

*Software Engineering Process
Bibliography*

Version 1.0

2002

S. Alexandre

N. Habra



**FUNDP Institute of Computer Sciences
Grandgagnage, 21
5000 Namur
Belgium**

Table of contents

1	INTRODUCTION.....	4
2	SOFTWARE ENGINEERING	5
2.1	General Software Engineering.....	5
2.2	Software Problems	5
3	GENERAL MANAGEMENT, PROCESS, AND QUALITY	7
3.1	General Management	7
3.2	TQM	7
4	SOFTWARE PROCESS	9
4.1	General Software Process.....	9
4.2	Software Process Modelling.....	12
4.3	Software Process Assessment and Improvement (SPA & SPI)	13
4.4	Software Capability Evaluation	17
4.5	General and Process Focused Measurement.....	19
5	PROCESS MODELS.....	21
5.1	Main Models	21
5.1.1	CMM	21
5.1.2	CMMI.....	24
5.1.3	ISO9000 series	24
5.1.4	SPICE – ISO/IEC15504	25
5.1.5	TickIT.....	26
5.1.6	Bootstrap	26
5.2	Other Appraisal/Improvement Models and Methods	26
6	SPA & SPI : CASE STUDIES.....	29
7	ORGANIZATIONAL CULTURE.....	32
7.1	People Issues	32
7.2	Organizational Culture and Teams (IC)	33
8	CMM-BASED CLASSIFICATION.....	34
8.1	Maturity Level 2 – Repeatable	34
8.1.1	Requirements Management (RM).....	34

8.1.2	(Software) Project Planning (SPP).....	34
8.1.3	(Software) Project Management (PTO, ISM).....	35
8.1.4	Customer-Supplier Relationship (SSM, Acquisition, Customer Satisfaction)	36
8.1.5	Software Quality Assurance (SQA)	36
8.1.6	Software Configuration Management (SCM)	36
8.2	Maturity Level 3 – Defined	37
8.2.1	Organizational Process (OPF, OPD).....	37
8.2.2	Training (TP).....	37
8.2.3	Risk Management	38
8.2.4	Integrated Product and Process Development (Concurrent Engineering).....	38
8.2.5	Software Engineering (SPE, SQM)	38
8.2.6	Peer Reviews (PR)	39
8.3	Maturity Level 4 – Managed	40
8.3.1	Statistical Process / Quality Control (QPM, SQM).....	40
8.3.2	Product Knowledge Management: Domain Engineering, Product Lines, and Reuse	42
8.4	Maturity Level 5 – Optimizing	42
8.4.1	Defect Prevention (DP)	42
8.4.2	Change Management (TCM, PCM).....	43

1 Introduction

The main purpose of this bibliography consists in making an inventory as complete as possible of published works about the Software Engineering Process in general as defined by K. El Emam in SWEBOK¹. So a maximum of works directly relating to this domain has been taken into account.

Different sources have been used to collect these references. There are essentially six types of sources: books, journals and magazines, conference proceedings, reports, Ph.D. dissertations and existing bibliographies. However as it was not possible to examine all journals, magazines and conferences proceedings only the most important ones have been taken into account.

The adopted structure comes from the bibliography "*A Software Process Bibliography*" developed by Mark C. Paulk at SEI². This structure has been modified to allow the addition of new references. The last part called "*CMM based classification*" come from Mark Paulk's bibliography and is exactly the same from both a structure and content point of view. Thus, we would like to thanks Mark Paulk for accepting the use of his bibliography in our work.

Comments, corrections and suggestions can be sent to :

Simon ALEXANDRE
Naji HABRA

CETIC asbl
Rue Clement Ader, 8
6041 Gosselies
Belgium
Email: simon.alexandre@cetic.be
Email: naji.habra@cetic.be

University of Namur
Computer Sciences Department
Rue Grandgagnage, 21
5000 Namur
Belgium
Email: simon.alexandre@info.fundp.ac.be
Email: naji.habra@info.fundp.ac.be

¹ Guide to the Software Engineering Body of Knowledge. Trial Version. SWEBOK. A Project of the Software Engineering Coordinating Committee, Trial Version, IEEE, 2001.

² <http://www.sei.cmu.edu/activities/cmm/docs/biblio.pdf> Updated October 2002.

2 Software Engineering

2.1 *General Software Engineering*

[BROO95]

Brooks, Jr, F., **The Mythical Man-Month: Essays on Software Engineering Anniversary Edition**, Addison-Wesley, Reading, MA, 1995.

[BROO87]

Brooks, Jr, F., "No Silver Bullet: Essence and Accidents of Software Engineering," in *IEEE Computer*, Vol. 20, No. 4, April 1987, pp. 10-19.

[DMAR95]

DeMarco, T., **Why Does Software Cost So Much?**, Dorset House, New York, NY, 1995.

[FENT94]

Fenton, N., Pfleeger, S., Glass, R., "Science and Substance: A Challenge to Software Engineers," in *IEEE Software*, Vol. 11, No. 4, July 1994, pp. 86-95.

[JONE94]

Jones, C., **Assessment and Control of Software Risks**, PTR Prentice-Hall, Inc., Englewood Cliffs, NJ, 1994.

[PFLE98]

Pfleeger, S.-L., **Software Engineering: Theory and Practice**, Prentice-Hall, 1998.

[PRES00]

Pressman, R., **Software Engineering: A Practitioner's Approach**, McGraw-Hill, 2000.

[SHAW90]

Shaw, M., "Prospects for an Engineering Discipline of Software," in *IEEE Software*, Vol. 7, No.6, November 1990, pp. 15-24.

[SWEB01]

Guide to the Software Engineering Body of Knowledge. Trial Version. SWEBOK. A Project of the Software Engineering Coordinating Committee, Trial Version, IEEE, 2001.

2.2 *Software Problems*

[CHAR95]

Charette, R., "No One Could Have Done Better," in *American Programmer*, July 1995, pp. 21-28.

[JOHN95]

Johnson, J., "Chaos: The Dollar Drain of IT Project Failures," in *Application Development Trends*, January 1995, pp. 41-47.

[KANE97]

Kaner, C., "Legal Issues Related to Software Quality," in *Software Quality*, ASQ Software Division, No. 2, 1997-98, pp. 1-10.

[PAUL89]

Paul, J.H., Simon, G.C., "Bugs in the Program: Problems in Federal Government Computer Software Development and Regulation," Staff Study for the House Committee on Science, Space, and Technology, September 1989.

[REPO87]

"Report of the Defense Science Board Task Force on Military Software," Department of Defense, Office of the Under Secretary of Defense for Acquisition, Washington, D.C., September 1987.

[STRI97]

Strigel, W., "What Bugs the Software Industry ? Results from an Industry Survey," Software Productivity Centre, 1997.

3 General Management, Process, and Quality

3.1 General Management

[CHRI97]

Christensen, C., **The Innovator's Dilemma**, Harvard Business School Press, Cambridge, MA, 1997.

[COLL94]

Collins, J., Porras, B., **Built to Last**, Harper Collins Publishers, New York, NY, 1994.

[COLL01]

Collins, J., **Good to Great**, Harper Collins Publishers, New York, NY, 2001.

[GOLD97]

Goldratt, E., **Critical Chain**, North River Press, Great Barrington, MA, 1997.

[LANG95]

Langley, A., "Between 'Paralysis by Analysis' and 'Extinction by Instinct,'" in *Sloan Management Review*, Vol. 36, No. 3, 1995, pp. 63-76.

[MICK96]

Micklethwait, J., Wooldridge, A., **The Witch Doctors: Making Sense of the Management Gurus**, Times Books, New York, NY, 1996.

[SHEN97]

Shenhar, A., Levy, O., and Dvir, D., "Mapping the Dimensions of Project Success," in *Project Management Journal*, Project Management Institute, Vol. 28, No. 2, 1997, pp. 5-13.

[SIMO95]

Simons, R., "Control in an Age of Empowerment," in *Harvard Business Review*, March-April 1995, pp. 80-88.

[TREA97]

Treacy, M., Wiersema, F., *The Discipline of Market Leaders*, Addison-Wesley, Reading, MA, 1997.

[WEIC01]

Weick, K., Sutcliffe, K., **Managing the Unexpected: Assuring High Performance in an Age of Complexity**, Jossey-Bass, San Francisco, CA, 2001.

[WHEA92]

Wheatley, M., **Leadership and the New Science**, Berrett-Koehler Publishers, San Francisco, CA, 1992.

3.2 TQM

[BOTT97]

Bottcher, P., Stoddard, R., "How Does Software Six Sigma Relate to the SEI CMM?" in *Proceedings of the 7th International Conference on Software Quality*, Montgomery, Alabama, 6-8 October 1997, pp. 34-53.

[CROS79]

Crosby, P., **Quality is Free**, McGraw-Hill, New York, NY, 1979.

[DEMI86]

Deming, W. E., **Out of the Crisis**, MIT Center for Advanced Engineering Study, Cambridge, MA, 1986.

[DEMI94]

Deming, W. E., **The New Economics for Industry, Government, Education**, Second Edition, MIT Center for Advanced Educational Services, Cambridge, MA, 1994.

[GARV87]

Garvin, D., "Competing on the Eight Dimensions of Quality," in *Harvard Business Review*, November-December 1987. Reprinted in *IEEE Engineering Management Review*, Vol. 24, No. 1, Spring 1996, pp. 15-23.

[HAMM93]

Hammer, M., Champy, J., **Reengineering the Corporation: A Manifesto for Business Revolution**, HarperCollins, New York, New York, 1993.

[HARR00]

Harry, M., Schroeder, R., **Six Sigma: The Breakthrough Management Strategy Revolutionizing the World's Top Corporations**, Doubleday, New York, NY, 2000.

[ISHI85]

Ishikawa, K., **What Is Total Quality Control ? The Japanese Way**, Prentice Hall, 1985

[JURA88]

Juran, J., **Juran on Planning for Quality**, Macmillan, New York, NY, 1988.

