interfaces exist with other military services, other governmental agencies, or between Systems Commands, or that there are major technical complexities or other special circumstances, the project will be designated by, and the Project Manager will report to, the Chief of Naval Material. Also, when it is determined that the proposed project is, for the most part, under the cognizance of a Systems Command, the project will be designated by, and the PM will report to, the Systems Commander. Also, when it is determined that the Navy is to be the Executive Agent in a Joint-Service Project, the CNM will prepare, negotiate and issue for the Secretary of the Navy a jointly-approved Charter and shall appoint a Project Manager, who shall report to the CNM. Finally, when it is determined that a Service, other than the Navy, will be the Executive Agent, the Chief of Naval Material will appoint a representative to participate in the Charter preparation, Project Office staffing and Project Master Plan negotiations./6

Criteria For Establishment of "Project Management"

In view of the very rigid interpretations within DOD of Project Management, it is necessary to have some feel for how important a project must be in order to warrant "exceptional" treatment.

Mandatory Criteria

All those new (or major modifications of existing production systems) or new Engineering and Operational Systems Developments having one or more of the following characteristics are to be designated for project management:

1. Those which have a special priority category called "BRICKBAT" (Defined in DOD Directive 5010.14).

2. Those which are estimated to require total cumulative RDT & E financing in excess of $25M or are estimated to require a total production investment in excess of $100M.

Optional Criteria

Other systems/projects may be designated for project management when they possess one or more of the following characteristics:

1. Have a significant effect on United States military posture.

/6 Navy Project Manager's Management Manual, pp. 13-14.

2. Are closely related and, when taken collectively, would qualify under the $25M and $100M threshholds above.

3. Are conducted on a substantially concurrent basis, particularly when significant technical problems are antipated.

4. Involve unusual orgnizational complexity or technological advancement.

5. Require extensive interdepartmental, nation or international coordination or support.

6. Present unusual difficulties which need expeditious handling to satisfy an urgent requirement.

Included in the policy on optional application is the DOD policy requiring caution and discretion in the use of "options" since project management causes a drain on supporting resources.

When to Establish the Initial Project Management Office

DOD directives provide that "A System/Project Management Office shall be established and staffed with the minimum necessary cadre of personnel as early as practicable, preferably prior to submission of the Master Plan and the initial Program Change Request for the project."

The Naval Material Command provides that "A provisional Project Management Office will be established as early as practicable, preferably early enough to prepare the request for the approval of Concept Formulation and for all projects designated under mandatory criteria, in time to prepare the requests for proposals for Contract Definition phase Contractor Selections."

In practice the initial establishment of a formal Project Management organization in the Naval Material Command will most likely occur:

1. Shortly after the receipt in the NMC of one of the following documents: an Advance Development Objective (ADO), or a Specific Operational Requirement (SOR); and, when it is determined by the Principal Development Activity (PDA) that the mandatory provisions apply.

2. At any time within the life cycle of an effort when the Chief of Naval Material is directed to implement the discipline of Project Management by DOD, SECNAV, or CNO.

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3. At any time within the life cycle of a project when the CNM or the Commander of one of the Naval Material Systems Commands determines that the optional criteria should be invoked./7

Policy of Functional Parity

Experience has indicated that the establishment and maintenance of adequate and effective functional support by participating organizations is one of the most difficult, bothersome and time-consuming tasks that a Project Manager faces. There is little evidence to date that the designation of effort for "Project Management" sparks any spontaneous, enthusiastic, exceptional effort on the part of supporting functional organizations--notwithstanding the DOD policy that effort in support of a PM "shall be considered a principal responsibility." The PM faces the task of overcoming competing priorities, entrenched authority and responsibility, established allegiances to persons and organizations, the lack of appreciation of the PM's role, status and objectives, and the desire for "Business as usual." Experience has also shown, however, that certain procedures can be instituted to partially overcome the constraints to effective functional support, i.e., the permitting of informal arrangements that come in through the "back door" under a "cumshaw" arrangement-- but that the key to success will ultimately rest upon forthright, frank and straightforward approaches to the problems which arise./8

DOD anticipated the problems of "support" and for this reason promulgated the policy of "functional parity", i.e., the Project Management organization shall be composed of sufficient grade stuucture, size, and quality of personnel to deal effectively with staff, field and functional personnel who must support the project.

The Project Charter

The Project Charter is "The document approved and issued by appropriate authority that establishes a Project Manager and his management office; defines his mission, authority and major functions; and describes his relationships with other organizations and their support responsibilities."/9

/7 Ibid., pp. 11-12.

/8 Ibid., p. 26.

/9 United States Department of Defense, DOD Directive 5010.14, (Washington: Department of Defense, 1968).

This formal document is the license enabling the PM to cut across functional lines. The providing of a mission statement is accompanied by a statement which delineates the scope of the project. Five-Year Defense Program elements (or parts thereof) identified predominantly with the project and for which the PM has responsibility are specified to the extent that they are known.

A. Content of the Charter

It is the responsibility of the Project Manager to prepare and coordinate his own charter, but this does not mean that he is given a blank check. Systems Command designated charters are prepared within the Command and with its approval. CNM designated charters are prepared within CNM. All charters require the approval of the Chief of Naval Material. After this approval, charters of the Systems Command will be extended to include a statement of approval by CNM. Thus, regardless of who originates the document, there is a central approving authority who must, within the Navy, screen them all. In order to facilitate this, the Chief of Naval Material has set forth the following standard charter content:/10

1. The scope of authority and responsibility of the PM.

2. Provisions for an initial comprehensive review and appraisal of the disciplines, techniques, procedures and processes employed in the Project Management Office.

3. The scope and mission of the project.

4. Identification of all supporting organizations and their role (including field activities).

5. The initial cadre of personnel to assist the Project Manager in starting the project.

6. Staff augmentation and buildup.

7. Description of the system/component/item managed.

8. Background of events leading up to the establishment of the Charter.

9. Actions necessary to be taken to activate the particular project.

10. The submission of staffing patterns.

/10 United States Navy, Naval Material Command, NAVMATINST 5000.5A (Washington: Headquarter Naval Material Command, 1968).

11. Responsibility for dissemination of public information.

12. Provisions for project disestablishment.

B. Project Numbering

Each newly-designated project is assigned an identification code. Codes are assigned and controlled by the Chief of Naval Material (MAT 011). Systems Command organizational codes are not assigned to CNM-designated projects or vice versa. This is necesary to prevent the double-coding of projects.
Procedures for coding Project Management Offices are as follows: /11

"The Chief of Naval Material (MAT 011) will assign codes to both CNM-designated projects and to Systems Command-designated projects. Insofar as possible, the following blocks of numbers will be reserved:

CNM-designated . . . . 1 through 30
Air Systems Command-designated . . 31 through 75
Ships Systems Command. . . . . . . 76 through 95
Ordnance Systems Command . . . . . 96 through 115
Electronic Systems Command . . . .116 through 130

The numbers are preceded by "PM" for CNM projects, "PMA" for Naval Air Systems Command, "PMS" for Naval Ship Systems Command, "PMO" for Naval Ordnance Systems Command, "PME" for Naval Electronic Systems Command, "PML" for Naval Supply Systems Command, and "PMF" for Naval Facilities Systems Command.

