

Transforming an Organization by Using a New Project Management Approach

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Abstract

The US Army Medical Command (MEDCOM) annually manages 250 projects, with a scope of \$300M, at 26 different sites. Due to current events and initiatives, MEDCOM is anticipating an increase in construction requirements. As a result, MEDCOM is seeking for a more efficient project management model that can optimize each project manager's function as well as the organization. The hypothesis is that the entire organization is merely a summation of the project managers, and that the organization's bureaucracy problem is a magnification of the internal problems of a project manager. The new project management model must overcome the constraints of the lack of perceived information and expertise and bureaucracy of the environment. This paper proposes a model which is a combination of different processes and concepts which have been tested out in the delivery of construction for the past 13 years.

Keywords

Leadership, Project Management, Performance

1. Introduction

The United States Army Medical Command (MEDCOM) is currently responsible for the construction, maintenance, and repair/renewal of over 26 medical facilities in the United States, servicing over 5 million soldiers (active, retired, and their relatives) and civilian employees (U.S. Army Medical Department, 2008).

MEDCOM's repair/renewal effort is estimated at approximately \$250 million. The direct project management of the effort includes:

1. The Core of Engineers (COE) – Takes care of the procurement of projects
2. Quality Assurance Personnel (QA) – Makes sure vendors performs all the contracted work. (Reports to the COE)
3. Facility Manager and Staff – Site personnel that take care of the facility and help the contractor.

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4. Project Integrator – MEDCOM hired staff to help coordinate and solve project problems

In 2004, the U.S. Army Medical Command (Medcom) began partnering with the Performance Based Research Studies Group (PBSRG), out of Arizona State University, to create a new project management structure that would:

1. Minimize overhead and transaction costs on their repair and renewal projects.
2. Minimize problems and increase performance on projects (cost increases, delays, quality issues, and client satisfaction problems)
3. Educate and train both vendors and project management individuals to effectively identify and minimize risk
4. Create an environment of accountability throughout the MEDCOM project management system.

2. Problem

The motivation to change the current project management structure has come due to the following factors:

1. The federal government has issued a mandate requiring MEDCOM to increase its performance and become more efficient.
2. There has been a tremendous increase in patients, due to the Iraq war and aging population, accelerating the need to build additional facilities (construction requirement estimated at \$2.5 billion dollars).
3. The amount of additional funding MEDCOM will be able to receive to account for the additional work that is required will be limited by the U.S. economy.
4. The performance of the construction industry and MEDCOM has been very poor.

MEDCOM perceived that the traditional project management structure of control, direction, and decision making, must be changed due to the following reasons:

1. The extensive requirement for resources (money, time, and trained personnel), because it relies on the owner's management to identify and solve problems that arise.
2. The difficulty in finding project managers that can perform.
3. The inability to measure the current level of performance under the traditional method.

3. PBSRG PIPS Leadership Structure

MEDCOM was attracted to the project management leadership based structure of the best value Performance Information Procurement System (PIPS). The results from 500 tests, \$1 billion of work, and over 42 different partnerships, showed that 98 percent of projects were completed on-time, on-budget, with high customer satisfaction. In addition, PIPS also minimized project management by up to 90%.

PIPS is a structure embedded with leadership processes, such as: the transfer of risk and control, pre-planning activities, identification and minimization of risk that

the contractor does not control, and dominant measurements. The structure forces participants on a project to take accountability for their responsibilities by (Kashiwagi, 2008):

1. Consolidating the responsibility of a project solely to the vendor, instead of dividing it between all the players (project manager, site personnel, etc.). This can be done because the structure forces the vendor to identify and minimize the risk that vendor does not control that could impact the project, as well as documents all unforeseen problems that occur and how they should be minimized.
2. Quantifying and updating simple performance measurements directly related to the cost, schedule, and quality of the project weekly.
3. Encouraging the client's professional to rely on the expertise of the vendors to make decisions and solve problems.
4. Requiring vendors to show dominant information to minimize client decision making.
5. Having the vendor record all documentation and allowing the client's representative to check the documentation for accuracy.
6. Selecting the best value vendor and transferring risk and control to the vendor.