[MASA86]

Masaaki, I., **Kaizen: The Key to Japan's Competitive Success**, McGraw-Hill, New York, NY, 1986.

[NIVE93]

Niven, D., "When Times Get Tough, What Happens to TQM?", in *Harvard Business Review*, May-June 1993, pp. 20-34.

[REPE01]

Repenning, N., Sterman, J., "Nobody Ever Gets Credit for Fixing Problems that Never Happened: Creating and Sustaining Process Improvement," in *California Management Review*, Vol. 43, No. 4, 2001, pp. 64-88.

[SENG90]

Senge, P., **The Fifth Discipline: The Art & Practice of the Learning Organization**, Doubleday/Currency, New York, NY, 1990.

4 Software Process

4.1 General Software Process

[BACH95b]

Bach, J., "The Challenge of 'Good Enough' Software", in *American Programmer*, vol.8, n°10, 1995, p.2-11.

[BENE01]

Benediktsson, O., Hunter, R., McGettrick, A., "Processes for software in safety critical systems", in *Software Process: Improvement and Practice*, Vol. 6, No. 1, 2001, pp. 47-62.

[BILL94]

Billings, C., Clifton, J., et al, "Journey to a Mature Software Process," in *IBM Systems Journal*, Vol. 33, No. 1, 1994, pp. 46-61.

[CLAR97]

Clark, B., *The Effects of Software Process Maturity on Software Development Effort*, PhD Dissertation, University of Southern California, 1997.

[CUGO98]

Cugola, G., Ghezzi, C., "Software processes: a retrospective and a path to the future," in *Software Process: Improvement and Practice*, Vol. 4, No. 3, 1998, pp. 101-123.

[CURT88]

Curtis, B., Krasner, H., and Iscoe, N., "A Field Study of the Software Design Process for Large Systems," in *Communications of the ACM*, Vol. 31, No. 11, 1988, pp. 1268-1287.

[CURT00]

Curtis, B., "The Global Pursuit of Process Maturity," in *IEEE Software*, vol. 17, n°4, 2000, p.76-78.

[DEIT90]

Deiters, W., Gruhn, V., "Managing Software Process in the Environment MELMAC," in *SIGSOFT'90: Proceedings of the Fourth Symposium on Software Development Environments*, 1990, p.193-205.

[DROM96]

Dromey, G., "Cornering the Chimera," in *IEEE Software*, vol. 13, n°1, 1996, pp. 33-43.

[DOWS93]

Dowson, M., "Software Process Themes and Issues", in *Proceedings of the 2nd International Conference on the Software Process*, 1993, p.54-62.

[FEIL93]

Feiler, P., Humphrey, W., "Software Process Development and Enactment: Concepts and Definitions", in *Proceedings of the Second International Conference on the Software Process*, 1993, pp. 28-40.

[FUGG96]

Fuggetta, A., Wolf, A., **Software Process**, Wiley&Sons, 1996.

[GOTH00]

Goth, G., "The Team Software Process: A Quiet Quality Revolution," in *IEEE Software*, vol. 17, n°6, 2000, p.125-127.

[GRUH00]

Gruhn, V., "Software process landscaping", in *Software Process: Improvement and Practice*, Vol. 5, No. 2-3, 2000, pp. 111-120.

[HART00a]

Harter, D., Slaughter, S., "Process Maturity and Software Quality: A Field Study," International Conference on Information Systems (ICIS), December 2000.

[HART00b]

Harter, D., Krishnan, M., Slaughter, S., "Effects of Process Maturity on Quality, Cycle Time, and Effort in Software Product Development," in *Management Science*, Vol. 46, No. 4, 2000, pp. 451-466.

[HOLT94]

Höltje, D., Madhavji, N., Bruckhaus, T., and Hong, W., "Eliciting Formal Models of Software Engineering Processes", in *Proceedings 1994 CAS Conference (CASCON'94)*, Toronto, Ontario, Canada, October 1994.

[HUMP95]

Humphrey, W., **A Discipline for Software Engineering**, Addison-Wesley Publishing Company, Reading, MA, 1995.

[HUMP99]

Humphrey, W., **Introduction to the Team Software Process**, Addison-Wesley Longman Inc, Reading, MA, 1999.

[INO94]

Inoue, K., Watanabe, A., Iida, H., Torii, K., "Modeling Method for Management Process and Its Application to CMM and ISO9000-3," in *Proceedings of the 3rd International Conference on Software Process*, Renton USA, 1994.

[JACO98]

Jacobson, I., Booch, G., Rumbaugh, J., **The Unified Software Development Process**, Addison-Wesley, 1998.

[KALT00]

Kaltio, T., Kinnula, A., "Deploying the defined SW process", in *Software Process: Improvement and Practice*, Vol. 5, No. 1, 2000, pp. 65-83.

[KAPL95]

Kaplan, C., Clark, R. and Tang, V., **Secrets of Software Quality**, McGraw-Hill, New York, NY, 1995.

[KELL96]

Kellner, M., Briand, L., Over, J., "A Method for Designing, Defining, and Evolving Software Processes," in *Proceedings of the 4th International Conference on the software Process*, 1996, pp. 37-48.

[KAUT00]

Kautz, K, Westergaard Hansen, H. and Thaysen, K., "Applying and Adjusting a Software Process Improvement Model in Practice," in *Proceedings of the 22nd International Conference on Software Engineering*, (Limerick, Ireland, 2000), pp. 626-633.

[KRIS99]

Krishnan, M., Kellner, M., "Measuring Process Consistency: Implications for Reducing Software Defects", in *IEEE Transactions on Software Engineering*, vol. 25, n°6, 1999, pp. 800-815.

[LIND00]

Lindvall, M., Rus, I., "Process Diversity in Software Development," in *IEEE Software*, vol. 17, n°4, 2000, pp. 14-18.

[MADH91b]

Madhavji, N., "The Process Cycle", in *Software Engineering Journal*, vol. 6, n°5, 1991, p.234-242.

[MAGU94]

Maguire, S., **Debugging the Development Process**, Microsoft Press, Redmond, WA, 1994.

[MATS00]

Matsubara, T., "Process Certification: A Double-Edged Sword," in *IEEE Software*, vol. 17, n°6, 2000, pp. 104-105.

[MCON96]

McConnell, S., **Rapid Development: Taming Wild Software Schedule**, Microsoft Press, Redmond, WA, 1996.

[MCON98]

McConnell, S., "The Power of Process ," in *IEEE Computer*, vol. 31, n°5, 1998, pp. 100-102.

[MELL98]

Mellis, W., "Software quality management in turbulent times – are there alternatives to process oriented software quality management?", in *Software Quality Journal*, Vol. 7, n°3-4, 1998, pp. 277-295.

[NGUY94]

Nguyen, M., Conradi, R., "The Software Meta-process: Taxonomy and Assessment," in *Proceedings of the 3rd International Conference on Software Process*, Renton USA, 1994.

[PAUL97]

Paulk, M., "Software Process Proverbs," in *Crosstalk: The Journal of Defense Software Engineering*, Vol. 10, No. 1, 1997, pp. 4-7.

[PFLE94a]

Pfleeger, S., Fenton, N., Page, S., "Evaluating software engineering standards," in *IEEE Computer*, vol. 27, n°9, 1994, pp. 71-79 .

[RAFF99]

Raffo, D., Kaltio, T., Partridge, D., Phalp, K., Ramil, J., "Empirical Studies Applied to Software Process Models", in *Empirical Software Engineering. An International Journal*, Vol.4, n°4, 1999, pp. 353-369.

[SCHN96]

Schneidewind, N., Fenton, N., "Point-Counterpoint: Do Standards Improve Quality?," in *IEEE Software*, vol. 13, n°1, 1996, pp. 22-24.

[SHUL01]

Shull, F., Carver, J., Travassos, G., “An Empirical Methodology for Introducing Software Processes,” in *Proceedings of the Joint 8th European Software Engineering Conference and 9th ACM SIGSOFT Symposium on the Foundation of Software Engineering (ESEC/FSE-01)*, SOFTWARE ENGINEERING NOTES, Vol. 26, 5, ACM Press, 2001, pp. 288-296.

[SING96]

Singh, R., “International Standard ISO/IEC 12207 Software Life Cycle Processes,” in *Software Process: Improvement and Practice*, Vol. 2, No. 1, 1996.

[SLAU98]

Slaughter, S., Harter, D. and Krishnan, M., “Evaluating the Cost of Software Quality,” in *Communications of the ACM*, 41(8), 1998, p.67-73.

[SOMM99]

Sommerville, I., Sawyer, P., Viller, S., “Managing Process Inconsistency Using Viewpoints,” in *IEEE Transactions on Software Engineering*, vol. 25, n°6, 1999, pp. 784-799.

[SUTT00]

Sutton, S., “The Role of Process in a Software Start-up,” in *IEEE Software*, vol. 17, n°4, 2000, p.33-39.

[TASS01]

Tassé, J., Madhavji, N., “View-based process elicitation: a user's perspective”, in *Software Process: Improvement and Practice*, Vol. 6, No. 3, 2001, pp. 125-139.

[TUOH02]

Tuohey W., “Benefits and Effective Application of Software Engineering Standards”, in *Software Quality Journal*, Vol. 10, n°1, 2002, pp. 47-68.

[WANG98]

Wang, Y., King, G., Dorling, A., et al., “A Worldwide Survey of Base Process Activities Towards Software Engineering Process Excellence”, in *Proceedings of the 20th International Conference on Software Engineering*, , ACM Press, April 19-25 1998, pp. 439.

[WIEG96]

Wieggers, K., **Creating a Software Engineering Culture**, Dorset House Publishing, New York, NY, 1996.

[WILL00]

Williams, L., “The Collaborative Software Process,” PhD Dissertation, University of Utah, August 2000.

4.2 ***Software Process Modelling***

[AHON02]

Ahonen, J.-J., Forsell, M. and Taskinen, S.-K., “A Modest but Practical Software Process Modeling Technique for Software Process Improvement,” in *Software Process-Improvement and Practice*, vol. 7, No. 1, 2002, p.33-44.