Specific Responsibilities of the Project Manager

Basically, the PM exercises authority over the planning, direction and control of the approved project; exercises financial management over utilization of all resources approved by the Five-Year Defense Program and Budget--and assigned to him by the Chief of Naval Material.
Specifically, the following guidance and policy is provided for Project Management: /12

1. Plan, organize, and administer the PM office.

/11 United States Navy, Naval Material Command, NAVMATNOTE 5000 of 3 February 1967 (Washington: Headquarters Naval Material Command, 1968).

/12 United States Navy, Naval Material Command, NAVMATINST 5000.5A (Washington: Headquarters Naval Material Command, 1968).

2. Make business and technical management decisions as authorized by the charter.

3. Establish detailed initial and long-range planning, and objectives.

4. Manage accomplishment of experimental test, engineering, and analytic studies.

5. Approve estimates of funding requirement prior to incorporation into the FYDP or budget.

6. Manage contract definition in accordance with SECNAVINST 3900.33 (Initiation of Engineering and Operational Systems Development).

7. Preparation and submission of Technical Development Plans (TDP's) in accordance with OPNAVINST 3910.4B using NAVMATINST P3910 as a guide.

8. Preparation and submission of Program Change Requests (PCR's) in accordance with SECNAV Operational Procedure number 2.

9. Preparation and maintenance of the Project Master Plan.

10. Exercise financial management control over all funds.

11. Define work efforts to be undertaken by inhouse and contractor activities . . . and approve final plan to accomplish the effort.

12. Furnish information and requirements as necessary for effective procurement planning and control negotiations.

13. Establish and promulgate design interface specifications to ensure system integration with other project managers and commanders of various Systems Commands.

14. Coordinate interface problems with other Project Managers and functional activities.

15. Negotiate, for CNM approval, working agreements outside the Naval Material Command.

16. Establish and promulgate criteria for tests and demonstrations, evaluation and installation of systems, subsystems, components, equipments and devices.

17. Insure above in #16 are developed and procured in time for concurrent delivery with major components.

18. Comply with the provisions for "Advanced Procurement Planning" (SECNAVINST 4200.18B).

19. Establish methods and procedures to implement configuration control, including mechanized configuration files (punched card or tape) for each major system.

20. Ensure development, implementation and maintenance of the Integrated Logistics System (ILS) Plan for the project in accordance with current directives.

21. Ensure that quality assurance, reliability, maintainability, and value engineering programs are adequate.

22. Ensure that all technical documentation is prepared and is available for training, operation, maintenance and overhaul personnel.

23. Direct procurement of required trainers and training devices. Ensure training plans are developed for instructors, operating, maintenance and overhaul personnel.

24. Ensure that the procedures in the Maintenance and Material Manual (OP 43P2) are used to provide feedback information on material usage associated with maintenance actions and for analysis of system performance relative to performance specifications.

25. Maintain complete chronological history of the project including significant events and decisions.

26. Establish management control techniques and procedures to provide accurate, timely and comprehensive information on the status and progress of the project.

27. Furnish data to Systems Commands by preparing consolidated reports on selected categories of hardware.

28. Report current status and progress to appropriate departmental officials.

29. Prepare fitness reports and efficienty ratings of military and civilian personnel assigned.

30. Ensure security clearances for project personnel.

31. Ensure necessary security safeguards.

32. Ensure that the material aspects of personnel training are adequate.

33. Establish and promulgate criteria for specialized shore facilities required for operations and support.

34. Comply with the provisions of the Navy Cost Reduction Program.

Restrictions on Project Manager Authority

/13   The authority of the Project Manager shall not include:

1. Deviations from Navy policy and procedures.

2. Final approval on Advance Procurement Plans.

3. Final approval on Technical Development Plans, on the Project Master Plan and changes thereto.

4. Changes to schedules established by higher authority for delivery and operational use.

5. Changes degrading mission performance or altering operational characteristics specified by higher authority.

6. Authority to act as contracting officer in the execution of contracts or changes thereto.

Epilogue

Subsequent to the writing of all previous material in this paper, the seminar took field trips to three major installations, each of which were vitally concerned with project management. The first, which we shall denote simply as "A", was a major branch of a large corporation contracting with the U.S. Government in the research, development, and production of military intercontinental ballistic missiles and associated space technology. The second was a military installation charged with the responsibility, in broad terms, "to provide engineering and logistical support in matters relative to research, development, test and evaluation, procurement, production, quality control, training, and service-use aspects of all elements of Navy ship guided surface missile weapons systems." We have designated this installation "B". The last was a government-owned research and development center operated by a civilian institution under contract to the National Aeronautics and Space Administration (NASA), and has been designated "C".

Well in advance of each visit, the installation was sent a detailed letter explaining the work of the seminar and the particular aspects of their operation which we desired to discuss with them. The result was that top management became involved in all instances and had readied presentations to explain their operation to us at our level and had prepared panels of experts to "field" our questions.

/13   Ibid.

For the authors and many others in the seminar, this provided a capstone to a year of intensive postgraduate-level study in the field of management. It was obvious, in the course of the discussions, that not only were the student members of the seminar impressed with the functioning managers; they were impressed with the students and the caliber of their questions and insights into problems expressed by management. The experience was thoroughly rewarding.

Recreating all that transpired is beyond the scope of this paper. An attempt will be made, however, to highlight some of the major "lessons learned".

A. Funds Control

All three were deeply involved in this aspect to such a degree that its influence cascaded down throughout the entire organization of each. There were different facets of this predominant. For although each derived its funds ultimately through contract or appropriation to the U.S. Government, the funding process was more critical to "A"-- the private enterprise--apparently because they were required to expend their own funds on a multi-year basis, whereby their projects were funded by the Congress on a yearly basis. These serious fiscal year funding problems were exacerbated by what was described by a project manager as the different "colors of money". Specifically, his funds were appropriated in five categories:

RDT & E - Research, Development, Test and Evaluation, Navy
PAMN - Production, Aircraft, Missiles, Navy
SCN - Ship Conversion, Navy
OPN - Other Procurement, Navy
OMN - Operations and Maintenance, Navy

The fact that these funds are appropriated yearly, and that there was no shuffling allowed among the categories, caused such serious problems in schedules and planning that the project manager spent an estimated fifty to seventy-five percent of his time on "other than technical problems"--especially funding. One possible reason for this vociferousness on the part of the PM concerning funding is that "A" was experiencing a general cutback in their operation and loss of governmental priorities they had once--but no longer--enjoyed.

