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CMM and ISO — Comparing What to Do and How to Do It

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Catalyst

A client inquiry

Question

What are the common points between ISO 9000 and SEI's Capability Maturity Model (CMM) and how will this affect decision-making in implementing one process over the other?

Answer

Companies are faced with a myriad of choices for process improvement programs. ISO and Capability Maturity Model (CMM) tend to stand out in IT as programs that encompass both managerial and practitioner requirements. Both are internationally accepted standards and at first glance, reasons for selecting one over isn't radically different, however, the reasons behind selection make the differences more compelling. Both imply quality practices — ISO implementation and certification is required for doing business with certain government agencies and certain countries. CMM carries no official certification but recognition of attaining a particular level through independent assessment brings the understanding that a company has achieved higher levels of quality through repeatable practices.

There aren't direct correlations between ISO and CMM, but both focus on developing and improving processes to build quality products. At the highest level, ISO processes emphasize what to do, while CMM practices target how a process is executed. ISO model is focused more heavily on product development while CMM emphasizes the practices of building, procuring and integrating systems and applications. Both processes emphasize:

1. Quality assurance (QA) practices: ISO requires quality processes, such as documentation and audit, be integrated throughout the life cycle of the project, while CMM addresses QA primarily in software quality assurance. Neither process addresses testing depth.
2. Design: ISO requires documented design practices with client review as a key component; CMM requires peer reviews.
3. Process controls: Both require that all processes be documented with the goal of measurable review, however, each process has specific touch points: CMM emphasizes software configuration management as a way to manage and monitor processes, while ISO cites document management as key process control.
4. Purchasing: ISO's practices are much broader, since purchasing can range from people to supplies. CMM folds its purchasing processes into software sub-contracting.

Understanding where ISO and CMM intersect is important, but what is more important is understanding the gaps in coverage. ISO makes no provision for software configuration management, critical in software engineering, while CMM provides little insight into post-production support, something that is critical when managing to service-level agreements (SLAs).

While maturity and quality of existing practices combined with companies' tolerance for change are strong factors in the ultimate selection of any process improvement, selecting ISO as a standard is primarily a

business decision. Creating repeatable processes that can be audited does not guarantee process improvement; companies needing guidance in creating defined methodologies and measurements will benefit more through developing CMM.