[ARLO97]

Arlow, J., Bandinelli, S., Emmerich, W., Lavazza, L., “A fine-grained process modelling experiment at British Airways,” in *Software Process: Improvement and Practice*, Vol. 3, No. 2, 1997, pp. 105-131.

[BAND95]

Bandinelli, S., Fuggetta, A., Lavazza, L. et al, "Modeling and Improving an Industrial Software Process", in *IEEE Transactions on Software Engineering*, vol. 21, n°5, 1995, pp. 440-454.

[CHAT00]

Chatters, B., Lehman, M., Ramil, J. F., Wernick, P., "Modelling a software evolution process: a long-term case study," in *Software Process: Improvement and Practice*, Vol. 5, No. 2-3, 2000, pp. 91-102.

[FINK94]

Finkelstein, A., Kramer, J., Nuseibeh, B., **Software Process Modeling and Technology**, Research Studies Press, Wiley&Sons, 1994.

[MADA00]

Madachy, R., Tarbet, D., "Case studies in software process modeling with system dynamics" in *Software Process: Improvement and Practice*, Vol. 5, No. 2-3, 2000, pp. 133-146.

[SCAC00]

Scacchi, W., "Understanding software process redesign using modeling, analysis and simulation," in *Software Process: Improvement and Practice*, Vol. 5, No. 2-3, 2000, pp. 183-195.

[SAEK91]

Saeki, M., Kaneko, T., Sakamoto, M., "A Method for Software Process Modeling and Description Using LOTOS," in *Proceedings of the First International Conference on the Software Process*, 1991, p.90-104.

[VERL97]

Verlage, M., "Experience with software process modelling," in *Software Process: Improvement and Practice*, Vol. 3, No. 2, 1997, pp. 133-136.

4.3 ***Software Process Assessment and Improvement (SPA & SPI)***

[ABBO97]

Abbott, J., "Software Process Improvement in a Small Commercial Software Company", in *Proceedings of the 1997 Software Engineering Process Group Conference*, San Jose, CA, 17-20 March, 1997.

[ABRA99]

Abrahamsson, P., "Commitment to Software Process Improvement—Development of Diagnostic Tool to Facilitate Improvement", in *Software Quality Journal*, Vol. 8, n°1, 1999, pp. 63-76.

[ABRA00]

Abrahamsson, P. and Jokela, T., "Development of Management Commitment to Software Process Improvement," in *IRIS 23*, (Lidgatan, Sweden, 2000).

[ABRA01]

Abrahamsson, P., "Commitment Development in Software Process Improvement: Critical Misconceptions," in *Proceedings of the 23rd International Conference on Software Engineering (ICSE'01)*, (Toronto, Canada, 2001), pp. 71-80.

[ARES00]

Ares, J., García, R., Juristo, N., et al, "A more rigorous and comprehensive approach to software process assessment," in *Software Process: Improvement and Practice*, Vol. 5, No. 1, 2000, pp. 3-30 .

[ARMI94]

Armitage, J., Kellner, M., "A Conceptual Schema for Process Definitions and Models," in *Proceedings of the 3rd International Conference on Software Process*, Renton USA, 1994.

[AUST93]

Austin, R.D., and Paulish, D.J., "A Survey of Commonly Applied Methods for Software Process Improvement," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-93-TR-27, 1993.

[BADD02]

Baddoo, N. and Hall, T., "Practitioner Roles in Software Process Improvement: An Analysis using Grid Technique," in *Software Process-Improvement and Practice*, vol. 7, No. 1, 2002, p.17-31.

[BROD95]

Brodman, J., Johnson, D., "Return on investment (ROI) from software process improvement as measured by US industry," in *Software Process-Improvement and Practice*, 1(1), 1995, pp. 35-47.

[BROD97]

Brodman, J., Johnson, D., "A Software Process Improvement Approach Tailored for Small Organizations and Small Projects," in *Proceedings of the 19th International Conference on Software Engineering (ICSE'97)*, (Boston, USA, 1997), pp. 661-662.

[CAPR00]

Caprile, B., Giraud, G. and Tonella, P., "Process Improvement Experiments in Perspective," *WESS'2000, International Workshop on Empirical Studies of Software Maintenance*, San Jose, California, USA, October 14, 2000.

[CATT01]

Cattaneo, F., Fuggetta, A., Sciuto, D., "Pursuing coherence in software process assessment and improvement," in *Software Process: Improvement and Practice*, Vol. 6, No. 1, 2001, pp. 3-22 .

[CLAR00]

Clark, B., "Quantifying the Effects on Effort of Process Improvement," in *IEEE Software*, vol. 17, n°6, 2000, pp. 65-70.

[DUNA96]

Dunaway, D., and Masters, S., "CMM-Based Appraisal for Internal Process Improvement (CBA IPI): Method Description," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-96-TR-007, 1996.

[DYBA00]

Dyba, T., "An Instrument for Measuring the Key Factors of Success in Software Process Improvement", in *Empirical Software Engineering. An International Journal*, Vol.5, n°4, 2000, pp. 357-390.

[EEMA99a]

El Emam, K. and Goldenson, D., " An Empirical Review of Software Process Assessments," National Research Council of Canada, Institute for Information Technology, 1999.

[EEMA99b]

El Emam, K., Madhavji, N., **Elements of Software Process Assessment and Improvement**, IEEE Computer Society Press, Los Alamitos, 1999.

[EEMA00a]

El Emam, K., Goldenson, D., "An Empirical Review of Software Process Assessments", in *Advances in Computers*, vol. 53, 2000, pp. 319-423.

[FITZ99]

Fitzgerald, B., O'Kane, T., "A Longitudinal Study of Software Process Improvement," in *IEEE Software*, vol. 16, n°2, 1999, p.37-45.

[GRAD97]

Grady, R., **Successful Software Process Improvement**, Prentice Hall, Englewood Cliffs, NJ, 1997.

[GRAY97]

Gray, L., "Software Process Improvement with ISO/IEC 12207, J-STD-016-1995",and MIL-STD-498, Abelia Corporation, 1997.

[GRAY98]

Gray, E., Smith, W., "On the Limitations of Software Process Assessment and the Recognition of a Required Re-Orientation for Global Process Improvement," in *Software Quality Journal*, vol.7, 1998, pp. 21-34.

[HORV00]

Horvat, R., Rozman, I., Györkös, J., "Managing the complexity of SPI in small companies," in *Software Process: Improvement and Practice*, Vol. 5, No. 1, 2000, pp. 45-54.

[HUNT97]

Hunter, R., Robinson, G., Woodman, I., "Tool support for software process assessment and improvement," in *Software Process: Improvement and Practice*, Vol. 3, No. 4, 1997, p.213-223.

[HUNT01]

Hunter, R. and Thayer, R., *Software Process Improvement*, IEEE Computer Society Press, Los Alamitos, CA, 2001.

[KASS98]

Kasse, T., Mcquaid, P., "Entry strategies into the process improvement initiative", in *Software Process: Improvement and Practice*, Vol. 4, No. 2, 1998, p.73-88.

[KAUT98]

Kautz, K., "Software process improvement in very small enterprises: does it pay off?," in *Software Process: Improvement and Practice*, Vol. 4, No. 4, 1998, pp. 209-226.

[KELL02]

Kelly, D., Culleton, B., "Process Improvement for Small Organizations," in *IEEE Computer*, vol. 35, No. 10, 2002, pp. 41-47.

[KITS97]

Kitson, D., "An Emerging International Standard for Software Process Assessment," in *Proceedings of the Third IEEE International Software Engineering Standards Symposium and Forum*, Walnut Creek, CA, 1-6 June 1997, pp. 83-90.

[MFEE96]

Mc Feeley, B., "IDEAL sm: A User's Guide for Software Process Improvement", CMU/SEI-96-HB-001, Software Engineering Institute, Carnegie Mellon University, Pittsburgh, PA, 1992.

[MGOW93]

McGowan, C., Bohner, S., "Model Based Process Assessments," in *Proceedings of the 15th Conference on Software Engineering*, 1993, p.202-211.

[OCON02]

O'Connor, R., Coleman, G., "Strategies for Personal Process Improvement - A Comparison," in *Proceedings of 2002 ACM Symposium on Applied Computing (SAC)*, ACM Press, 2002, pp. 1036 - 1041.

[OHAR00]

O'Hara, F., "European experiences with software process improvement," in *Proceedings of the 22nd International Conference on Software Engineering*, (Limerick, Ireland, 2000), pp. 635-640.

[OTT99]

Ott, L., Kinnula, A., et al, "The Role of Empirical Studies in Process Improvement", in *Empirical Software Engineering. An International Journal*, Vol.4, n^o4, 1999, pp. 381-386.

[PAUL92]

Paulk, M., Humphrey, W. and Pandelios, G., "Software Process Assessments: Issues and Lessons Learned," in *Proceedings of ISQE92*, Juran Institute, 10-11 March 1992, ppp. 4B/41-4B/58.

[REIB97]

Reiblein, S., Symons, A., "SPI: 'I can't get no satisfaction' - directing process improvement to meet business needs", in *Software Quality Journal*, Vol. 6, n^o2, 1997, p.89-98.

[RICH01]

Richardson, I., "Software process matrix: a small company SPI model", in *Software Process: Improvement and Practice*, Vol. 6, No. 3, 2001, pp. 157-165.

[RICH02]

Richardson, I., "SPI Models: What Characteristics are Required for Small Software Development Companies?", in *Software Quality Journal*, Vol. 10, n^o2, 2002, pp. 101-114.

[RISI00]

Rising, L., Janoff, N., "The Scrum Software Development Process for Small Teams," in *IEEE Software*, vol. 17, n^o4, 2000, pp. 26-32.