B. Response of the Functional Organization to the PM

In all three organizations, the concept of project management was a way of life. It was accepted that it was necessary for the PM to cut across functional lines. Expressed either explicitly or otherwise in all was a deep

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sense of trust in their dealings with each other and with their various interfaces in government and industry. In A's case for example, contracts were in some instances vaguely written to provide flexibility that resulted in a better or less costly product than would otherwise have been obtained through more literal contract definition.

The circumstance of B was such that their program was generally expanding, so that the demands of the PM's were met by obtaining additional resources. In C's situation, however, there were strict constraints of money, personnel and time. Further, their work was such that although they were operating on the very frontiers of science, they were under contract to provide their output on time within a certain price.

In all cases when an organization must perform routine functions and concurrently be responsive to the more or less unpredictable demands of the PM, either a cushion of slack resources must be built into the functional organization, or it must have the ability to expand rapidly-- either by direct expansion, or by contractual arrangements with other organizations.

C. Project Foldback

Disestablishment of a project--especially when the PM has "barked lots of shins" in the process of accomplishing his objective--poses a chance for real personal crises to the PM. Returning to Admiral Rickover as an example, he likely would have been forced to leave the military had it not been for special consideration given him by the Congress. It may well be that the trail blazed by previous PM's who have performed so very well has caused a reordering of thinking along these lines. In any event, this facet of project management was of little concern to the three organizations visited.

In those installations visited, only C had experienced foldback of the project organization into the functional. It caused little difficulty and the PM involved was soon to be given a new project.

D. Elements of Project Management Success

The most important single element is the project manager himself. This is begging the question . . .rather like saying that an effective team must have an effective leader. Still, historically, successful projects have been those which have enjoyed managers with the "moxie" to get the job done. Identification of this quality is no less difficult than that of leadership in general. But having a good project manager does not assure project success . . . nothing can. Still, there are other finite elements that contribute greatly.

Foremost of these is a clear understanding and definition of the project's objectives. This given, there must be a high degree of flexibility generally, while specifically--in the area of planning--one factor which stands out as a basic difference in a project organization's ability to succeed where a functional organization has traditionally failed is that of ability and amenity to change. As one PM planner put it, "hang loose!" Taken from that vernacular is an important point: the project manager planning system must be such that both setbacks and windfalls can, with facility, be taken into immediate consideration, the entire plan being revised daily if necessary. This is diametrically opposed to the bureaucratically-lethargic response of "it's just our policy" to change.

Mentioned previously is the fact that the PM must have the requisite procedures, policies, personnel and equipment and the control over them.

Finally, there must be sufficient slack time to obviate destructive pressures that operating in an environment of urgency can have upon the psyche of the individuals involved. Where this is not possible, careful consideration must be given to the observation of the individual for pressure symptoms so that he--an especially valuable resource--has these pressures relieved in time to prevent his destruction. Systems that leave this observation to happenstance and self-observation should remember that humans are perfectly capable of working themselves to death.

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A TREND FOR CORRECTIONS

by John E. Buckley

In this paper, the author proposes that the trend in American penology should be to connect the offender with the opportunity systems of the community and to integrate him with the socializing institutions of society.

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"The mood and temper of the public with regard to the treatment of crime and criminals is one of the most unfailing tests of the civilization of any country."

Sir Winston Churchill

Introduction

In every organized society in the world, the problem of illegal or harmful acts perpetrated by one man upon others has presented a control problem. Every type of punishment, from banishment to death, from incarceration to maiming, has been tried. The current rising incidence of crime seems related to factors other than the deterrant power of punishment, no matter how severe or cruel./1 However, retaliation and revenge against a wrongdoer has a morality older than recorded history. When malefactors are made to expiate, society goes on a moral orgy, the recovery from which restores social equilibrium./2

/1 Progress Report of the Assembly Committee on Criminal Procedure; Deterrent Effects of Criminal Sanctions; Assembly of the State of California; May 1968; p. 10.

/2 Reckless, W. C; The Crime Problem; Appleton-Century-Crofts, Inc.; New York, New York; 1961; p. 582.

The progress of civilization can almost be traced by its treatment of and attitude toward deviants. A man is believed to be accountable for his acts and a penalty is the sanction that supports accountability. Thus, we convict, institutionalize and attempt to reconstruct a person at the same time -- a system which has yielded disappointing results. Historically, our response to this challenge has reflected the unwillingness of the public and its leaders to face the facts and admit that the system, at a cost of some five billion dollars a year, fails to operate as advertised./3

The 340-page report by the President's Commission on Law Enforcement and the Administration of Justice opens with, "There is much crime in America, more than ever is reported, far more than ever is solved, far too much for the health of the Nation. Every American knows that."/4 Unfortunately, the paradox of the last sentence is part of the problem - the general public knows very little about the current trends in penology, crime, penalties, recidivism, system costs to the taxpayer and the like. As a matter of fact, a recent study conducted in California shows that the general public is the least knowledgeable group in these areas and, as might be expected, inmates of adult correctional institutions were the most knowledgeable./5 The most striking fact regarding the correctional system today is that, although presumably the rehabilitation of criminals is its major purpose, the custody of criminals is its major effort! There are over a million people being "corrected" in this country today. Approximately one-third of this number are in jails or prisons; however, this area accounts for four-fifths of the correctional funds spent and nine-tenths of the employees engaged in correctional work. Of the latter, less than one-fifth have jobs which are other than custodial or administrative in nature./6

/3 National Symposium on Science and Criminal Justice; U.S. Government Printing Office; Washington, D.C.; June 1966; p. 27.

/4 The President's Commission on Law Enforcement and Administration of Justice; The Challenge of Crime in a Free Society; U.S. Government Printing Office; Washington, D.C.; February 1967; p. 1.

/5 Progress Report of the Assembly Committee on Criminal Procedures; Op.Cit; pp. 10-18.

/6 The President's Commission on Law Enforcement and Administration of Justice; Op.Cit; p. 12.

Background

Unlike some of the more glamorous sciences, penology has virtually been "running-in-place" in terms of major progress for over two centuries. Many of our current penal institutions are abiding monuments to man's unwavering faith in the notion that incarceration can convert wrongdoers into citizens. Until the 18th century, criminals were locked up for the purpose of retribution - usually torture and extinction. The evils committed were attributed to the influence of Satan. This primitive theology gave way to rationalization during the Enlightenment and the belief gained ground that criminals could be made to reform if the penalties for crimes exceeded the pleasures derived therefrom.

