

Panel on Software Process Improvement Paradigms

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Improving software process with the objectives of improving software quality, productivity, and deliverability is a major goal of many organisations in the IT industry. Various paradigms for improvement and for process capability modeling are in use or being proposed. These approaches fall into two basic categories: top-down, such as the Software Engineering Institute's Capability Maturity Model (CMM), and bottom-up, such as Prof. Victor Basili's Experience Factory (EF). At the same time, a number of software quality-related national and international standards are being promulgated and some are seeing wide spread use.

These factors raise two issues that must be discussed in the software engineering community. These are the

- relative merits and deficiencies of the various software process improvement paradigms and their relative applicability to various organisational cultures, and
- relevance of the various software quality standards and process standards to actual improvements in quality or productivity.

The panelists will each discuss their experiences with software process improvement models, and, as appropriate, their experiences regarding the benefit of implementation of various quality and improvement standards. Discussion regarding the merit and applicability of top-down vs. bottom-up improvement paradigms will be encouraged. The panelists represent organisations involved in CMM-type improvement, SPICE (Software Process Improvement Capability dEtermination) trials, or EF-type activities. Some are their organisation's software quality assurance officer and will relate their experiences regarding the relevance of standards such as ISO 9000 series and AS 3563 to actual quality improvement.

The panelists represent major IT organisations and the software process R&D community in Australia. They are:

Mr. Peter Dore, Software Quality Association (Canberra)
Ms. Barbara Imbor-maciag, Software Process Manager, Ericssons Australia
Mr. Terry Rout, Software Quality Institute, Griffiths University
Mr. Chan Ping Wah, Head, Software Development Process Technologies, Information Communication Institute of Singapore
Mr. Terry Wardle, Quality Manager, Motorola Software Centre
Dr. Lin Zucconi (Panel Chair), Software Engineering Research Leader, CSIRO/DIT and

Chair ACS Technical Committee on Software Process Improvement (SPIN)

Please note that Ms. Imbor-maciag has given tentative agreement to join the panel and that Mr. Wardle may be substituted by his Director, Mr. Roger Fordham.

References

(by no means a complete compendium on the subject):

V. Basili, and S. Green, "Software Process Evolution at the SEL," *IEEE Software*, V. 11, N. 4, July 1994, pp. 58-66

T. Bollinger, and C. McGowan, "A Critical Look at Software Capability Evaluations," *IEEE Software*, Vol. 8, N. 4, July 1991, pp. 25-41

D. Card, and J. Baumert, "Making the Business Case for Process Improvement," *IEEE Software*, V. 11, N. 4, July 1994, pp. 115-116

N. Fenton, S.L. Pfleeger, and R.L. Glass, "Science and Substance" A Challenge to Software Engineers," *IEEE Software*, V. 11, N. 4, July 1994, pp. 86-95

V. Hasse, R. Messnarz, G. Koch, H.J. Kluger, and P. Decrinis, "Bootstrap: Fine-Tuning Process Assessment," *IEEE Software*, V. 11, N. 4, July 1994, pp. 25-35

W.S. Humphrey, *Managing the Software Process*, Addison-Wesley, Reading, MA (USA), 1989

id., *A Discipline for Software Engineering*, Addison-Wesley, Reading, MA (USA), 1995

M. Paulk, "Capability Maturity Model for Software: Version 1.1," Tech. Report CMU/SEI-877-TR-25, Software Engineering Institute, Pittsburgh (USA), 1993

S. L. Pfleeger, N. Fenton, and S. Page, "Evaluating Software Engineering Standards," *IEEE Computer*, V. 27, N. 9, September 1994, pp. 71-79

M. Thomas, and F. McGarry, "Top-Down vs. Bottom-Up Process Improvement," *IEEE Software*, V. 11, N. 4, July 1994, p. 12-13