DEPARTMENT OF THE NAVY STRATEGIC SYSTEMS PROGRAMS OFFICE

A Premier Program Management Institution

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My purpose in writing this article is to discuss some issues raised by "The Metamorphosis of Program Management, Rainbow of Change," by Colonel W. E. Cole, USAF. It appeared in the May-June 1993 *Program Manager*. Also, I explain briefly the functions of the Department of the Navy's first program management office, relative to the so-called new management paradigm of Total Quality Management (TQM).

The Japanese did not devise the new management concept. The concept and its components have been described in Department Of Defense (DOD) directives, instructions, military specifications, standards, documents and pamphlets since the end of World War II.

U.S. Business after World War II

The U.S. business community did not use these managerial tools developed by DOD immediately after the war because there was a vast domestic market ready to consume whatever it manufactured. Furthermore, the economic environment of the country was characterized by a need for capital formation dictated by the financial market (Wall Street), with stockholders' lust for instant reward.

These conditions led companies to employ chief executive officers (CEOs) who could bring the most end-of-the-year profits to the company, since companies' performances were evaluated by the bottom line of their quarterly and annual financial reports. Long-range planning was uncommon since most of these CEOs were concerned only with short-range results. The concept of efficient and effective use of resources was not a consideration as long as profits kept coming in.

U.S. Air Force Adoption Of the New Management Concept

Contrary to Colonel Cole's statement that the Air Force Materiel Command is developing a twin to this new management approach, which is named the Integrated Product Development (IPD), the concept had already been published in the form of MILSTD-499 (USAF) 17 July 1969 (Engineering Management). This Standard had all the building blocks or the ingredients of the so-called TQM.

In their textbook, *Managing (A Contemporary Introduction)*, Joseph L. Massie and John Douglas pointed out that a manager must constantly develop the vision and the wisdom for

Trident II (D5).

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putting the building blocks of management into a meaningful whole. They identified these building blocks to be:

1. Theory and Practice
2. Operations and Activities
3. Types of Knowledge
4. Functions and Processes
5. Skills and Interests.

Since most DOD program managers were specialists rather than generalists, they were not able to utilize full potentials of MILSTD-499, or to use them effectively.

Formation of First Program Office

On January 7, 1957, an organization then called the Special Project Office (SPO) within the Department of the Navy was established to manage the underwater launching of ballistic missiles. The functional subsystems of the new weapon system were established to delineate clearly interfaces that also defined the SPO organizational structure and which remain to this day. Figure 1, reproduced from the *History of the FBM System* by Lockheed Missile and Space Company Inc., shows the SPO structure.

The current name of the organization is the Strategic Systems Programs (SSP) command. When program management became popular in the early 1970s, the Navy designated this agency as Program Management Office No. 1 (PM-1).

Subsequently, the Navy performed a study on occupational information, resulting in a guide entitled *Project Management Positions in the Department of the Navy*, October 1981. It was modeled after the SSP organizational structure.

A brief discussion of the SSP functions, relative to issues raised by Colonel Cole, follows:

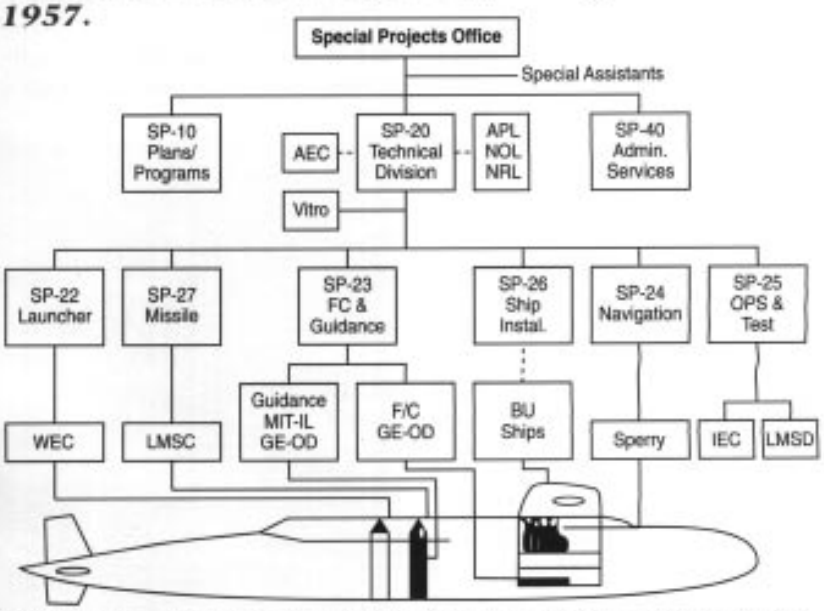
1. *Product and Process-oriented Organization/Integrated Product Development*. As seen in Figure 1, SSP's formation had this purpose in mind.