American prisons began to be built in their present form in the late 18th century. The more advanced institutions of the time were in Pennsylvania and New York, where silence was rigorously enforced and hundreds of involuntary monks performed their enforced penance./7 The 19th century brought about an age of reform. Former beliefs gave way to the idea that training and education would allow the criminal to live constructively as a citizen. By the middle of the century, the Irish mark system, whereby points were awarded for good behavior, was ushered in as a humanitarian landmark. From then on, in most countries, confinement was accompanied by the expectation that time would be remitted from sentences for good behavior. Later, as the influence of the mental health movement gained favor in correctional circles, psychiatric evaluations were used in the hope that the criminals future might be more clearly predicted.

Until the present generation of correctional management, the warden's principal concern was to insure that inmates lived in peace and order within the prison and did not escape its confines./8 This parochial approach did nothing to advance the techniques being forwarded by the medical, educational and social sciences in the interests of reconstructing convicts. As a result, prisoners kept order in the interests of reducing the discomforts of imprisonment. In such an atmosphere, resistance to the staff becomes an end in itself and prisoners who cooperate in staff objectives are ostracized. Survival of the individual in such a community depends on his acceptance of antisocial values; few prisoners have the moral resources to withstand the pervasive influence of their fellow inmates' solidarity in opposition to staff values.

/7 Reckless, W.C.; Op.Cit; p. 609.

/8 Conrad, John P.; "Prisons and Prison Reform; Current History"; Current History, Inc.; August 1967; pp. 89-91.

Nevertheless, some headway has been made against the "convict code". Gradually, the social sciences have gained converts through the introduction of professional medical, educational and social services. Indications are that this trend is flourishing, both in the United States and abroad. The result is a coherent correctional machine dedicated to the achievement of objectives rather than the management of a meaningless process. Much is yet to be done, however, the present trends in corrections give rise to some optimism about the moral progress of man./9 In the final analysis, no prison, regardless of how generously staffed and equipped, can hope to be anything but a place in which men become worse, unless its objective is the reintegration of its inmates into the community.

Discussion

Penal legislation in general has been based on the belief that more severe penalties (longer sentences and longer time served in prison) deter the general population from committing crimes and protect the community from criminals. The consequences of this legislative trend and its influence on parole policy have been extremely expensive. In California, for example, the median stay in prisons is thirty months, second highest of the twelve largest states and fifth highest in the nation. The number of state prisoners per 100,000 population is the highest of these states. The median time served in the fifty states runs from 9 months in New Hampshire to 39 months in Hawaii. High and low crime rates are found at both ends of the scale.

TABLE I

CRIME RATE VS. TIME SERVED

State	Median Time Served Mos.	Prisoners per 100,000 Pop.	Crime Rate
Pennsylvania	32.1	61.5	856
California	29.6	145.6	2424
Illinois	28.6	78.4	1713
New York	26.9	96.9	1497
Florida	24.1	122.7	1927
Ohio	24.0	111.3	1011
Indiana	23.8	91.9	1166
North Carolina	20.2	102.6	932
Michigan	18.1	88.5	1537
Massachusetts	17.9	36.3	1376
Missouri	17.2	78.8	1540
Texas	17.0	123.3	1363

/9 Conrad, John P.; The Annals; The American Academy of Political and Social Science; Philadelphia, Pa; January 1969; p. xiii.

The implicit assumptions have been: the more time served, the more deterence, the more rehabilitation, the more community protection. However, if lengthy incarceration operated as a deterent, crime rates should be lowest in states where the time served by convicts is highest. They are not. It is also significant that recidivism rates in all states are generally constant. The rate varies from 10% to 15% year to year. For any large state in the nation, whether the median stay is long or short, it can be realistically predicted that almost 50% of the criminals released from prisons will return to prisons within five years of release./10 These figures hardly reinforce or in any way support the notion that present day penal policy is rational. The State of California, which is considered one of the more progressive in this area, maintains one of the most expensive correctional systems in the nation to implement a penal policy of entirely unproven effectiveness./11 The annual costs of this system, exclusive of aid for dependent families (17 million), is at the $600 million mark and it is expected to reach $900 million by 1975. It is somewhat more than doubtful that the taxpayer is willing to maintain this high investment in a system because of a desire to punish the guilty. Additionally, since about 95% of the persons now in prisons will eventually be returned to the community, the problem of constructive and meaningful rehabilitation is urgent!/12

The general underlying premise for the new directions in corrections is that crime and delinquency are symptoms of failures and disorganization of the community as well as of individual offenders. Specifically, these failures are viewed as depriving offenders of contact with the institutions of society that are basically responsible for assuring the development of law abiding conduct.

The task of corrections therefore includes building or rebuilding solid ties between the offender and the community, integrating the offender into the community, restoring family ties and obtaining education and employment for the individual. This not only requires efforts towards changing

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/10 Crowther, Carol; "Crimes, Penalties, and Legislature"; The Annals; Op. Cit; p. 27.

/11 Progress Report of the Assembly Committee on Criminal Procedures; Op. Cit; p. 27.

/12 Crowther, Carol; Op. Cit; p. 151.

the offender, which up to now has been the theme of rehabilitation, but also the mobilization and change of the community and its institutions. This must be undertaken in conjunction with the control and deterrent role of corrections as applied to dangerous offenders./13

For adult felony offenders, it is practical for 60-70 per cent of court adjudications to favor immediate probation. A higher per cent can most likely be justified for juveniles. In practice, probation grants in excess of 50 per cent are as high as 75 per cent successful. With more adequate community based services, immediate probation choices could probably be safely increased to 70 per cent. Of the remaining 30 per cent requiring initial confinement, it is projected that 15 per cent could be released to community-based services within a few weeks to a few months. For this group, short term confinement might be required for establishment of some stable living and occupational base, following which the person could be closely supervised in a free community status. The remaining 15 per cent appear to need a longer period of institutional management. This group would include those persons whose crimes contained major public danger dimensions, social outrage or chronic repetition unmanageable in a community or semi-institutional status. Except for a small core of constantly dangerous persons - probably no more than 3 to 5 per cent - even this closely managed 15 per cent could be maintained in highly active and community-involved institutions for frequent exposure to the external populace./14

In summary, the trend for corrections should be to connect the offender with the opportunity systems of the community and to integrate him with the socializing institutions of society. To accomplish this task corrections must change those systems and institutions to eliminate their tendency to reject him. No matter how many resources are provided to corrections, it cannot, by itself, solve the problems of reintegration - this requires the participation of the community. The problems of crime primarily arise in the interaction between the individual and his community. The solution to those problems requires a modification of the offenders' adaptive behavior and a substantial contribution by those responsible for the community's opportunity system./15

/13 Moeller, H. G.; "The Continuum of Corrections;" The Annals; Op. Cit; pp. 83-84.