[RUIZ02]

Ruiz, M., Ramos, I., Toro, M., "A Dynamic Integrated Framework for Software Process Improvement", in *Software Quality Journal*, Vol. 10, n^o2, 2002, pp. 181-194

[SAND98]

Sanders, M. (eds.), *The SPIRE Handbook: Better, Faster, Cheaper Software Development in Small Organisations*, European Commission, 1998.

[SEL95]

"*Software Process Improvement Guidebook. Revision 1*," Software Engineering Laboratory Series, SEL-95-102, NASA, Greenbelt, 1996.

[STEL99]

Stelzer, D., Mellis, W., "Success Factors of Organizational Change in Software Process Improvement," in *Software Process--Improvement and Practice*, vol. 4, n° 4, 1999.

[STRI95]

Strigel, W., "Assessment in Small Software Companies", in *Proceedings of the 1995 Pacific Northwest Software Quality Conference*, 1995, pp. 45-56.

[SWEE97]

Sweeney, A., Bustard, D., "Software process improvement: making it happen in practice", in *Software Quality Journal*, Vol. 6, n°4, 1997, pp. 265-274.

[THOM97]

Thomson, H., Mayhew, P., "Approaches to software process improvement," in *Software Process: Improvement and Practice*, Vol. 3, No. 1, 1997, p.3-17.

[VISA94]

Visaggio, G., "Process Improvement Through Data Reuse," in *IEEE Software*, vol. 11, n°4, 1994, pp. 76-85.

[WARD01]

Ward, R., Fayad, M., and Laitinen, M., Software Process Improvement in the Small, in *Communications of the ACM*, 44(4), 2001, p.67-73.

[WEIS02]

Weiss, D., Bennett, D., Payseur, J. et al, Goal-Oriented Software Assessment, in *Proceedings of the 24th International Conference on Software Engineering*, , ACM Press, May 19-25 2002, pp. 221-231.

[WIEG99]

Wieggers, K., "Software Process Improvement in Web Time," in *IEEE Software*, vol. 16, n°4, 1999, pp. 78-86.

[WOHL01]

Wohlin, C., Amschler Andrews, A., "Assessing Project Success Using Subjective Evaluation Factors", in *Software Quality Journal*, Vol. 9, n°1, 2001, pp. 43-70.

[WOHL94]

Wohlwend, H., Rosenbaum, S., "Schlumberger's Software Improvement Program," in *IEEE Transactions on Software Engineering*, Vol. 20, No. 11, 1994, pp. 833-839.

[ZAHR97]

Zahran, S., **Software Process Improvement. Practical Guidelines for Business Success**, Addison-Wesley, 1997.

4.4 Software Capability Evaluation

[BESS93]

Besselman, J., Byrnes, P., Lin, C., Paulk, M. and Puranik, R., "Software Capability Evaluations: Experiences from the Field," SEI Technical Review '93, 1993.

[BRIA95]

Briand, L., Melo, W., Seaman, C., Basili, V., "Characterizing and Assessing a Large-Scale Software Maintenance Organization", in *Proceedings of the 17th International Conference on Software Engineering*, 1995, pp. 133-143.

[BYRN96]

Byrnes, P. and Phillips, M., "Software Capability Evaluation Version 3.0 Method Description," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-96-TR-002, 1996.

[NEWB96]

Newberry, G., "The Relationship Between the SEI's CMM Levels and Source Selection," in *Crosstalk: The Journal of Defense Software Engineering*, Vol. 9, No. 5, 1996, pp. 6.

[PAUL94]

Paulk, M., Konrad, M., "Measuring Process Capability Versus Organizational Process Maturity," in *Proceedings of the 4th International Conference on Software Quality*, 1994.

[RUGG93]

Rugg, D., "Using a Capability Evaluation to Select a Contractor," in *IEEE Software*, Vol. 10, No. 4, July 1993, pp. 36-45.

4.5 *General and Process Focused Measurement*

[AUST96]

Austin, R., **Measuring and Managing Performance in Organizations**, Dorset House Publishing, New York, NY, 1996.

[BRIA96]

Briand, L., Differding, C., Rombach, H.D., "Practical guidelines for measurement-based process improvement," in *Software Process: Improvement and Practice*, Vol. 2, No. 4, 1996, pp. 253-280 .

[CARL92]

Carleton, A., Park, R., et al., "Software Measurement for DoD Systems: Recommendations for Initial Core Measures," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-92-TR-19, 1992.

[COOK94]

Cook, J., Wolf, A., "Towards Metrics for Process Validation", in *Proceedings of the Third International Conference on the Software Process*, IEEE Computer Society, 1994, pp. 33-44.

[COOK96]

Cook, J., "Process Discovery and Validation through Event-Data Analysis", PhD Dissertation, University of Colorado, 1996.

[COOK99]

Cook, J., Wolf, A., "Software Process Validation: Quantitatively Measuring the Correspondence of a Process to a Model Using Event-Based Data", in *ACM Transactions on Software Engineering and Methodology*, vol. 8, n°.2, Apr 1999, pp. 147--176.

[DASK92]

Daskalantonakis, M., "A Practical View of Software Measurement and Implementation Experience With Motorola," in *IEEE Transactions on Software Engineering*, Vol. 18, No. 11, 1992, pp. 998-1010.

[FENT94]

Fenton, N., "Software Measurement: A Necessary Scientific Basis," in *IEEE Transactions on Software Engineering*, Vol. 20, No. 3, 1994, pp. 199-206.

[FLOR92]

Florac, W., "Software Quality Measurement: A Framework for Counting Problems and Defects," Software Engineering Institute, Carnegie Mellon University, Pittsburgh, PA, CMU/SEI-92-TR-22, 1992.

[FLOR99]

Florac, W., Carleton, A., **Measuring the Software Process: Statistical Process Control for Software Process Improvement**, Addison Wesley, 1999.

[GRAD92]

Grady, R., **Practical Software Metrics for Project Management and Process Improvement**, Prentice-Hall, 1992.

[JONE97]

Jones, C., **Applied Software Measurement**, 2nd Edition, McGraw Hill, New York, NY, 1997.

[LOTT93]

Lott, C., "Process and measurement support in SEEs," in *SIGSOFT. Software Engineering Notes*, vol. 18, n°4, 1993, pp. 83-93.

[MOLL93]

Moller, K., Paulish, D., **Software Metrics**, Chapman & Hall, 1993.

[PFLE93]

Pfleeger, S., "Lessons Learned in Building a Corporate Metrics Program," in *IEEE Software*, May 1993, pp. 67-74.

[PFLE94b]

Pfleeger, S., Rombach, H., "Measurement Based Process Improvement," in *IEEE Software*, vol. 11, n°4, 1994, pp. 8-11.

[PUTN97]

Putnam, L., Myers, W., **Industrial Strength Software: Effective Management Using Measurement**, IEEE Computer Society Press, Los Alamitos, CA, 1997.

[RAFF00]

Raffo, D., Harrison, W., Vandeville, J., "Coordinating models and metrics to manage software projects", in *Software Process: Improvement and Practice*, Vol. 5, No. 2-3, 2000, pp. 159-168.

[SCHN02]

Schneidewind, N., "Body of Knowledge for Software Quality Measurement," in *IEEE Computer*, vol. 35, No. 10, 2002, pp. 77-83.

[SIMM96]

Simmons, P., "Quality Outcomes: Determining Business Value," in *IEEE Software*, vol. 13, n°1, 1996, pp. 25-32.

[TUFT83]

Tufte, E., **The Visual Display of Quantitative Information**, Graphics Press, Cheswick, CT, 1983.

[WEER94]

Weerahandi, S. and Hausman, R., "Software Quality Measurement Based on Fault-Detection Data ," in *IEEE Transactions on Software Engineering*, vol. 20, No. 9, 1994.

[WEIN93]

Weinberg, G., **Quality Software Management Vol. 2: First-Order Measurement**, Dorset House Publishing, New York, New York, 1993.

[WOLF93]

Wolf, A., Rosenblum, D., "A Study in Software Process Data Capture and Analysis", in *Proceedings of the Second International Conference on the Software Process*, 1993, pp. 115-124.

5 Process Models

5.1 Main Models

5.1.1 CMM

[ADE96]

Ade, R., Bailey, J., "CMM Lite: SEPG Tailoring Guidance for Applying the Capability Maturity Model for Software to Small Projects," in *Proceedings of the 1996 Software Engineering Process Group Conference: Wednesday Papers*, Atlantic City, NJ, 20-23 May 1996.

[BACH94]

Bach, J., "The Immaturity of the CMM," in *American Programmer*, Vol. 7, No. 9, 1994, pp. 13-18.

[BACH95a]

Bach, J., "Enough About Process: What We Need Are Heroes," in *IEEE Software*, Vol. 12, No.2, 1995, pp. 96-98.

[BAMB97]

Bamberger, J., "Essence of the Capability Maturity Model," in *IEEE Computer*, vol. 30, n°6, 1997, pp. 112-114.

[BATI00]

Batista, J., Dias De Figueiredo, A., "SPI in a very small team: a case with CMM," in *Software Process: Improvement and Practice*, Vol. 5, No. 4, 2000, pp. 243-250.

[BILO98]

Bilotta, J., McGrew, J., "A Guttman Scaling of CMM Level 2 Practices: Investigating the Implementation Sequences Underlying Software Engineering Maturity," in *Empirical Software Engineering. An International Journal*, Vol.3, n°2, 1998, pp. 159-177.

[BOLL91]

Bollinger, T. and McGowan, C., "A Critical Look at Software Capability Evaluations," in *IEEE Software*, Vol. 8, No. 4, 1991, pp. 25-41.

[BOTT97]

Bottcher, P., Stoddard, R., "How Does Software Six Sigma Relate to the SEI CMM?," in *Proceedings of the 7th International Conference on Software Quality*, Montgomery, Alabama, 6-8 October 1997, pp. 34-53.

[CAPU98]

Caputo, K., **CMM Implementation Guide: Choreographing Software Process Improvement**, Addison-Wesley, Reading, MA, April 1998.

[CURT94]

Curtis, B., "A Mature View of the CMM," in *American Programmer*, Vol. 7, No. 9, 1994, pp. 19-28.