The PIPS leadership structure allows a project manager to rely on the proven process instead of their limited experience. It also holds the vendor accountable for the performance of the project through simple measurements. This allows the vendor to self-regulate themselves, decreasing the amount of time the project manager must spend managing a project. By holding the vendor responsible for managing the minimization of risk, the structure then gives tools to the vendor to hold everyone in the process accountable. This forces the entire project team to be more efficient and productive.

3.1 MEDCOM Potential Solution

Since PIPS had only been used on individual projects before, the question arose, "If PIPS was implemented into an organization could it restructure the entire organization to become more efficient." The assumption being that an organization is similar to a very large and complex project.

4. Hypothesis and Methodology

The hypothesis of this paper is that a PM leadership based structure/process can be overlaid on an entire organization, and will have the same impact as on a singular PM.

The hypothesis will be tested by applying the PIPS structure to the MEDCOM project management process.

The validation of the hypothesis will be determined by measurements in terms of:

1. Transaction and overhead cost as a percentage of the work requirement.
2. The performance of the vendors.
3. The percentage of problems in the organization that are identified and fixed.

- MEDCOM's staff ability to handle the increased work requirement.

6. Current Progress

Due to initial internal resistance from the MEDCOM contracting/procurement group, the PIPS leadership process was implemented by the vendors. The vendors generated the performance information that created the environment of accountability and risk minimization of the process. This was the first time, that the process was implemented independently of the procurement system.

The following results and observations have been realized:

- The system has been able to identify the source of problems. Figure 1 shows the general sources of delays and increases to cost, taken from the weekly reports on each project.
- From the measurement system, MEDCOM has been able to hold the components of the system accountable. Figure 2 shows the performance of all the vendors, Figure 4 shows the performance of the project managers, Figure 3 shows the response time to problems of the contracting office.
- The commanding officer is able to identify and deal with problems faster due to the PIPS structure identifying the projects with the most problems. Figure 5 shows the top ten riskiest projects out of the 200 being tracked.
- There is less confusion and more accountability due to the focus on passing only dominant information.

Entity	Days	%	Entity	\$\$	%
Contractor	438	5%	Contractor	\$ 1,051,992	4%
FM	4271	44%	FM	\$ 4,425,692	16%
COE	3742	39%	COE	\$ 21,149,101	77%
Unforeseen	1240	13%	Unforeseen	\$ 939,076	3%
Totals	9691		Totals	\$ 27,565,861	

Fig 1: Source of increase to cost and duration

No.	Contracting Office	Number of Projects	Average Top Ten Rank	Average Weeks on Top Ten List	Average Risk #
1	MST 1	19	6.1	3.7	11.5
2	MST 2	10	5.1	4.1	20.5
3	MST 3	3	9.3	3	9.4
TOTAL AVERAGE:				3.6	13.8

Fig 2: Response time of the Contracting Office

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CONTRACTOR OVERVIEW	Contractor 7	Contractor 1	Contractor 5	Contractor 3	Contractor 2	Contractor 4	Contractor 6
Total Awarded Budget	\$3,257,879.00	\$54,019,965.54	\$34,401,555.78	\$98,584,049.44	\$69,072,104.60	\$83,122,319.68	\$12,171,327.22
Current Cost	\$3,579,656.00	\$54,130,247.38	\$52,606,310.97	\$99,209,330.44	\$73,593,985.15	\$83,601,036.37	\$15,553,111.44
OVERVIEW OF PROJECTS							
Total Number of Projects	4	50	8	32	26	39	15
% Projects On Time	0%	62%	25%	53%	50%	51%	33%
# of Jobs Delayed	4	19	6	15	13	19	10
% Projects On Budget	0%	94%	38%	69%	42%	79%	67%
# of Jobs Over Awarded Budget	4	3	5	10	15	8	5
AVERAGE PROJECT							
# of Risks per Job	4.00	0.44	3.00	1.47	1.77	0.87	1.27
Owner Generated Risks	3.00	0.44	2.88	1.25	1	1	1
Number of overdue risks	0.50	0.14	0.63	0.47	0.38	0.28	1.87
% Over Awarded Budget	9.88%	0.20%	52.92%	0.63%	6.55%	0.58%	27.78%
% over budget due to owner	4.10%	0.20%	52.92%	0.62%	2.52%	0.41%	27.15%
# of Days Delayed	293.25	26.34	180.75	70.50	95.27	162.69	26.53
# of days delayed due to owner	199.00	29.38	178.88	67.28	45.27	161.72	16.53
Owner Rating	9.05	8.63	8.62	8.78	8.97	9.33	9.94
Risk Number	4.52	4.48	4.06	3.53	3.25	2.39	1.76