/14 Burdman, Milton; "Realism in Community-Based Correctional Services"; The Annals; Op. Cit; p. 75.

/15 O'Leary, Vincent; "Some Directions for Citizen Involvement in Corrections"; The Annals; Op. Cit; p. 105.

"Corrections involves the use of every
phase of the science of human engineering.
It must be just, humane and scientific, not
only for ordinary human decency, but also for
our own safety and security. It is essen-
tial to make society understand that true
protection - lasting protection - can re-
sult only through changing attitudes, not
changing individuals. . ."

JUDGE ANNA KROSS

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AUTOMATING THE NAVY'S OFFICER DISTRIBUTION PROCESS

by Vincent E. Cooke

*The author proposes that the assignment
process of ordering officers to their next
duty stations be completely automated. He
specifically takes issue with the inordinate
amount of time spent by the detailing officer
in manually matching officers to billets.*

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I OBJECTIVE OF OFFICER DISTRIBUTION

The basic objective of the officer distribution process
is to match officers possessing certain qualifications and
experience at a demonstrated performance level with billets
that require similar qualifications, experience and per-
formance. This objective is difficult to attain because
often the availability of, for example, top performing
officers may not match the availability of billets requiring
their talents, or vice versa. Another obstacle occurs when
the availability of the billet and officer occur simultan-
eously but the officer prefers duty in some other place.
The ideal officer distribution match occurs when an officer
with qualifications, experience and a particular performance
rating requests a billet requiring qualifications, experience
and an officer with a performance rating similar to his
own in a location where the billet is available at the time
he will be available for rotation.

II THE EXISTING DISTRIBUTION PROCESS

Inputs

Inputs to the officer distribution process are pro-
vided by: the placement officer, the detailer, the indi-
vidual officer's desires and career needs, the individual's
performance record, the impending billet's job require-
ments, and the desires of the impending billet's superior
officer. Placement officers exist for each general type

of duty in the Navy, for example, Vietnam, Destroyers, Ashore Staffs, etc. The placement officer controls the billets which must be filled. He knows when openings will exist and he also reviews the qualifications of officers proposed to fill the billets.

The detailer controls the availability of officers. There are detailers for Captains, Commanders, Lieutenant Commanders, etc. Their function is to provide officers to fill the billets made available by the placement officer. Though the placement officer holds the billets that are available, it is the detailer who makes officers available and subsequently "details" the officer to the new billet. Part of the responsibility of the detailer entails looking after the career needs of the officers whom they assign.

The input provided by the individual consists of his preference for duty which he lists on a prescribed form called the Officer Preference Card, and amplifies with as much qualifications as he desires on an attached card, or in letters and telephone calls to his detailer. There is no constraint on the frequency of submission of the preference cards. For the officer unaware of what duty is best for him, as is often the case with junior officers, the detailer will attempt to detail an officer into the "right" billets, unless the officer strenuously objects and indicates that he is simply not interested in being a front runner.

Each detailer and placement officer has access to the officer's fitness reports which reflect his performance. Before detailing an officer to a prospective billet, it is mandatory that the detailer check the officer's past performance in order to judge the officer's potential for meeting the challenge of the proposed billet.

As an officer becomes more senior, the billets he seeks begin to demand certain previous qualifications or experience. As an example, command of a destroyer requires that the nominees should have served a tour as executive officer afloat. Similar rules obtain for duty ashore and if the candidate does not possess the prerequisite experience he may be unacceptable for the billet. In some cases the placement officer defers to the judgment of the billet's superior officer and permits him to make a selection among a list of nominees. This is a privilege usually accorded only to very senior officers or where a very sensitive billet is involved.

Outputs

The outputs of the officer distribution process are essentially three: providing an officer who can be expected to satisfy the billet requirements; accommodating the individual's preference; and, looking after the individual's career requirements. Though it is difficult during the assignment process, especially with junior officers, to predict success in the billet, the ultimate goal

in officer assignment is to provide an officer whose past performance indicates that he will be able to meet the challenges offered in the new billet. This is especially critical in detaining the unrestricted line officer since rarely is he ordered into a billet very similar to his last one. Normally, the detailer can only look at an officer's past performance in meeting new challenges, and in discharging varied responsibilities, and from those, make a guess that the officer will continue to demonstrate the same kind of performance.

Probably the most difficult of the outputs is to completely accommodate the officer's preference. By this I mean assigning him to the billet he wants in the locale of his choice. All things being equal, more often than not, and especially in the more senior grades, timing is the strongest factor militating against the area choice.

Satisfying the officer's career requirements is probably less difficult than coming up with the other outputs. This is because career requirements are rather broadly defined and the real key to promotion is performance. Nevertheless, there are some reference points in the career pattern and these are discovered by examining the career patterns of Admiral selectees. In general, service on a joint staff, duty in Washington, and successful completion of a major command tour are three of the most consistent requirements. Sequential phasing through certain general kinds of billets is usually required prior to being ordered into one of these billets and this establishes what has come to be known as career patterns. Provided the officer is not tied to one locale these career milestones are not difficult to attain.

Manufacturing Process for Orders

The manufacturing process for a set of orders begins with the placement officer who is in control of the billets. The currently installed computer system periodically produces an output which advises the placement officer that certain billets will need replacements within a given period. The placement officer posts these billets with the appropriate rank desk, or detailer, in the form of posting slips. The detailer, who controls the availability of officers, matches those qualified officers who will be available for rotation coincidental with the availability of the billet. These matched officers are nominated to the placement officer who finally decides on their acceptability for the billet. If they are accepted, the detailer is notified and he initiates the details involved in actually writing orders for the officer to fill the billet. The placement officer then makes the incumbent officer available via availability notices to the appropriate rank detailer. Certain factors impinge on the detailers and placement officers which disrupt this smooth flow. The officer himself may simply change his mind or the billet's superior may reject endless

lists of candidates; or very senior officers may seek consideration for top performing loyal subordinates; or the placement officers may receive emergency requests for officers far in excess of the numbers planned (e.g. Vietnam in-country buildup).

Before the detailer provides any nominee to the placement officer, the officer's preference card, career needs and fitness reports are matched against the billet requirements. This matching process, though the keystone of the whole system, is probably the most time consuming phase of the process and, as I will show later, is a candidate for automation.

Feedback and Control

No positive feedback exists in the system as it now functions. An officer may or may not be happy with his orders but unless he is violently opposed to them, which is not often the case, there is very little feedback to the Bureau of Naval Personnel reporting on the reaction of an officer to his orders.