[CURT96]

Curtis, B., "The Factor Structure of the CMM and Other Latent Issues," in *Proceedings of the 1996 Software Engineering Process Group Conference: Tuesday Presentation*, Atlantic City, NJ, 20-23 May 1996.

[DREW92]

Drew, D., "Tailoring the Software Engineering Institute's (SEI) Capability Maturity Model (CMM) to a Software Sustaining Engineering Organization", in *Proceedings of the International Conference on Software Maintenance*, 1992, pp. 137-144.

[DYMO95]

Dymond, K., **A Guide to the CMM**, Process Inc US, Annapolis, MD, 1995.

[FUSA98]

Fusaro, P., El Emam, K., Smith, B., "The Internal Consistencies of the 1987 SEI Maturity Questionnaire and the SPICE Capability Dimension," in *Empirical Software Engineering. An International Journal*, Vol.3, n°2, 1998, pp. 179-201.

[GINS95]

Ginsberg, M. and Quinn, L., "Process Tailoring and the Software Capability Maturity Model," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-94-TR-024, 1995.

[HERB94]

Herbsleb, J., Carleton, A., Rozum, J. et al, "Benefits of CMM-based Software Process Improvement: Initial Results," Software Engineering Institute, Carnegie Mellon University, Pittsburgh, PA, CMU/SEI-94-TR-13, 1994.

[HERB96]

Herbsleb, J.D., Goldenson, D.R., "A systematic survey of CMM experience and results", in *Proceedings of the 18th International Conference on Software Engineering*, , ACM Press, March 25-29 1996, pp. 323.

[HERB97]

Herbsleb, J., Zubrow, D., Goldenson, D. et al, "Software Quality and the Capability Maturity Model", in *Communication of the ACM*, vol. 40, n°6, 1997, p.30-40.

[HOFF98]

Hoffman, L., "Small Projects and the CMM", in "Key Practices to the CMM: Inappropriate for Small Projects ?" panel, Rita Hadden moderator, in *Proceedings of the 1998 Software Engineering Process Group Conference*, Chicago, IL, 9-12 March 1998.

[HUMP89]

Humphrey, W., **Managing the Software Process**, Addison-Wesley, Reading, MA, 1989.

[HUMP91]

Humphrey, W. and Curtis, B., "Comments on 'A Critical Look'," in *IEEE Software*, Vol. 8, No. 4, 1991, pp. 42-46.

[JOHN97]

Johnson, D., and Brodman, J., "Tailoring the CMM for Small Businesses, Small Organizations, and Small Projects," Software Process Newsletter, IEEE Computer Society Technical Council on Software Engineering, No. 8, Winter 1997, pp. 1-6.

[JONE94]

Jones, C., Chapter 5, "Artificial Maturity Levels," in *Assessment and Control of Software Risks*, PTR Prentice-Hall, Inc., Englewood Cliffs, NJ, 1994, pp. 63-70. See also pp. 19-20 and 23-26.

[JONE95]

Jones, C., "The SEI's CMM—Flawed?," in *Software Development*, Vol. 3, No. 3, 1995, pp. 41-48.

[JOHN00]

Johnson, D., Brodman, J., “Applying CMM Project Planning Practices to Diverse Environments,” in *IEEE Software*, vol. 17, n°4, 2000, pp. 40-47.

[KONR96]

Konrad, M., Chrissis, M., Ferguson, J., et al, “Capability Maturity Modeling SM at the SEI,” in *Software Process: Improvement and Practice*, Vol. 2, No. 1, 1996.

[LAWL95]

Lawlis, P., Flowe, R., Thordahl, B., “A Correlational Study of the CMM and Software Development Performance” in *Crosstalk: The journal of Defense Software Engineering*, Vol. 8, N°9, September 1995, pp. 21-25. Reprinted in *Software Process Newsletter*, IEEE Computer Society Technical Council on Software Engineering, N°8, Winter 1997, p. 1-6.

[MAST95]

Masters, S., Bothwell, C., “CMM Appraisal Framework – Version 1.0”, Software Engineering Institute, Carnegie Mellon University, Pittsburgh, PA, CMU/SEI-TR-95-01, 1995.

[OCON00]

O'Connell, E., Saiedian, H., “Can You Trust Software Capability Evaluations?”, in *IEEE Computer*, vol. 33, n°2, 2000, pp. 28-35.

[OULD96]

Ould, M., “CMM and ISO 9001,” in *Software Process: Improvement and Practice*, Vol. 2, No. 4, 1996, p.281-289.

[PAUL93a]

Paulk, M. et al, “*Capability Maturity Model for Software*,” Software Engineering Institute, Carnegie Mellon University, Pittsburgh, PA, 1993.

[PAUL93b]

Paulk, M., Curtis, B., Chrissis, M.B., and Weber, C., “Capability Maturity Model, Version 1.1,” in *IEEE Software*, Vol. 10, No. 4, 1993, pp. 18-27.

[PAUL95]

Paulk, M., “The Evolution of the SEI’s Capability Maturity Model for Software,” in *Software Process: Improvement and Practice*, Vol. 1, No. 1, 1995.

[PAUL96]

Paulk, M., “Effective CMM-Based Process Improvement”, in *Proceedings of the 6th International Conference on Software Quality*, Ottawa, Canada, 28-31 October 1996, pp. 226-237.

[PAUL99a]

Paulk, M. et al, **The Capability Maturity Model. Guidelines for Improving the Software Process**, Carnegie Mellon University, Software Engineering Institute, Addison-Wesley, 1999.

[PAUL99b]

Paulk, M., “Using the Software CMM With Good Judgment,” in *ASQ Software Quality Professional*, Vol. 1, No. 3, 1999, pp. 19-29.

[PITTE98]

Pitterman, B., “Key Practices to the CMM: Inappropriate for Small Projects?”, panel, Rita Hadden moderator, in *Proceedings of the 1998 Software Engineering Process Group Conference*, Chicago, IL, 9-12 March, 1998.

[ROZM97]

Rozman, I., Horvat, R., Gyorkos, J., Hericuko, M., "PROCESSUS – Integration of SEI CMM and ISO quality models", in *Software Quality Journal*, Vol. 6, n°1, 1997, pp. 37-63.

[RUSS00]

Russwurm, W., Meyer, L., "Integrated evaluation procedure for software/ hardware system development processes based on the Software Capability Maturity Model (CMM)," in *Software Process: Improvement and Practice*, Vol. 5, No. 4, 2000, pp. 231-241.

[SAIE95]

Saiedian, H. and Kuzara, R., "SEI Capability Maturity Model's Impact on Contractors," in *IEEE Computer*, Vol. 28, No. 1, 1995, pp. 16-26.

5.1.2 CMMI

[CMU01]

"Appraisal Requirements for CMMI Version 1.1 (ARC)," Carnegie Mellon University, Software Engineering Institute, CMU/SEI-2001-TR-024, 2001.

[CMU02a]

"Capability Maturity Model® Integration (CMMISM), Version 1.1. Continuous Representation", Carnegie Mellon University, Software Engineering Institute, CMU/SEI-2002-TR-028, 2002.

[CMU02b]

"Capability Maturity Model® Integration (CMMISM), Version 1.1. Staged Representation", Carnegie Mellon University, Software Engineering Institute, CMU/SEI-2002-TR-029, 2002.

5.1.3 ISO9000 series

[BAMF93]

Bamford, R., Deibler, W., "Standards: Comparing, contrasting ISO 9001 and the SEI capability maturity model", in *IEEE Computer*, Vol. 26, No.10, 1993, pp. 68-70.

[DEMI98]

Demirörs, E., Demirörs, O., Dikenelli, O., and Keskin, B., "Process Improvement Towards ISO 9001 Certification in a Small Software Organization," in *Proceedings of the 20th International Conference on Software Engineering*, , ACM Press, April 19-25 1998, pp. 436-438.

[MATS94]

Matsubara, T., "Does ISO 9000 Really Help Improve Software Quality?," in *American Programmer*, Vol. 7, No. 2, 1994, pp. 38-45.

[PAUL95a]

Paulk, M., "How ISO 9001 Compares With the CMM," in *IEEE Software*, Vol. 12, No. 1, 1995, pp. 74-83.

[PAUL95b]

Paulk, M., "The Evolution of the SEI's Capability Maturity Model for Software," in *Software Process: Improvement and Practice*, Vol. 1, No. 1, 1995.

[RAHH96]

Rahhal, S., Madhavji, N., “Estimating the Effort of Implementing ISO 9001 in Software Organizations”, in *Lecture Notes in Computer Science*, Vol. 1149, pp. 125, 1996.

[STEL96]

Stelzer, D., Mellis, W. and Herzwurm, G., “Software Process Improvement via ISO 9000? Results of Two Surveys Among European Software Houses,” in *Software Process: improvement and Practice*, Vol. 2, No 3, 1996, pp. 197-210.

[STEL97]

Stelzer, D., mellis, W., Herzwurm, G., “A critical look at ISO 9000 for software quality management”, in *Software Quality Journal*, Vol. 6, n°2, 1997, pp. 65-79.

5.1.4 SPICE – ISO/IEC15504

[DORL93]

Dorling, “Software Process Improvement and Capability dEtermination,” in *Software Quality Journal*, Vol. 2, No. 4, 1993, pp. 209-224.

[EEMA95]

El Emam, K., Goldenson, D., “SPICE: An Empiricist’s Perspective,” in *Proceedings of the Second IEEE International Software Engineering Standards Symposium*, 1995, p.84-97.

[EEMA96]

El Emam, K., Goldenson, D., “An Empirical Evaluation of the Prospective International SPICE Standard”, in *Software Process: Improvement and Practice*, Vol. 2, No. 2, 1996, p.123-148.

[EEMA98]

El Emam, K., Drouin J.N., Melo, W., **SPICE: The Theory and Practice of Software Process Improvement and Capability Determination**, IEEE CS Press, 1998.

