CALIBRE
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Using a Systems Thinking Approach to Examine Personnel Issues

"U.S. Coast Guard Enlisted Workforce Model"

The Coast Guard enlisted workforce has been shaped by two contrasting personnel management strategies in the past 10 years. The first was a reduction in the overall number of jobs which occurred in the mid-1990s. This was followed by a sharp increase in recruitment to fill enlistment shortages caused by new National Security requirements taken on by the Coast Guard after September 11, 2001. These two contrasting personnel management strategies significantly impacted the personnel system and were the root cause for what the Coast Guard refers to as "**turbulence"**, defined as the undesirable rate of movement through the personnel system.

An especially frustrating aspect of the turbulence problem facing personnel managers was that they were often forced to fill jobs with whatever personnel resources were immediately available. Younger, less experienced employees were promoted to fill vacant positions at the higher levels, which resulted in extra, unplanned moving costs and an overall less experienced Coast Guard.

Military organizations such as the Coast Guard contain some unique characteristics that differentiate them from companies in the private sector. In the military system there are more frequent promotions and more geographical moves resulting in a continuous cycle of filling vacancies. Unlike a company in the private sector, the military operates in a closed personnel system meaning they cannot hire someone "off the street" with 7 years of experience in repairing steam power plants to fill these vacancies. The job experience for military organizations must be grown from within. This presents a special challenge for Coast Guard decision makers. Those differences aside, the Coast Guard enlisted personnel system does posses the same basic organizational structure of private corporations and the federal government.

A Systems Thinking methodology was chosen as the basis for the conceptual framework of this problem. The Systems Thinking methodology supported the simulation of complex processes and the inter-relationships among the sub-processes and in the end produced a desktop tool that realistically approximated the steady-state effects of personnel flow and personnel turbulence. The methodology was broken up into four main phases:

- Phase 1: Identifying key personnel
- Phase 2: Functional Area Briefs
- Phase 3: Model Development
- Phase 4: Validation and Acceptance

In Phase 1, Subject Matter Experts (SME) from the areas of assignment, advancement, training, budget, and others were invited to the group facilitation sessions. The personnel selected consisted of managers and non-managers who possessed in-depth knowledge of processes within their functional areas. SMEs were educated on the differences between the systems view of problem solving and the more traditional, linear cause & effect views of problem solving. By requiring all the different functional areas to express how their functional areas operated using the common language of stocks and flows, each individual functional area was treated equally, removing the necessity to use specialized functional area language which may not be easily understood by the entire group.

Once educated on the methodology of Systems Thinking, the SME's from each of the functional areas briefed each other on how their own areas operated, with emphasis on their specific interaction with the personnel system. Using stocks and flows, the entire group was able to better understand Coast Guard personnel processes of functional areas other than their own and how the different processes affected each other. The functional area briefs cleared up many existing misconceptions, in part because all functional areas were "speaking the same language" of stocks and flows.

After each functional area was briefed to the group, the process of capturing the personnel system using Systems Thinking notation began. These basic models of the structure of the enlisted personnel system were created in real time, using the input and discussion of the SME's. CALIBRE spent time translating the discussion into actual *iThink*® models and towards the end of the SME meetings the iThink® models served as the main discussion piece. The basic models that were created in the facilitated group session were later expanded and integrated into a larger model, focusing on the interactions between each stand-alone model. Additionally, Coast Guard data was gathered and used in this larger model to help validate model accuracy.

The final phase of the methodology was an iterative process of playback and steering from the working group. The model was updated to reflect changes and recommendations from this group and then played back to validate the changes. Eventually, everyone was confident that the enlisted personnel system was accurately modeled.

There were many positive outcomes of this effort that appeared as early as the group facilitation session. The process of creating small strawman models created a greater level of understanding before the complete model was even built. Seeing the structure of the personnel flow, assignment managers were able to clearly see the natural delays in the advancement and training processes.

Prior to this effort, Coast Guard managers made decisions in an "organizational vacuum" where they did not and could not understand the impacts of their decisions on other areas of the Coast Guard or at best only superficially. Because these organizational decision making barriers existed, personnel decisions often resulted in adverse effects on the entire system. For example, it was policy that after each promotion an employee would be moved to another duty location to fill a position that required a more experienced person. When an employee was moved to fill a vacancy, a second employee had to be moved to replace the position vacated by the first employee. That continual replacement cycle caused many more moves than the Coast Guard desired and had a negative effect on unit continuity. The Coast Guard also observed employees turning down the opportunity to take advancement exams, a prerequisite for advancement, so that they would not have to move. Soon after the facilitated sessions, Coast Guard policy makers changed the "move after promotion" policy resulting in less personnel movement, more job satisfaction and lower costs. The Coast Guard did, however, make a strategic decision to keep the "move after promotion" policy for the advancement from middle management positions to upper level management. The Coast Guard felt this was an important part of retaining and reinforcing the chain of command, which is critical in a military organization. This informed decision was made by the Coast Guard with a systemic understanding of what consequences this would have on the entire system including the areas of personnel, training and budget.

Using a Systems Thinking Methodology to address complex personnel issues was valuable because it produced an understanding within the Coast Guard that in complex systems there are "ebbs and flows." Complex policy decisions that are made today may, in the short-term, produce negative effects on the system. Managers began to understand that the personnel issues were systems level problems which

could be anticipated and if allowed would correct themselves in time. This mental preparation for expected short-term negative conditions made it possible to make insightful decisions to prepare for these conditions instead of being at the complete mercy of the system.

The systems view of the personnel system helped the Coast Guard avoid making sudden, reactionary decisions after September 11, 2001. Using their systems view, the Coast Guard was able to show that one proposed aggressive growth strategy would hurt current mission effectiveness and compromise efforts to meet the new mission requirements. The ability to communicate these views to both the senior leaders within the organization and to Congressional leaders outside the organization was extremely valuable. Instead of implementing this growth policy and then observing these negative results when it was too late to avoid them, Coast Guard planners were able to modify their growth plans and spread the growth over more years, achieving their end goal without sacrificing current mission effectiveness.

The Coast Guard now possesses a Systems Thinking-based model in the Workforce Turbulence Strategy Simulator. This tool is invaluable to the Coast Guard for understanding the implications of decisions as they affect their entire personnel system. The simulator is not used for point predictions. It is a tool that accurately models the interactions among all the functional areas that affect the personnel system. The Systems Thinking view led to a much greater understanding of how the system actually operates. The Coast Guard is now aware of the delays and constraints that are inherent to their system. Rather than looking at possible problems in the individual areas of attrition and training, they are now able to view system problems, enabling decisions to be made for the long-term benefit of the organization.

The Systems Thinking methods used for this Coast Guard effort produced many positive lessons learned, most all of which have application in other areas of management. Bringing together the different functional areas and expressing ideas and processes in the stock and flow language presented an arena where mental models could be challenged and adjusted. A door was opened to communication between these functional areas that did not previously exist.

Similar methods are being used successfully by CALIBRE in the areas of strategic planning, IT system integration, logistics planning and operational planning to achieve organizational goals.