Monitoring and Controlling Process Group Artifacts

8.3 Control Quality

8.3.2 Seven Basic Quality Tools (Tools and Techniques)

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8.3.2 Seven Basic Quality Tools (Tools and Techniques): Also known as 7QC Tools, are used by project teams to solve quality related problems. These are different tables, graphs and diagrams that can show relationships of mishaps or a lack of standards and procedures to help project managers highlight issues and resolve quickly. The artifact was a homework assignment taken from PMGT 614 that summarized all seven quality tools. These are very effective tools for Controlling Quality.

7QC Tools

Cause-and-effect diagram

This diagram also known as a *fishbone diagram*, identifies as many cause and effect problems and sorts ideas into useful categories. To use this tool, project managers need to first identify the problem that is being addressed. Next, all of the major causes of the problem on the spine of the fish. Causes are typeically separated into people, process, materials and equipment (Sokovic, 2009).

This diagram is very common and is used in my workplace. It identifies the problem, keeping it the focus of discussion with all potential causes. In meetings at my work, typically there are branches off from each of the causes as well and each department will be responsible for addressing and or adding to the diagram.

Flow Chart

Flow charts are used to document the flow of work. This can identify where the bottlenecks or breakdowns in work can occur. This process provide steps and give insight on a process and where the breakdown or weakest link is taking place.

Trouble shooting technical manuals are examples of flow charts. This tool is commonly used in aircraft maintenace trouble shooting. It provides a scenario or problem relating to a paticular system and it walks the technician through a series of yes/no questions to attempt to find where the breakdown is taking place.

Check Sheet

Check sheet is a tool used to collect data. This can be used to see how often something is taking place. Feedback's or questionaire are examples of check sheets. Organizations can get a feel on how often certain things (favorable or unfavorable) are taking place. They can use this tool to make adjustments to meet customer's expecations more efficiently.

In my work enviroment, we get a variety of surveys. This is true espeically when we deploy to a forward operating area. There are a series of questions on whether or not I was exposed to unfavorable enviroments. This could entail poor air quality to our base being attacked by enemy fire. This checks sheet is used to see how many elements I was exposed to so that the medical facility can paint a more accurate picture for possible treatement (if needed).

Pareto Chart

This bar graph represents data showing the largest number of frequencies to the smallest. Project teams can view the number of defects from largest to smallest. This tool is used to prioritize improvement efforts.

My job specifically uses this tool. I have to communicate to supervision inspection fails, how the technicians failed the inspection, and where these occurrences take place. The pareto chart clearly shows where these fails are occurring and they can brief their chain of command to assist on focusing more attention on these problem areas.

Control Charts

These charts demonstrate when data is consistent or when there are high or low outliners in the occurrences of data. The focus is to monitor these points over time and to look closely at the variations. This can assist organizations to determine if causes are common or there are special variation. This tool displays if a process is stable or not.

Project managers can use these charts over the life cycle of their respective projects. Certain variables and risks must be monitored and controlled. There are 'freak' patterns that can take place that have large impact but occur infrequently. The key to identifying freak causes are the timelines and data that is collected.

Histograms

This bar chart is another tool to help recognize variation of a process. It can recognized how often something occurred during specific time frames or under certain conditions. Project teams can use this on how reliable resources are being delivered and if and when they are late.

In aircraft maintenance, supervision needs to know when an aircraft is broke or non-mission capable. They also track to see if certain aircraft are broke for more than 12 hours. If they have certain number of aircraft that are broke for more than 12 hours, they need to start asking why's.

Scatter Diagrams

This graph can show the relationship between variables. The data displays on the graph, shows if there is a positive, negative or no relationship between two variables (Sing, 2012). They can be represented through surveys. How satisfied was the customer when they attended orientating?

The relationship between variables is called a correlation. In some projects, certain correlations may not be recognizable on the surface or intuition. These tools provide insight so teams can correlate and adjust risk management plans.

Conclusion

These tools all have their distinct advantages for specific situations. They can't all be used for problem solving. But they all can be used to highlight and provide insight for project teams to manage and control their projects. These tools along with their outcomes should be included in the lessons learned and or when project teams close out projects. Using these tools, like everything else take practice and experience.

Reference List

Sokovic, M. (2009) "Basic Quality Tools in Continuous Improvement Process. *Journal of Mechanical Engineering*. 55(2009)5. UDC 658.5

Sing M, Khan I, and Sandeep G (2012) "Tools and Techniques for Quality Management in Manufacturing Industries. *National Conference on Trends and Advances in Mechanical Engineering*, YMCA University of Science & Technology, Haryana, 19 Oct 2012.