[EEMA00a]

El Emam, K., Birk, A., “Validating the ISO/IEC 15504 Measure of Software Requirements Analysis Process Capability”, in *IEEE Transactions on Software Engineering*, vol. 26, n°6, 2000, pp. 541-566.

[ISO98]

ISO/IEC, “ISO/IEC TR 15504 : Information Technology – Software Process Assessment (parts 1-9)”, International Organization for Standardization and the International Electrotechnical Commission, 1998.

[JUNG01a]

Jung, H., “Rating the process attribute utilizing AHP in SPICE-based process assessments,” in *Software Process: Improvement and Practice*, Vol. 6, No. 2, 2001, pp. 111-122.

[JUNG01b]

Jung, H., Hunter, R., “The relationship between ISO/IEC 15504 process capability levels, ISO 9001 certification and organization size: An empirical study”, in *The Journal of Systems and Software*, Vol.59, No. 1 ,2001, pp. 43-55.

[MIYO96]

Miyoshi, T., “Early Experience with Software Process Assessment using SPICE Framework at Software Research Associates, Inc.,” in *Software Process: Improvement and Practice*, Vol. 2, No. 3, 1996, p.211-235.

[SIMO97]

Simon, J.-M., El Emam, K., Rousseau, S. et al, "The reliability of ISO/IEC PDTR 15504 assessments," in *Software Process: Improvement and Practice*, Vol. 3, No. 3, 1997, p.177-188.

[STAL00]

Stallinger, F., "Software process simulation to support ISO/IEC 15504 based software process improvement," in *Software Process: Improvement and Practice*, Vol. 5, No. 2-3, 2000, pp. 197-209.

5.1.5 TickIT

[BSI92]

"The TickIT Guide to Software Quality Management System Construction and Certification Using ISO9001/EN29001", British Standards Institution, 1992.

[BSI95]

"The TickIT Guide: A Guide to Software Quality Management System Construction and Certification to ISO9001", British Standards Institution, 1995.

[DTI92]

"TickIT: A Guide to Software Quality Management System Construction and Certification Using EN29001, Issue 2.0," U.K. Department of Trade and Industry and the British Computer Society, 28 February 1992.

5.1.6 Bootstrap

[KUYA99a]

Kuvaja, P., "BOOTSTRAP 3.0—A SPICE1 Conformant Software Process Assessment Methodology", in *Software Quality Journal*, Vol. 8, n°1, 1999, pp. 7-19.

5.2 *Other Appraisal/Improvement Models and Methods*

[BAND93]

Bandinelli, S., Fuggetta, A., Ghezzi, C., « Software Process Model Evolution in the SPADE Environment», in *IEEE Transaction on Software Engineering*, Vol.19, n°12, 1993, pp. 1128-1144.

[BLIN01]

Blin, M.-J., Tsoukiàs, A., "Multi-Criteria Methodology Contribution to the Software Quality Evaluation", in *Software Quality Journal*, Vol. 9, n°2, 2001, pp. 113-132.

[BOEG99]

Bøegh, J., Depanfilis, S., Kitchenham, B., Pasquini, A., "A Method for Software Quality Planning, Control, and Evaluation," in *IEEE Software*, vol. 16, n°2, 1999, p.69-77.

[BRIA95]

Briand, L., El Eman, K., Melo, W., "AINSI - An Inductive Software Process Improvement Method: Concrete Steps and Guidelines", Technical Report, University of Maryland, College Park, Number CS-TR-3498, July 1995.

[COLE98]

Coleman, G., Verbruggen, R., "A Quality Software Process for Rapid Application Development," in *Software Quality Journal*, Vol. 7, n°2, 1998, pp. 107-122.

[HABR99a]

Habra N., Niyitugabira E., Lamblin A.C. and Renault A., "Software Process Improvement in Small Organizations Using Gradual Evaluation Schema", in *Proceedings of the International Conference on Product Focused Software Process Improvement*, VTT, Oulu, Finland, June 1999.

[HABR99b]

Habra N., Niyitugabira E., Lamblin A.C. and Renault A., "Software Process Improvement in Small Structures : First Results of a Micro-Assessment Framework", in *Proceedings of the European Conference on Software Process Improvement*, Barcelona, Spain, December 1999.

[ISAC01]

Isacsson, P., Pedersen, G., Bang, S., "Accelerating CMM-based improvement programs: the accelerator model and method with experiences", in *Software Process: Improvement and Practice*, Vol. 6, No. 1, 2001, pp. 23-34.

[KUVA99b]

Kuvaja, P., Palo, J., Bicego, A., "TAPISTRY—A Software Process Improvement Approach Tailored for Small Enterprises", in *Software Quality Journal*, Vol. 8, n°2, 1999, pp. 149-156.

[LARY00]

Laryd, A., Orci, T., "Dynamic CMM for Small Organizations," in *Proceedings ASSE 2000, the First Argentine Symposium on Software Engineering*, Tandil, Argentina, Sep 2000, 133-149.

[LEUN01]

Leung, H., Yuen, T., "A process framework for small projects", in *Software Process: Improvement and Practice*, Vol. 6, No. 2, 2001, pp. 67-83.

[MADH90a]

Madhavji, N., "The Prism. Model of Changes - Part 1: Introduction," Technical Report TR-SOCS-90.15, pp. 24, School of Computer Science, McGill University, Montreal, July 1990.

[MADH90b]

Madhavji, N., "The Prism Model of Changes - Part 2 Dependency Structure," Technical Report TR-SOCS-90.16, pp. 21, School of Computer Science, McGill University, Montreal, July 1990.

[MADH90c]

Madhavji, N., "The Prism Model of Changes - Part 3: Change Structure," Technical Report TR-SOCS-90.17, pp. 23, School of Computer Science, McGill University, Montreal, July 1990.

[MADH90d]

Madhavji, N., Gruhn, V., Deiters, W., Schafer, W., "Prism-Methodology Process-oriented Environment", in *Proceedings of the 12th International Conference on Software Engineering*, March 1990, pp. 277-288.

[MADH91a]

Madhavji, N., Schäfer, W., "Prism-Methodology and Process-Oriented Environment," in *IEEE Transactions on Software Engineering*, vol. 17, n°12, 1991, pp. 1270-1283.

[MADH91b]

Madhavji, N., "The Prism Model of Changes", in *Proceedings of the 13th International Conference on Software Engineering*, May 1991, pp. 166-177.

[MADH94]

Madhavji, N., Hoeltje, D., Hong, W., Bruckhaus, T., "Elicit: An Empirically Improved Method for Eliciting Process Models," in *Proceedings of the 3rd International Conference on Software Process*, Renton USA, 1994.

[MART00]

Martin, R., Raffo, D., "A model of the software development process using both continuous and discrete models," in *Software Process: Improvement and Practice*, vol. 5, No. 2-3, 2000, pp. 147-157.

[SHEA97]

Sheard, S., "The Frameworks Quagmire," in *Crosstalk: The Journal of Defense Software Engineering*, Vol. 10, No. 9, 1997.

[VISC98]

Visconti, M., Cook, C., "Evolution of a maturity model – critical evaluation and lessons learned", in *Software Quality Journal*, Vol. 7, n°3-4, 1998, pp. 223-237.

6 SPA & SPI : Case Studies

[BASI94]

Basili, V., Green, S., “ Software Process Evolution at the SEL,” in *IEEE Software*, vol. 11, n°4, 1994, pp. 58-66 .

[BHAN93]

Bhandari, L., Halliday, M., et al, “A Case Study of Software Process Improvement During Development,” in *IEEE Transaction on Software Engineering*, vol. 19, n°12, 1993, p.1157-1170.

[BUTL00]

Butler, B., Lipke, W., “Software Process Achievement at Tinker Air Force Base,” Carnegie Mellon University, Software Engineering Institute, CMU/SEI-2000-TR-014, 2000.

[CONR01]

Conradi, R., Dybå, T., “An Empirical Study on the Utility of Formal Routines to Transfer Knowledge and Experience,” in *Proceedings of the Joint 8th European Software Engineering Conference and 9th ACM SIGSOFT Symposium on the Foundation of Software Engineering (ESEC/FSE-01)*, SOFTWARE ENGINEERING NOTES, Vol. 26, 5, ACM Press, 2001, pp. 268-276.

[CULV94]

Culver-Lozo, K., “Rapid Iteration in Software Process Improvement: Experience Report”, in *Proceedings of the 3rd International Conference on Software Process*, Renton USA, 1994.

[DEBO00]

Debou, C., Kuntzmann-Combelles, A., “Linking software process improvement to business strategies: experiences from industry,” in *Software Process: Improvement and Practice*, Vol. 5, No. 1, 2000, pp. 55-64.

[DIAZ97]

Diaz, M. Sligo, J., “How Software Process Improvement Helped Motorola,” in *IEEE Software*, Vol. 14, No. 5, 1997, pp. 75-81.

[DUTT99]

Dutta, S., Lee, M., and Van Wassenhove, L., “Software Engineering in Europe: A Study of Best Practices,” in *IEEE Software*, vol. 16, n°2, 1999, p.82-90.

[FERG99]

Ferguson, P. Leman, G., et al, **Software Process Improvement Works!**, Carnegie Mellon University, Software Engineering Institute, CMU/SEI-99-TR-027, 1999.

[FLOR00]

Florac, W., Carleton, A., Barnard, J., “Statistical Process Control: Analyzing a Space Shuttle Onboard Software Process,” in *IEEE Software*, vol. 17, n°4, 2000, pp. 97-106.

[GASS99]

Gasston, J., Halloran, P., “Continuous Software Process Improvement Requires Organisational Learning: An Australian Case Study,” in *Software Quality Journal*, Vol. 8, n°1, 1999, pp. 37-51.

[HALE96]

Haley, T., "Raytheon's Experience in Software Process Improvement," in *IEEE Software*, Vol. 13, No. 6, 1996, pp. 33-41.

[HALL02]

Hall, T., Rainer, A. and Baddoo, N., "Implementing Software Process Improvement: An Empirical Study," in *Software Process--Improvement and Practice*, vol. 7, No. 1, 2002, p.3-15.

