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"Houston, we have a problem!"

The Use of KT Processes in Effective Project Management

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"Houston, we have a problem". Although this phrase is ubiquitous, few understand its origination. In the 1950's, while working for the famous think tank, the Rand Corporation, social scientists Charles Kepner and Benjamin Tregoe started the development of their 'rational processes'. These four processes have been used to define and have been subsequently refined to support the decision making power of today's managers. A key function of the KT rational processes is that they facilitate the removal of emotion in management decisions. So, the famous Apollo 13 saying is actually a Kepner-Tregoe (KT) Situation Appraisal statement.

Why would a project manager need rational processes? "For example, although the United States spent over $250 billion each year on IT application development projects, 31 percent of these projects were cancelled before completion. Almost 53 percent were completed, but they were over budget and over schedule and did not meet the original specifications" (Marchewka, 2006, p. 5). Staggering figures such as these indicate that we, as IT project managers, need rational process to analyze all phases of projects, as well as potential problems in the projects and programs we manage.

One of the strengths of the Project Management Body of Knowledge (PMBOK) is the fact that it tends to be methodology and discipline neutral. However, it does not specify particular techniques for how to reach decisions and process information. "General Management provides the foundation for building project management skills and is often essential for the project manager" (Project Management Institute, 2004, p.15). KT is a mechanism that can fill the gap between where the PMBOK begins and where the 'rubber meets the road'.

The four KT rational processes are Situation Appraisal, Decision Analysis, Problem Analysis, and Potential Problem Analysis.

"Situation Appraisal is used to separate, clarify and prioritize concerns. When confusion is mounting, the correct approach is unclear, or priorities overwhelm plans, Situation Appraisal is the tool of choice" (Kepner -Tregoe, Inc., 2006, Ref. 4).

"Decision Analysis is used for making a choice. When the path ahead is not clear, when there are too many choices, or the risk of making the wrong choice great, Decision Analysis clarifies the purpose and balances risks and benefits to arrive at a solid and supported choice" (Kepner -Tregoe, Inc., 2006, Ref. 1).

"Problem Analysis complements and enhances use of statistical quality tools and data. It is used by organization's worldwide in their path towards Lean and Six Sigma and helps to maintain customer and supplier relationships by clarifying where problems and solutions lie" (Kepner -Tregoe, Inc., 2006, Ref. 3).

"Potential Problem/Opportunity Analysis is used to protect and leverage actions or plans. When a project simply must go well, risk is high, or myriad things could go wrong, Potential Problem Analysis reveals the driving factors and identifies ways to lower risk. When one action is taken, new opportunities arise that can help you benefit from that action" (Kepner -Tregoe, Inc., 2006, Ref. 2).

The first rational process I will address is Situation Appraisal. I believe that KT Situation Appraisal is usable in all phases and processes of the project lifecycle. However, one area that appears a very appropriate fit for this method is the controlling process. Marchewka states that, "The controlling process group allows for managing and measuring the progress towards the project's MOV and the scope, schedule,

budget, and quality objectives" (2006, p. 67). In addition, Graham and Longman indirectly identify the need for Situation Appraisal. "Perhaps the greatest shortfall of these classic measures of time, cost, and performance is they are lagging indicators. You only become aware that you are underperforming after you have fallen behind schedule, gone over budget, or seen quality slip" (2006, September, p. 76).

Situation Appraisal is a proactive process the project manager can use to avoid these issues, as well as integrate into their control process. The process operates as follows:

►List current deviations, threats and opportunities.

►Review progress against goals.

►Look ahead for surprises (within the organization and in the external environment).

►Search for Improvement" (Kepner & Tregoe, 1997, p. 171).

The next premise of rational processes is Decision Analysis. The project manager is constantly faced with decision making in every phase of a project lifecycle. Former Kepner-Tregoe CEO Quinn Spitzer, states "If your people can't make decisions, if your people can't effectively analyze complex situations, it's unlikely they will effectively be able to do any of the other things that we've come to regard as management science" (as cited in Miller, 1997, p.4).

The decisions a project management professional faces are found at all points in a project or program, whether it is in the pre-project planning such as the scope, or midstream in the deployment. However, I believe that Decision Analysis is the key to providing closure to the planning phase of a project. Solid, logical decisions must be made, since the project manager will need the support of senior management, as well

as the project sponsor in order to attain the predetermined goals of the project. “A project manager may develop a project plan, but senior management or the client may not approve the scope, budget, or schedule” (Marchewka, 2006, p. 66).

The KT process of Decision Analysis follows these steps:

►State the decision.

►Develop objectives.

►Classify objectives into MUSTs and WANTs.

►Weigh the WANTs.

►Generate alternatives.

►Screen Alternatives through the MUSTs.

►Compare alternatives against the WANTs” (Kepner & Tregoe, 1997, p. 85).

According to Michael Rigg, problem solving and troubleshooting are integral to good project control. The application of a problem-solving methodology is essential. Therefore, Problem Analysis is a core component to the KT processes. “Good project control can help achieve this goal by ensuring excellence in project implementation. Nevertheless, overall project excellence comes from superior problem identification and effective selection of a low-cost, high benefit solution” (Rigg, 1991, June, p. 2).