The only feedback from the officer's superior is via the officer's fitness report, unless the officer is totally unsatisfactory and requires relief. Though desireable, it is very improbable that a detailer can afford the time to get back and check the fitness reports written on all officers which he assigned in the last year to determine whether he made good or bad choices.

Since feedback is so weak, control might therefore be expected to be even weaker. However, because of the amount of personal attention given to each match of officer to billet there is a significant amount of control over who gets which billet. At least four officers may be involved in routinely matching officers to billets (the assistant detailer, the detailer, the assistant placement officer and the placement officer) and, where an officer is being assigned a command, many more officers, up to a formal screening board will be involved.

III EVALUATION OF THE EXISTING SYSTEM

There is an abundance of information available to the detailer on each officer. Furthermore, the information retrieval system on each officer is acceptably fast, accurate and efficient. This also holds true for information on the billets. The existing information system used in matching officer and billet fulfills the objectives of the officer distribution system. The computerized data bank at the Bureau can rapidly provide historical information, qualifications and correct statistics on any officer, with the exception of his fitness report performance marks.

But, there are disadvantages in this system. An officer may desire a particular billet in a specific locale but because his projected rotation date is outside of the dates of officers available for the billet, he will not be considered. Then another qualified officer who didn't want the billet or didn't like the locale, may be assigned. Therefore, because of poor timing and an unwillingness to gap or overlap billets, two officers are unhappy, but the needs of the service predominated. This system invariably leads to the needs of the service predominating more often than may be necessary. One wonders how many times the "right" man for the job may have been on the next card but was overlooked because he was beyond the availability cut-off point.

The detailer spends an inordinate amount of time manually matching billets and officers. Some will argue that the detailer can't spend too much time assuring the best kind of match. However, I feel that this matching can be done better and faster via computer, thereby freeing the detailer to spend more time in giving officers under their cognizance more personal attention.

One main advantage of the current system is the positive assurance that all officers are being personally managed. This has a lot of appeal especially considering the impersonal treatment many of us have received from computerized accounting and billing departments. But, assignment of officers by a computer does not have to mean that we are receiving impersonal attention. On the contrary, later paragraphs will show that through automation, more personal attention, rather than less, is possible.

IV THE AUTOMATED PROCESS

Under an automated distribution system the flow of orders need not change at all. If automation is properly implemented the system will continue to function as before except some, if not all, of the steps in the process will be automated. It is within the state of the computer art to automate the entire officer distribution system up to and including actually writing the orders. To accomplish this feat is a matter of programming a computer which has sufficient capacity to store all of the inputs that must be considered in manufacturing a set of orders. The programming task is difficult, but not impossible. Though total automation may not be capable of immediate and complete attainment this should not rule out consideration of automating portions of the distribution system keeping in mind the long-range goal. A start has in fact been made with the Officer Data Card and the Posting Strips.

Inputs

The inputs to the data bank are exactly the same as those described earlier as being used in the matching process. These are:

1. the Officer Data Card;

2. the Officer's fitness reports;

3. the Officer's preference card;

4. all of the officer billets along with the projected rotation date of the incumbent, and the experience, qualifications, educational level and demonstrated performance level required of prospective candidates for the billet;

5. idealized officer career patterns; and

6. enroute schools' convening dates, curriculum and quotas.

Outputs

If the computer had sufficient capacity to store all of the foregoing data along with the appropriate logic capability and assuming that programming was thoroughly undertaken, the computer output could be a complete set of orders ready for mailing. An alternative output would be a priority listing of nominees for each forthcoming billet. Hereafter the former system will be referred to as the Fully Automatic Transfer System for Officers (FATSO), and the latter system will be referred to as the Semi-Automatic Transfer System for Officers (SATSO). FATSO would perform all of the matching and judgment now performed by the detailer. The detailer would simply accept or reject the computer output based on any whim, last minute request by the officer concerned, or any other information possessed by the detailer and unknown to the computer. SATSO would provide a priority listing of candidates for a billet from which the detailer would make a choice, whereupon the nominee and billet match would follow all of the manual steps in the current process.

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Control

All of the control currently exercised by the detailer could still be available under an automated system. With SATSO, the computer is simply programmed to perform all of the manual searching for candidates that was formerly done by the detailer. The detailer can still compare nominees with their fitness reports, as can the placement officer, and accept or reject candidates on whatever basis they are currently employing to make their judgments. Even with FATSO, the detailer would not lose control of the assignemnt process. Here, the orders are completely manufactured by the computer. But, before mailing, each set of orders would be screened by the detailer. At this time the detailer would subjectively evaluate the computer decision, taking into consideration the officer's previous performance, the billet's requirements and the officer's preference. This procedure is accomplished now by each detailer but it is performed in order to produce a set of orders. With FATSO it would be done to evaluate and control the computer output and would require considerably less time than it does now to match and manufacture the orders. Some will contend that under this system the detailer could easily become too busy to carefully evaluate the computer output. This is undoubtedly true and proposals to avoid this temptation will be propounded under the section covering Feedback.

Conceptual Automated Flow Process

Each officer's historical and statistical information is already part of an automated data bank. Billet availabilities along with the requirements of the billet are also in the same data bank. Officer fitness reports would have to be adapted or transcribed into a format which would permit entry into the data base. The fitness report form currently in use permits a considerable amount of objective marking which should facilitate its use in an automated system. If it is considered that the marking factor spaces are sufficient for assignment purposes then the current fitness report forms could simply be transcribed onto an acceptable card in order that the computer could read the data. The fitness report form signed by the superior would be retained to be used by selection boards.

The Officer Preference Card could also be transcribed onto a form acceptable to the computer, but just like the fitness reports, could be retained as written by the officer. This would provide the detailer with a means to ensure that the computer is performing up to expectations as the detailer checks the output of the computer (the transfer order) against the officer's requests and past performance.

Finally, all of the schools to which officers are ordered enroute to their next duty station would have to be entered into the data bank. It would be necessary to include the lack of qualification or experience that each school is expected to substitute for quotas available, length of course, covening dates, etc. The computer would be programmed for the quotas at these schools set aside for Bupers and would be programmed to assure that it does not exceed the quota limitation without warning the control personnel.