Fig 3: Contractor Performance Comparison

PROJECT INTEGRATOR OVERVIEW	PI 2	PI 3	PI 6	PI 7	PI 8	PI 11
Total Awarded Budget	\$51,243,819	\$20,378,747	\$21,290,144	\$38,954,143	\$22,749,368.00	\$6,873,187
Current Cost	\$52,327,469	\$22,867,777	\$21,990,443	\$39,350,920	\$22,901,589.00	\$16,779,456
OVERVIEW OF PROJECTS						
Total Number of Projects	28	8	15	18	5	1
% Projects Completed On Time	46%	25%	47%	44%	40%	0%
# of Jobs Delayed	15	6	8	10	3	1
% Projects Completed On Budget	75%	25%	60%	72%	60%	0%
# of Jobs Over Awarded Budget	7	6	6	5	2	1
AVERAGE PROJECT						
# of Change Orders per Job	1.04	1.38	1.13	1.56	2.00	11.00
Owner Generated Risks	0.86	0.75	1.00	1.33	1.80	11.00
Number of overdue risks	1.00	0.75	0.27	0.28	0.20	0.00
% Over Awarded Budget	2.11%	12.21%	3.29%	1.02%	0.67%	144.13%
% over budget due to owner	1.69%	2.17%	3.29%	0.54%	0.07%	144.13%
# of Days Delayed	59.75	122.25	159.20	185.56	121.60	721.00
# of days delayed due to owner	47.18	92.38	150.33	164.61	121.60	721.00
Owner Rating	8.24	8.09	9.54	9.51	7.09	10.00
Risk Number	5.83	5.17	2.21	2.48	4.49	7.28

Fig 4: Project Manager Performance Comparison

TOP 10 RISK RANKING PROJECTS				
No.	Project	Location	Risk #	Contractor
1	Project 1	Location 1	18.59	Contractor 2
2	Project 2	Location 2	11.87	Contractor 4
3	Project 3	Location 3	11.69	Contractor 3
4	Project 4	Location 4	11.68	Contractor 4
5	Project 5	Location 5	10.84	Contractor 7
6	Project 6	Location 6	10.00	Contractor 5
7	Project 7	Location 7	9.49	Contractor 5
8	Project 8	Location 8	9.00	Contractor 5
9	Project 9	Location 9	8.57	Contractor 5
10	Project 10	Location 10	7.96	Contractor 1

Fig 5: Top Ten Riskiest Project List

7. Conclusion

Although the PIPS leadership structure has not yet been fully incorporated into the contracting/procurement group (the selection of the best value using performance information), the dominant performance measurements of the process has encouraged all the contractors to:

1. Identify and minimize the risk that they do not control.
2. Document the risk on the projects, and follow up on the risks on the project that the contractors do not control.
3. Minimize contractor generated cost change orders.
4. Ensure that the US Army Medical Command personnel are coordinated with and understand when they are bringing risk to the project.
5. Identify the causes of nonperformance.

The US Army Medical Command has found out that bureaucracy has caused many of their issues. They are continuing to transform themselves from the traditional model of managing, controlling, and directing to a PM model that transfers both risk and control to the contractors.

8. Reference

- Kashiwagi, Dean T., (2008). *Best Value*. Tempe, AZ: Performance Based Studies Research Group (PBSRG).
- U.S. Army Medical Department(2008). Introduction to the U.S. Army Medical Department. Retrieved March 6, 2008, from Army Medical Department Web site: <http://www.armymedicine.army.mil/about/introduction.html#structure>