The KT Problem Analysis breakdown is as follows:

►State the problem.

►Specify the problem.

►Develop possible causes from knowledge and experience or distinctions and changes.

►Test possible causes against the specification.

►Determine the most probable cause.

►Verify assumptions, observe, experiment, or try a fix and monitor" (Kepner & Tregoe, 1997, p. 26).

The final rational process is Potential Problem or Opportunity Analysis. The major focus of this process is to discover any latent problems or hidden opportunity sources before they appear. The project manager is then able to seek intervention to avoid the problems and work towards opportunities for maximization. I believe that intervention is always more effective than remedial action.

While conducting my research, I located a paper entitled, *85 Percent of High-Stakes Business Initiatives Fail When Executives Avoid Discussing Five Crucial Issues*. I found this paper fascinating, as it was the result of a survey across 1,000 executives and project managers (Business Wire, Inc., 2006, October 10).

After reading this paper, I concluded that today's executives and project managers would yield high benefits by taking a step back and analyzing what could potentially happen in a project. By looking ahead at the potential issues or opportunities, the project management professional would be able to utilize this type of analysis to anticipate possible deviations. It would also allow them to effectively manage the initial project charter, as well as scope developments. This would increase the likelihood for a more successful project outcome.

Both the PMBOK and Marchewka cite the importance of project planning. "Since projects are undertaken to create value that generally has not been done before, the planning process is of critical importance" (Marchewka, 2006, p. 66). However, as stated earlier, due to the PMBOK's somewhat generic nature, it does not directly

support the achievement of these objectives. The KT Potential Problem or Opportunity Analysis would make an excellent precursor to the scope and charter of the project by integrating it into the planning process of the project.

Here are the main directives of the KT Potential Problem or Opportunity Analysis:

►State the action – the basic goal or end result of the plan or action to be implemented.

►List the potential problems (or opportunities) – future undesirable (or desirable) deviations to be addressed one at a time.

►Consider causes for the potential problem (or opportunity) – factors that could create or bring about the anticipated deviation.

►Take actions to address likely causes – ways to prevent the likely causes from creating the problem or ways to encourage the likely causes to create the opportunity.

►Prepare actions to reduce (or enhance) likely effects – ways to minimize the Impact of the problem, should it occur, or ways to maximize the impact of the opportunity if it should present itself.

►Set triggers for contingent (or capitalizing) actions – systems that indicates that a potential problem or opportunity has occurred" (Kepner & Tregoe, 1997, p. 142-143).

The KT method is also useful in satisfying ethical and professional responsibilities, another area of integral importance to the project management professional. In the course of their duties, project managers must often cope with suboptimal situations. These types of unfortunate circumstances can frequently be contrary to the code of ethics all PMI certified project managers must agree to adhere to. Possessing a structured mechanism for the analysis of what to do and when to do it is a crucial component in these situations.

In Mulcahy's book, she cites the essential need to "follow the right process" (2002, p. 299) and to "do the right thing" (2002, p. 297). I believe this is vital to the

professional responsibility of the project manager. The PMP code of ethics states, “We make decisions and take actions based on the best interest of society, public safety and the environment” (PMI, n.d., section 2.2.1).

I believe that without having a structured analysis methodology such as KT, the project management professional does not have the critical tools they need to live up to their professional and ethical responsibilities. The KT method allows the project management professional to make logical and ethical determinations at all stages of the project. This benefits the project, project manager, stake holders, as well as deployment teams.

Many organizations have installed KT Process as part of their general organization or Project/Program Management Office (PMO). During the course of my research, I discovered that it is also implemented in a broad range of organizations, and in a variety of different ways. This includes integration with other PM methodologies, such as Sigma Six. As part of my research, I reviewed a case study done by the Kepner-Tregoe organization. The case study discussed how KT rational processes were integrated into a manufacturer’s existing process around Sigma Six for new product development. This allowed the manufacturer to “streamline the process and make it adaptable to changes in technology, competition, priorities and performance” (Kepner-Tregoe, 2005, November, para. 4).

Prior to developing this paper, I was already aware of the installment of KT at my employer, Cisco Systems. Through my training at Cisco, I learned of its use NASA as well. My research indicates that it is also utilized at many other large organizations, such as Sun Microsystems, Mercedes-Benz, Corning, and Lockheed Martin, to name a few.

In today’s world many projects fail, come in over budget, don’t meet initial design specifications, or are cancelled due to shortcomings in project management protocols.

The PMI Institute provides excellent guidelines, in the form of the PMBOK, for managing projects in the most effective and efficient manner. However, the PMBOK alone is not enough. I believe that the KT rational processes are an ideal companion to the PMBOK for project and program management.

Although the KT Processes have been in existence for a half a century, their logical and rational thinking is integral for what today's project management professional needs to be successful in all phases and components of the project lifecycle. In conclusion, I believe that coupling KT with the PMBOK can provide the project management professional a logical and organized protocol to most effectively conduct their activities.

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