[HAYE97]

Hayes, W., Over, J., "The Personal Software Process (PSP): An Empirical Study of the Impact of PSP on Individual Engineers," in Software Engineering Institute, Carnegie Mellon University, CMU/SEI-97-TR-001, 1997.

[JAHN97]

Jahnke, J., Schäfer, W., Zündorf, A., "An experiment in building a lightweight process-centred environment supporting team software processes", in *Software Process: Improvement and Practice*, Vol. 3, No. 3, 1997, pp. 141-153.

[KILP97]

Kilpi, T., "Product management challenge to software change process: preliminary results from three SMEs experiment," in *Software Process: Improvement and Practice*, Vol. 3, No. 3, 1997, p.165-175.

[KOMI00]

Komiyama, T., Sunazuka, T., Koyama, S., "Software process assessment and improvement in NEC - current status and future direction," in *Software Process: Improvement and Practice*, Vol. 5, No. 1, 2000, pp. 31-43.

[LAPO98]

Laporte, C., Trudel, S., "Addressing the people issues of process improvement activities at Oerlikon Aerospace," in *Software Process: Improvement and Practice*, Vol. 4, No. 4, 1998, pp. 187-198.

[LAWL95]

Lawlis, P., Flowe, R., and Thordahl, J., "A Correlational Study of the CMM and Software Development Performance," in *Crosstalk: The Journal of Defense Software Engineering*, Vol. 8, No. 9, 1995, pp. 21-25.

[MESS99]

Messnarz, R., Tully, C., **Better Software Practice for Business Benefit: Principles and Experiences**, IEEE CS Press, 1999.

[MGAR94]

McGarry, F., Pajerski, R., Page, G. et al, "Software Process Improvement in the NASA Software Engineering Laboratory", Software Engineering Institute, Carnige Mellon University, Pittsburgh, PA, CMU/SEI-94-TR-22, 1994.

[MGIB96]

McGibbon, T., "A Business Case for Software Process Improvement. A DACS State-of-the-Art Report," (Data & Analysis Center for Software), Rome Laboratory, RL/C3C, 1996.

[MOIT98]

Moitra, D., "Managing change for software process improvement initiatives: a practical experience-based approach", in *Software Process: Improvement and Practice*, Vol. 4, No. 4, 1998, pp. 199-207.

[NOWE94]

Nowell, J., "An Analysis of Software Process Improvement," [performed at the Oklahoma City Air Logistics Center, Directorate of Aircraft, Software Division (LAS), Tinker AFB, Oklahoma; prepared for the Deputy Assistant Secretary of the Air Force, Communications, Computers, and Support Systems (SAF/AQK), Washington, DC], Software Productivity Research, Burlington, MA, 26 September 1994.

[ORCI00]

Orci, T., Laryd, A., "Dynamic CMM for Small Organizations," in *Proceedings SPI2000, the International Conference on Software Process Improvement Conference*, Gothenburg, Sweden, Dec 2000.

[PAUL94]

Paulish, D., Carleton, A., "Case studies of software-process-improvement measurement," in *IEEE Computer*, vol. 27, n°9, 1994, pp. 50-57.

[PREC01]

Prechelt, L., Unger, B., "An Experiment Measuring the Effects of Personal Software Process (PSP) Training," in *IEEE Transaction on Software Engineering*, vol. 27, n°5, 2001, pp. 465-472.

[RAIN01]

Rainer, A., Hall, T., "An analysis of some core studies of software process improvement," in *Software Process: Improvement and Practice*, Vol. 6, No. 4, 2001, pp. 169-187.

[TACK99]

Tackett, B., Van Doren, B., "Process Control for Error-Free Software: A Software Success Story," in *IEEE Software*, vol. 16, n°2, 1999, p.24-29.

[THOR98]

Thorwart, K., "The AMETIST process improvement experiment: towards efficient team development in small companies," in *Software Process: Improvement and Practice*, Vol. 4, No. 1, 1998, p.11-18.

[TRIE01]

Trienekens, J., Kusters, R., Van Solingen, R., "Product Focused Software Process Improvement: Concepts and Experiences from Industry", in *Software Quality Journal*, Vol. 9, n°4, 2001, pp. 269-281.

[VAKA97]

Vakaslahti, P., "Process improvement frameworks - a small case study with People Capability Maturity Model", in *Software Process: Improvement and Practice*, Vol. 3, No. 4, 1997, p.225-234.

[WILL98]

Willis, R., Rova, R., et al, "Hughes Aircraft's Widespread Deployment of a Continuously Improving Software Process," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-98-TR-006, 1998.

7 Organizational Culture³

7.1 *People Issues*

[ARMO01]

Armour, P., "Matching Process to Types of Teams," in *Communications of the ACM*, 44(7), 2001, p.21-23.

[CONS95]

Constantine, L., **Constantine on Peopleware**, Yourdon Press Computing Series, Englewood Cliffs, NJ, 1995.

[CURT01]

Curtis, B., Hefley, W., and Miller, S., **People Capability Maturity Model**, Addison-Wesley Publishing Company, Reading, MA, 2001.

[DAWE88]

Dawes, R., **Rational Choice in an Uncertain World**, Harcourt Brace Jovanovich College Publishers, Orlando, FL, 1988.

[DMAR99]

DeMarco, T., and Lister, T., **Peopleware**, 2nd Edition, Dorset House, New York, NY, 1999.

[DMAG83]

DiMaggio, P. and Powell, W., "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields," in *American Sociological Review*, Vol. 48, April 1983, pp. 147-160.

[FISH91]

Fisher, R., Ury, W., and Patton, B., **Getting to Yes: Negotiating Agreement Without Giving In**, Second Edition, Penguin, 1991.

[GLAS95]

Glass, R., **Software Creativity**, Prentice Hall, Englewood Cliffs, NJ, 1995.

[HUMP97]

Humphrey, W., **Managing Technical People**, Addison-Wesley Publishing Company, Reading, MA, 1997.

[PERR94]

Perry, D., Staudenmayer, N., Votta, L., "People, Organizations, and Process Improvement," in *IEEE Software*, vol. 11, n°4, 1994, pp. 36-45.

[TEAL96]

Teal, T., "The Human Side of Management," in *Harvard Business Review*, November/December 1996, pp. 35-44.

[TOWN70]

Townsend, R., **Up the Organization: How to Stop the Corporation from Stifling People and Strangling Profits**, Fawcett Crest, New York, NY, 1970.

³ All this section (structure and references) come from Mark Paulk's bibliography available from <http://www.sei.cmu.edu/activities/cmm/docs/biblio.pdf> Updated October 2002, pp.14-15.

[URY93]

Ury, W., **Getting Past No : Negotiating Your Way from Confrontation to Cooperation**, Bantam Doubleday, 1993.

[WEIN71]

Weinberg, G., **The Psychology of Computer Programming**, Van Nostrand Reinhold, New York, NY, 1971.

[WEIN94]

Weinberg, G., **Quality Software Management Volume 3: Congruent Action**, Dorset House Publishing, New York, New York, 1994.

7.2 ***Organizational Culture and Teams (IC)***

[BEMO95]

Bemowski, K., "What Makes American Teams Tick?", in *ASQC Quality Progress*, Vol. 28, No. 1, 1995, pp. 39-43.

[HAND91]

Handy, C., **Gods of Management: The Changing Work of Organizations – Third Edition**, Oxford University Press, New York, New York, 1991.

[KATZ93]

Katzenbach, J., and Smith, D., **The Wisdom of Teams**, HarperCollins, New York, NY, 1993.

[POOL99]

Pool, R., "When Failure Is Not An Option," in *MIT Technology Review*, July 1997. Reprinted in *IEEE Engineering Management Review*, Vol. 27, No. 1, Spring 1999, pp. 27-31.

[SCHO96]

Scholtes, P., Joiner, B., and Streibel, B., **The TEAM Handbook, Second Edition**, Oriel Incorporated, Madison, WI, 1996.

[SCHR89]

Schrage, M., **No More Teams! Mastering the Dynamics of Creative Collaboration**, Currency Doubleday, New York, NY, 1989.

8 CMM-based classification⁴

8.1 Maturity Level 2 – Repeatable

8.1.1 Requirements Management (RM)

[BOEH99]

Boehm, B., In, H., “Cost vs. Quality Requirements: Conflict Analysis and Negotiation Aids,” in *ASQ Software Quality Professional*, Vol. 1, No. 2, March 1999, pp. 38-50.

[KRAS89]

Krasner, H., “Requirements Dynamics in Large Software Projects,” in *Proceedings of the 11th World Computer Congress (IFIP89)*, Elsevier Science Publishers B.V., Amsterdam, The Netherlands, August 1989.

[WEIN93]

Weinberg, G., “Requirements as the Foundation of Measurement,” Chapter 19 in *Quality Software Management Vol. 2: First-Order Measurement*, Dorset House Publishing, New York, New York, 1993, pp. 295-306.

8.1.2 (Software) Project Planning (SPP)

[ABDE86]

Abdel-Hamid, T., and Madnick, S., “Impact of Schedule Estimation on Software Project Behavior,” in *IEEE Software*, Vol. 3, No. 4, July 1986, pp. 70-75.

[BOEH00]

Boehm, B., Horowitz, E., et al, **Software Cost Estimation with COCOMO II**, Prentice Hall, Upper Saddle River, NJ, 2000.

[DAVI97]

Davis, A., “Software Life Cycle Models,” *Software Engineering Project Management*, Second Edition, R.H. Thayer (ed), IEEE Computer Society Press, Los Alamitos, CA, 1997, pp.105-114.

[HIHN91]

Hihn, J., and Habib-Agahi, H., “Cost Estimation of Software Intensive Projects: A Survey of Current Practices,” in *Proceedings of the 13th International Conference on Software Engineering*, Austin, TX, 13-17 May 1991, pp. 276-287.