2. *Teams*. Each functional branch of SSP (for example SP-27 the Missile Branch) comprised a team of engineers, program analysts, logisticians, budget analysts and uniformed Navy personnel experienced in operations of the Fleet Ballistic Missile (FBM) submarines. The original team of the organization was credited with development of the Program Evaluation and Review Technique (PERT) which is used widely in program management.

This tool was modified by the National Aeronautical and Space Administration (NASA) and called NASPERT. It was used in the system acquisition and management of the space program in its early years.

3. *Customer Needs*. Throughout development of the FBM system,

FIGURE 1. Special Projects Office Organization — 1957.



(NOTE: MIT-IL = Instrumentation Laboratory of MIT; now called the Draper Laboratory.)

operational Navy personnel (ultimate users of the system) have been active participants.

They were and are consulted at every stage of program development and in the design and placing of equipment in both the submarines and at the training facilities.

4. *Empowerment/Pride in Ownership*. Principal engineers and their teams are responsible for developing budgets in response to program directives and requirements. The team initially presents the budget to the branch management for internal review and corrections.

The same team then presents the budget to the command's Board Of Directors (BODs), and answers BOD questions. Upon budget approval, the team with the help of the branch budget analysts initiates Procurement Request (PR) for the acquisition of its subsystem. Then, the team works with contracting and legal personnel to compose the Request For Proposal. The team evaluates the technical portion of the proposal, performs fact-finding with the winning contractor, and participates in contract negotiations.

After contract award, the team starts monitoring the contract for conformance to cost, schedule and performance (CSP) requirements, with the help of command plant technical representatives and Defense Logistic Agency personnel.

The pride of program ownership is enhanced by encouraging every SSP staff member to visit the FBM training facilities or observe missile firing at Cape Canaveral, Fla., or participate in submarine demonstration and shakedown operations (DASO), or visit a submarine in port.

5. *In-process Quality Control/Statistical Quality Control*. Quality control is performed at every stage of each subsystem development cycle. There are weapons specifications to be met for each critical item and for each subsystem. Statistical quality control is used, where necessary, to satisfy tolerance requirements during manufacture of components.

6. *Continued Process/Product Improvement*. In Figure 1 of the SSP organization, you can see the major team has two notable university units as members: the Draper Laboratory of the Massachusetts Institute of Technology and the Applied Physics Laboratory of the Johns Hopkins University.

These laboratories, the Atomic Energy Commission (now part of the Department of Energy) and Navy laboratories work together to improve continuously the FBM system with state-of-the-art technology. The training facility and the fleet personnel provide suggestions for system improvement. These personnel generate trouble and failure reports (TFRs) for hardware, software and documentation for the purpose of system improvement. These improvements have helped develop the weapons system from the original POLARIS through POSEIDON to the present TRIDENT II system.

7. *Collocation*. The staff of SSP is centrally located, which facilitates face-to-face communication and instantaneous exchange of ideas among lawyers, engineers, financial resource analysts, program analysts and contracting personnel. This collocation provides a cohesive and tolerant team atmosphere.

Conclusion

From the above discussions, it can be concluded that TQM and its other names were not of Japanese origin, but have been in existence since 1957. They have been part of the operating procedures of the Department of the Navy Strategic Systems Programs command.

National and military security has shielded this command from the business world.

Now that the Cold War is ended, the Defense Systems Management College should consider using this command as a program management model and encourage DOD components to use this command as an internship institution for prospective program managers.

References

1. Massie, Joseph L. and Douglas, John, *Managing (A Contemporary Introduction)*, 4th Edition, Prentice-Hall Inc., Englewood Cliff, N.J., 1985.

2. Lockheed Missile and Space Company, Inc., *History of the FBM System*, 1989.

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