The most difficult evolution is writing the program that will use all of the required inputs and produce the correct output, the officer's orders to his next duty station. This program would begin by asking the computer to provide transfer orders for all billets which will need filling in a specific time period. The computer would be programmed to first, identify the billets. The next step would be to identify the requirements of each billet. The computer would next search its data bank for the officers due for rotation during the subject time frame. It would then determine which officers are qualified for the billets and which have shown a preference for the billet. Finally, if there are available officers who prefer the billet but do not have all of the qualifications the computer would search its enroute school data to determine if the necessary qualifications or experience could be met through attendance at a school. The computer would then write the officer's orders which would be presented to the detailer along with the officer's fitness reports, preference card, data card and a brief of the billet requirement. The detailer would assure that the computer wrote a set of orders which comply with current policy and needs of the service. As long as this phase is not overlooked, the automated process is every bit as personal as the existing system. Automation has simply accomplished all of the searching and matching formerly required of the detailer.

The two most complex programming steps would be matching the officer to the billet and determining the enroute schools required. These are also the most burdensome for the detailer under the present manual system. Therefore, one shouldn't expect the programming of these phases to be a simple, straightforward task. It has taken years for the present manual system to evolve and for the computer to be as effective in this matching process as the officers now doing it, the programmer must be able to determine every nuance of the task performed by the detailer.

The SATSO system is simply a modified version of FATSO. Two of its inputs are already in the data bank, i.e., the Officer Data Card and the billet availabilities. The third input is the Officer Preference Card. Using these inputs the computer could be asked to provide a priority listing of candidates possessing the requisite qualifications and/or experience, who will either be available

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for assignment during the time frame required or who have asked for such duty. SATSO eliminates all of the manual search for qualified officers. If no officer preferred the billet, SATSO would be capable of disclosing how far into the non-available officers the detailer would have to go in order to find a qualified officer who prefers the billet. The detailer would extract the preferred nominee from the list and decide if he meets all of the billet requirements and select any enroute schools deemed necessary.

Feedback

Feedback from both the assigned officers and their superiors is necessary in order to determine how well the detailing process is working. An effective feedback system would provide such information from the assigned officer as: satisfaction with billet assigned, satisfaction with locale, challenge of the billet compared to expectations, facility with which he discharges his responsibilities, etc. The superior might report on his satisfaction with the officer that was assigned. This would be of special interest in those cases where a billet supposedly required a 4.0 officer but a 3.0 officer was assigned. Consideration might then be given to reevaluating the requirements of the billet. This feedback would ultimately find its way to a control group whose functions will be discussed later.

V EVALUATION OF THE AUTOMATED SYSTEM

Advantages

The most significant advantage of either FATSO or SATSO is the time it gives the detailer for more effective execution of his responsibilities. He will be able to spend a considerable amount of time counseling officers on the telephone and in writing meaningful responses to letter queries. Most important he will be in positive control of the detailing process and will be able to get off the treadmill existence which seems to be the case now.

The FATSO system could be programmed with such refinements that would enable each detailer to give fairly accurate probabilities of exactly what an officer could expect for duty when he is next assigned. This could be accomplished from the detailer's desk with remote data links to the central processing unit and the computer would be able to provide instant and accurate response to such questions as to the number of Destroyer C.O. billets available in San Diego in four months and the number of officers qualified for such duty who have asked for a Destroyer and will be available for assignment. The detailer does not have to commit himself, but at least he has all of the facts and can be very responsive to telephone queries. Subsequently, if an officer isn't assigned to any of his preferred choices, the detailer will have plenty of time and sufficient information to explain exactly the reasons an officer didn't get what he asked for.

Anticipated Difficulties

A complete list of anticipated difficulties simply isn't possible at this time or in the confines of this short paper. Nevertheless, the toughest hurdles deserve mentioning. I believe these to be:

1. Development of the Project Task Force to develop the system.

2. Funding the operation.

3. The programming involved in substituting enroute schools for experience or qualifications deficiencies.

4. The tremendous initial data collection.

VI IMPLEMENTATION

Effective implementation of this plan demands first a project task force. Obviously the task force will include programmers and data technicians. Of equal and perhaps greater importance is that the working level composition of this task force should include representatives from: the Officer Distribution Section; the sections responsible for the actual order writing; the sections which are most familiar with the enroute schools available; the fitness report section; and, those sections responsible for determining billet job requirements. There should be a small group of perhaps 2 or 3 members providing managerial and policy guidance to the working level. This group would include the actual project task force manager, an outside system consultant and the Deputy Chief of Naval Personnel. The task force manager must be a man who is convinced of the system's worth and possesses the skill and determination to see the project through. The outside consultant provides objective advice to the manager and acts as a catalyst for the group. He is a person the manager can bounce ideas off and get impartial help. The Deputy Chief of Naval Personnel provides the command support to the project.

The task group will have to study the capability and capacity of the existing computer hardware. If it appears insufficient it will have to examine the feasibility of purchasing additional equipment.

New fitness reports and officer preference forms may be necessary. In any event, consideration for developing new forms will be a part of the implementation. It may be feasible to manufacture a form that can be used by the computer directly. Or, it may require transcription at the Bureau in order to get the information into the computer.

The PERT scheduling technique should be used from the outset in order to control all of the elements of implementation. A most important consideration will be the trial period and trial runs. During this time both the present system and the automatic system will be operating together as the automatic system is evaluated against the manual system. This may be a lengthy period and if anything, personnel requirements will increase during this dual operation period. It should be noted at the outset that the automatic system is not being designed to eliminate people. It is being installed to enable the detailer to exercise greater and more efficient control over the distribution process.

The task force should determine just how much of the system should be immediately automated. SATSO could be implemented first and the task force might continue developing FATSO. Before FATSO is completely ready there may be other intermediate steps which can be programmed to operate automatically. It doesn't all have to be done at once.

The working level of the task force should develop into a Control group. This Control group would concern itself with such things as revising billet requirements, changing the enroute school information as the fleet training centers change the available courses, receiving and applying the feedback information from the assigned officers and their superiors. In general, their responsibilities would revolve around seeking more ways to make the assignment of officers more efficient and their task would be that of updating the data bank.

Concluding then, I believe that an automated officer distribution system can work and I think that it is important that we begin to do more than simply argue, or think about it. Whether it is recognized as such or not, a start has been made with the Officer Data Card and the billet availabilities. We need to press on, exploring ways in which we can make this new management tool, the computer, help us to manage our manpower resources more efficiently.

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BOOK REVIEWS

THE WEAPONS CULTURE, Ralph E. Lapp; W. W. Norton & Co., Inc.,
New York, 1968.

reviewed by F. P.Zmorzenski, LCDR, USN

In this book, Dr. Lapp, an eminent nuclear physicist,
has written his exposé of our so-called weapons culture.
In it he claims that advanced weapons technology and the
importance of the defense industry have so permeated and
become ingrained in our American way of life that we cannot
control the upward spiral of defense spending. He begins
by assailing the "military-industrial complex", expands his
remarks to include the "military-industrial-congressional
complex" and finally escalates his attack to include the
"military-industrial-political-scientific complex".

