Best Practices in Software Engineering: Does Anybody in Industry or Academia Care?

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In 1991, Motorola became one of the first companies to establish a software center in Bangalore, India. The plan, at the time, was to investigate whether or not it was possible to build an organization from the ground up to develop software using the processes and best practices being promoted by the Software Engineering Institute. Within 2 years, that goal was realized when the Motorola India Electronics, Ltd. (MIEL), became one of the first groups ever to be assessed at SEI CMM Level 5.

Today, MIEL has grown to over 1500 software engineers having achieved CMMI Level 5 SCAMPI in 2003. Motorola’s Global Software Group, in fact, numbers over 4500 software staff with over 90% working in a Level 4 or 5 organization. GSG delivers over 2 million lines of defect-free code per year and has an on-time record of over 95%. How did this happen and why haven’t other firms followed suit?

Based on our experience, we present our views on what works and what doesn’t relative to the adoption of best practices in Software Engineering in both industry and academia. These include:

- Creation of a software engineering culture that transcends leadership changes
- Maintenance of such a culture
- Ability to articulate value of best practices
- Eastern vs Western cultural values
- Relationships between industry and academia
- Education and training
- Emphasis by firms on quarterly results and return on investment
- Status of quality and test engineers
- Discipline in the “fuzzy front end”