Module 9 Assessment

Process Improvement with CMMI & ISO 9000

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Problem Statement

Discuss why you think CMMI for Dev or ISO 9000 works to improve processes in most software development organizations. Share an example of where you might think employing one of these processes is not particularly useful for the organization. What are the obstacles?

Assumptions

N/A

Computations

N/A

Discussion/Conclusions

Process improvement, whether utilizing ISO 9000 series standards, CMMI, or any other number of improvement standards and models such as Six Sigma or ACE, help organizations focus on the needs of their customers, promote positive culture change through quality initiatives, and encourage more process driven employees. These standards can also work to reduce the number of company audits, improve marketplace competitive edge, and enhance company marketability. In short, software processes can be greatly improved by utilizing standards such as ISO 9000 and CMMI-DEV

While ISO 9000 and CMMI-DEV are different guidelines controlled by different organizations, the implementation of either is likely to result in a number of positive outcomes for the organization that employs the standard. Some benefits of the implementation of both is an increased emphasis on quality orientation, greater understanding of employee scope and work priorities, and increased competitive edge. Since both of the standards are so comprehensive, they reach all levels of the organization, prompting true organizational change, rather than just checking a box. In most cases, this allows the organization implementing the standard to truly flourish.

For example, some of the activities associated with ISO 9000 certification include the following:

- Full engagement of top management
- Definition of company mission, vision and values
- Definition of company stakeholders, customers, suppliers, etc.
- Alignment of organizational objectives and related quality objectives
- Gap analysis to identify where in the organization existing system ISO 9000 standards are already met, and where they are not
- System implementation, including training of company staff and verification of effective process operation
- Continuous monitoring and improvement of quality management system

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Module 8 Assignment: Metrics

As stated before, this is a comprehensive process that touches many levels of an organization, and can be used to improve processes where applied. For example, defining company stakeholders, customers and suppliers can give a clear picture of where priorities lie, who is affected positively and negatively by potential change, etc. Monitoring of quality management systems can provide useful metrics to demonstrate process improvement using numbers. Maintaining an attitude of continuous improvement allows the organization to continue to stay on the cutting edge and to remain competitive in the marketplace. These are just some of the examples of the ways that ISO 9000 can improve processes in software organization, and an exhaustive list of ways that ISO 9000 can improve processes in software organizations would be very long.

CMMI-DEV has similar associated activities, and also can improve processes in software organizations. Some examples of activities associated with CMMI-DEV include the following:

- Full engagement of all levels of the organization
- Focus on individual programmers and their daily tasks and priority queue
- Collection of metrics to measure process maturity and improvement
- Continuous improvement and optimization of work processes
- Automation of metric collection for repeatability and ease of collection
- Process improvement is measured and compared to other improvement plans to find the best possible process

Clearly there are a lot of similarities as stated previously between the two certifications in terms of process improvement and organizational well-being. CMMI-DEV, specifically, can be used to improve processes in software organizations. Engagement of all levels of the organization is always beneficial to process improvement projects, since lack of alignment at any level threatens to derail the potential improvement. Ensuring that individual programmers don't have to manage their own priority queues can save an organization a whole number of inefficiencies that can come from that type of activity. And metric collection and comparison can ensure that process improvements are worthwhile and effective. Again these are just some of the examples of ways that CMMI-DEV can help an organization, there are many other benefits to practicing CMMI-DEV standards not listed here.

One example of a scenario where ISO 9000 or CMMI-DEV may not be particularly useful for an organization is for much smaller organizations with limited resources. To apply and be awarded a certification in either, there is a significant amount of work involved and the resources may just not be available. Especially in scenarios where software may be controlled by just a few or even a singular person, in absence of a formal software management team, adopting the standards may be infeasible. While the process improvements will eventually save time and effort over the long run, sometimes it can be lower on the priority queue for an organization with extremely limited resources.

Another example scenario where ISO 9000 or CMMI-DEV may not be particularly useful for an organization is in extremely large organizations. Most large organizations tend to have established

formalized processes before the implementation and certification of ISO 9000 or CMMI-DEV. Some companies can take the easy route of documenting status quo processes and have formalized those enough that they meet ISO 9000 or CMMI-DEV requirements already. An organization that chooses this route cheats themselves out of this potential for improvement, and again shows an example of a way that ISO 9000 or CMMI-DEV may not be particularly useful for an organization.

Some obstacles for organizations trying to implement ISO 9000 and CMMI-DEV include the following:

- Managing buy-in from all organizational levels
- Up-front costs for implementation (costs often realized before cost benefits)
- Reluctance for increased organizational bureaucracy
- Employee training

Of course, to realize all the goals from ISO 9000 and CMMI-DEV in terms of the process improvement, organizational improvement, and cost savings, some work needs to be done up front. While the return on investment for organizations adopting standards such as these are generally very high, the investment can still sour some organizations on the idea of making improvements.

Despite the obstacles and challenges of meeting the ISO 9000 or CMMI-DEV standards, the capacity for organizational improvement is clear. Between reducing operating costs, delivering customer value, and streamlining processes the opportunity to improve processes in software organizations is obvious, and the two standards allow organizations a roadmap to realize those great gains.