His premise is based on the interplay and interface
between:

1) The military--who never have enough and can
    always come up with a new threat to justify
    a promising weapons system.
2) Industry--which wants a profit and in many
    cases has the government as its sole market.
3) Politicians--who are highly motivated to
    obtain defense contracts for their consitu-
    ents.
4) Scientists--who have become dominated by the
    military and enamored with defense R & D
    funds.
5) The public--a large percentage of which are
    dependent on DOD for their pay checks and
    who look on missile and bomber gaps as com-
    petitive games in which we must prove our
    nation's superiority.

In the course of his book, Dr. Lapp provides a fairly
detailed account of how Red China became a nuclear power
and how the nuclear power for peace program, primarily
through the construction of electricity generating plants,
may provide many of the smaller nations of the world with
atomic weapons by giving them a source of nuclear raw
materials. He spends many pages expounding the point of
view that our atomic deterrent forces and proposed ABM
system may in actuality be provoking our opponents rather
than deterring them.

During his dissertation, Dr. Lapp reviews the cause and effect of our defense spending from the Eisenhower administration on through the birth of the present ABM conflict. Many of his positions and arguments are shallow and decidedly one sided, but he does make a few good points.

On the whole, I would say that this book does not live up to the in-depth analysis of our society promised by its title or the glowing description contained on the book jacket. I would, however, recommend it as an excellent primer for the arguments thrown at us on the non-military cocktail circuit.

About the Author

Ralph E. Lapp is a distinguished scientist, author, and lecturer whose books include The Voyage of the Lucky Dragon, Roads to Discovery, Man and Space: The Next Decade, and The New Priesthood.

He received his Ph.D. at the University of Chicago in 1945. His research in cosmic rays was followed by research on nuclear energy for the Manhattan Project. At the end of WW II, he was appointed assistant director of the Argonne National Laboratory, consulting scientist for the Bikini Bomb Tests, and served as science advisor to the War Department general staff from 1946-47. He then became the head of the nuclear physics branch of the Office of Naval Research and since 1950 has served as a consulting physicist for the Nuclear Science Service. Recently, he became a founder of Quadri-Science, Inc., in Washington, D.C.

His articles and lectures on radioactive fallout and radiation hazards have had national and international influence. He has pioneered in arousing the public and government to the impact of science upon society.

MANAGEMENT AND MACHIAVELLI. AN INQUIRY INTO THE POLITICS OF CORPORATE LIFE, Anthony Jay; New York: Holt, Rinehart and Winston.

reviewed by Ray Amor, CDR, USN

Mr. Jay's central theme is that the new science of management is, in fact, only a continuation of the old art of government. He bases this claim on the fact that when you study management and political history, you begin to realize that you are really studying two branches of the same subject. As Mr. Jay puts it, he was reading Machiavelli's The Prince when he suddenly encountered a sentence that seemed like a direct answer to a question he had pondered the previous day--are there guiding principles for taking over firms? After reading the Machiavelli

passage, Mr. Jay concludes that the guiding principles
after a take-over is to either warmly welcome or sack the
senior men in the taken-over firm. Thus, the style of the
book is set. By continued and repeated use of analogies,
Mr. Jay suggests the idea that there are parallels between
management of modern corporation and the governments of
both kingdoms and nations. The author has a witty style
and each chapter could probably be a self-sufficient, al-
though sketchy, essay. Probably what is most important
is the method and approach used by the author, not the
depth or detail in which each topic was covered.

The inspection of the work itself suggests that it is
of some value to a management student or practicing manager.
The book was first printed in 1967 and thus the date im-
plies that it is current in terms of known management
theory. It treats the subject lightly, in a happy mood.
As a reference work it has its weakness; it has been written
to be read. Consequently, while keeping the reader's
interest by repeated use of analogies and observations,
or by involving well known corporations, the author has a
proclivity for leaving out details. This does not suggest,
however, that the author has a tendency to arrive at con-
clusions in spite of evidence to the contrary.

In one section of the book there is a lack of thor-
oughness and an omission of an important consideration.
Mr. Jay states that power lies in the acceptance of au-
thority by others. This is generally regarded by scholars
of management as C. I Barnard's acceptance theory. How-
ever, many experts in the field of management subscribe to
the formal authority theory; Mr. Jay makes no reference to
it.

Along the way, the author draws an analogy between
internal wrangles and strife of a company and a kingdom
that expends its energies on a full-blown baronial war.
In short, he points out that the energies absorbed by
baronial war should have been diverted into sales and pro-
duction. This method of writing is very interesting but
uses much space and time to point out a relatively simple
concept. However, the reader finds an otherwise dry sub-
ject quite lively and entertaining.

The author emphasizes the importance of creativity
and extols the results of creative managers. Creativity,
he points out, is highly quenchable and claims it is not
surprising to find college graduates unable to do creative
original work. Mr. Jay continues to emphasize the need
for creative leaders throughout several chapters of his
book. This book is recommended pleasure reading for
managers in industry and students of management.

About the Author

Anthony Jay is a graduate of Cambridge University and
a former executive producer with BBC Television Service.
In 1965, Mr. Jay formed his own management consultant
firm and is currently head of that British corporation.

NEW FACES

JOE HOWARD McDONALD

Joe H. McDonald, United States Naval Reserve, was born in Newnan, Georgia, in 1945. He attended Duke University in Durham, North Carolina. He majored in mathematics with related study in economics and received the Bachelor of Arts degree in June, 1967.

In the fall of 1967 he began graduate study at the Graduate School of Business of the University of North Carolina at Chapel Hill. Concurrent with his graduate work he had a position as a research associate at Duke University. Concentrating in the area of quantitative methods he received the degree of Master of Business Administration in June, 1969.

In October, 1969, he was commissioned following Officer Candidate School and reported for active duty at the Naval Postgraduate School, Monterey, California, in November, 1969. He is teaching in the Department of Business Administration and Economics.

RICHARD THEODORE WAIBEL

Richard Waibel was born in Erie, Pennsylvania, in 1944. He attended the Pennsylvania State University where he majored in fuel science and received the degree of Bachelor of Science in September, 1965.

He then enrolled in graduate study at the Pennsylvania State University in the Fuel Science Department, with a minor in computer science. He received a National Science Foundation Traineeship in September, 1967. His continued dissertation research and graduate study, the combustion of several thermoplastic polymers in various oxygen atmospheres, is under the direction of Professor Robert H. Essenhigh.

In October, 1969, he joined the faculty of the Naval Postgraduate School, Monterey, California, where he is teaching in the Department of Business Administration and Economics.

He is a member of the Association for Computing Machinery, Phi Lambda Upsilon, Alpha Chi Sigma, and The Combustion Institute.