[LEDE92]

Lederer, A., and Prasad, J., “Nine Management Guidelines for Better Cost Estimating,” in *Communications of the ACM*, Vol. 35, No. 2, February 1992, pp. 51-59.

[MCON01]

McConnell, S., "The Nine Deadly Sins of Project Planning," in *IEEE Software*, September/October 2001, pp. 5-7.

⁴ All this section (structure and references) come from Mark Paulk’s bibliography available from <http://www.sei.cmu.edu/activities/cmm/docs/biblio.pdf> Updated October 2002, pp.16-25.

[PARK96]

Park, R., "A Manager's Checklist for Validating Software Cost and Schedule Estimates", in *American Programmer*, Vol. 9, No. 6, June 1996, pp. 30-35.

8.1.3 (Software) Project Management (PTO, ISM)**[ABDE91]**

Abdel-Hamid, T., and Madnick, S., **Software Project Dynamics**, Prentice-Hall, Englewood Cliffs, NJ, 1991.

[CLEL94]

Cleland, D., **Project Management: Strategic Design and Implementation**, Second Edition, McGraw-Hill, New York, NY, 1994.

[CONS01]

Constantine, L., **Beyond Chaos: The Expert Edge in Managing Software Development**, Addison-Wesley, Boston, MA, 2001.

[COOP93]

Cooper, K., "The Rework Cycle: Vital Insights into Managing Projects," in *IEEE Engineering Management Review*, Fall 1993, pp. 4-12.

[COOP94]

Cooper, K., "The \$2,000 Hour," in *IEEE Engineering Management Review*, Vol. 22, No. 4, Winter 1994, pp. 12-23.

[LOCH99]

Lochner, J., "16 Critical Software Practices for Performance-Based Management," in *Crosstalk: The Journal of Defense Software Engineering*, Vol. 12, No. 10, October 1999, pp. 6-9

[DMAR82]

DeMarco, T., **Controlling Software Projects**, Yourdon Press, New York, NY, 1982.

[GILB88]

Gilb, T., **Principles of Software Engineering Management**, Addison-Wesley, Reading, MA, 1988.

[OLSE93]

Olsen, N., "The Software Rush Hour," in *IEEE Software*, Vol. 10, No. 5, September 1993, pp. 29-37.

[STAR94]

Stark, G., Durst, R., and Vowell, C., "Using Metrics in Management Decision Making," in *IEEE Computer*, Vol. 27, No. 9, September 1994, pp. 42-49.

[THAM86]

Thamhain, H.J., and Wilemon, D.L., "Criteria for Controlling Projects According to Plan," in *Project Management Journal*, June 1986, pp. 75-81. Reprinted in *Software Engineering Project Management*, R.H. Thayer (ed), IEEE Computer Society Press, 1988, pp. 392-398.

[WHIT95]

Whitten, N., **Managing Software Development Projects**, 2nd Edition, John Wiley and Sons, New York, NY, 1995.

[WOOD99]

Woodward, S., "Evolutionary Project Management," in *IEEE Computer*, Vol. 32, No. 10, October 1999, pp. 49-57.

8.1.4 Customer-Supplier Relationship (SSM, Acquisition, Customer Satisfaction)

[JONE95]

Jones, T., and Sasser, W. Jr., "Why Satisfied Customers Defect," in *Harvard Business Review*, November/December 1995. Reprinted in *IEEE Engineering Management Review*, Fall 1998, Vol. 26, No. 3, pp. 16-26.

[MEYE01]

Meyers, B., and Oberndorf, P., **Managing Software Acquisition: Open Systems and COTS Products**, Addison-Wesley, Reading, MA, 2001.

[NIEL96]

Nielsen, J., and Miller, A., "Selecting Software Subcontractors," in *IEEE Software*, Vol. 13, No. 4, July 1996, pp. 104-109.

8.1.5 Software Quality Assurance (SQA)

[AQUI90]

Aquino, M. "Improvement vs. Compliance: A New Look at Auditing," in *ASQC Quality Progress*, October 1990, pp. 47-49.

[BUCK84]

Buckley, F., and Poston, R., "Software Quality Assurance," in *IEEE Transactions on Software Engineering*, Vol. SE-10, No. 1, January 1984, pp. 36-41.

[BUCK87]

Buckley, F., "The Roles of a SQA Person," in *ACM Software Engineering Notes*, Vol. 12, No. 3, July 1987, pp. 42-44.

[CRAI99]

Craig, R., "Software Quality Assurance in a CMM Level 5 Organization," in *Crosstalk: The Journal of Defense Software Engineering*, May 1999, pp. 11-15.

8.1.6 Software Configuration Management (SCM)

[BERS88]

Bersoff, E.H. , "Elements of Software Configuration Management," in *IEEE Transactions on Software Engineering*, January 1984, pp. 27-35. Reprinted in *Software Engineering Project Management*, R.H. Thayer (ed), IEEE Computer Society Press, 1988, pp. 430-438.

[BERS91]

Bersoff, E.H. and Davis, A., "Impacts of Life Cycle Models on Software Configuration Management," in *Communications of the ACM*, Vol. 34, No. 8, August 1991, pp. 105-118.

[DART92]

Dart, S., "The Past, Present, and Future of Configuration Management," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-92-TR-8, 1992.

[FEIL91]

Feiler, P., "Configuration Management Models in Commercial Environment," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-91-TR-7, 1991.

8.2 *Maturity Level 3 – Defined*

8.2.1 Organizational Process (OPF, OPD)

[ARMI93]

Armitage, J., Kellner, M., and Phillips, R., "Software Process Definition Guide: Content of Enactable Software Process Definitions," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-93-SR-18, August 1993.

[CURT87]

Curtis, B., Krasner, H., Shen, V., and Iscoe, N., "On Building Software Process Models Under the Lamppost," in *Proceedings of the Ninth International Conference on Software Engineering*, Monterey, CA, IEEE Computer Society, 30 March - 2 April 1987, pp. 96-103.

[CURT92]

Curtis, B., Kellner, M., and Over, J., "Process Modeling," in *Communications of the ACM*, Vol. 35, No. 9, September 1992, pp. 75-90.

[DAND96]

Dandekar, A., and Perry, D., "Barriers to Effective Process Architecture – An Experience Report," in *Software Process: Improvement and Practice*, Vol. 2, Issue 1, March 1996, pp. 13-20.

[FOWL90]

Fowler, P., and Rifkin, S., "Software Engineering Process Group Guide," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-90-TR-24, September 1990.

[KELL99]

Kellner, M., Madachy, R., and Raffo, D., "Software Process Simulation Modeling: Why? What? How?," in *The Journal of Systems and Software*, Vol. 46, No. 2-3, 15 April 1999, pp. 91-105.

[MADA00]

Madachy, R., and Tarbet, D., "Initial Experiences in Software Process Modeling," in *ASQ Software Quality Professional*, Vol. 2, No. 3, June 2000, pp. 15-27.

[RIFK02]

Rifkin, S., "What I Would Do Differently If I Wrote the SEPG Guide Today," in *SEPG Conference 2002*, Phoenix, AZ, 18-21 February 2002.

8.2.2 Training (TP)

[ARGY91]

Argyris, C., "Teaching Smart People How to Learn," in *Harvard Business Review*, May/June 1991, pp. 99-109.

[GARV93]

Garvin, D., "Building a Learning Organization," in *Harvard Business Review*, July/August 1993, pp. 78-91.

[WIGG90]

Wiggenhorn, W., "Motorola U: When Training Becomes an Education," in *Harvard Business Review*, July/August 1990, pp. 71-83.

8.2.3 Risk Management**[BERN96]**

Bernstein, P., **Against the Gods: The Remarkable Story of Risk**, ISBN 0-471-29563-9, John Wiley & Sons, New York, NY, 1996.

[BOEH89]

Boehm (ed), B., **Software Risk Management**, IEEE Computer Society Press, July 1989.

[CHAR96]

Charette, R., "Large-Scale Project Management is Risk Management," in *IEEE Software*, Vol. 13, No. 4, July 1996, pp. 110-117.

[KITC97]

Kitchenham, B., and Linkman, S., "Estimates, Uncertainty, and Risk," in *IEEE Software*, Vol. 14, No. 3, May/June 1997, pp. 69-74.

[WILL97]

Williams, R., Walker, J., and Dorofee, A., "Putting Risk Management Into Practice," in *IEEE Software*, Vol. 14, No. 3, May/June 1997, pp. 75-82.

8.2.4 Integrated Product and Process Development (Concurrent Engineering)**[BLAC96]**

Blackburn, J., Hoedemaker, G., and Van Wassenhove, L., "Concurrent Software Engineering: Prospects and Pitfalls," in *IEEE Transactions on Engineering Management*, Vol. 43, No. 2, May 1996, pp. 179-188.

[SMIT97]

Smith, R. "The Historical Roots of Concurrent Engineering Fundamentals," in *IEEE Transactions on Engineering Management*, Vol. 44, No. 1, February 1997, pp. 67-78.

[SOBE98]

Sobek II, D., Liker, J., and Ward, A., "Another Look at How Toyota Integrates Product Development," in *Harvard Business Review*, July/August 1998. Reprinted in *IEEE Engineering Management Review*, Vol. 26, No. 4, Winter 1998, pp. 69-78.

8.2.5 Software Engineering (SPE, SQM)

8.2.5.1 Requirements

[GAUS89]

Gause, d., and Weinberg, G., **Exploring Requirements: Quality Before Design**, Dorset House, New York, NY, 1989.

[YOUN01]

Young, R., **Effective Requirements Practices**, Addison-Wesley, Reading, MA, 2001.

8.2.5.2 Design

[BASS98]

Bass, L., Clements, P., and Kazman, R., **Software Architecture in Practice**, Addison-Wesley, Reading, MA, 1998.

[CLEM01]

Clements, P., Kazman, R., and Klein, M., **Evaluating Software Architectures: Methods and Case Studies**, Addison-Wesley, Reading, MA, 2001.

8.2.5.3 Programming

[HUMP89]

Humphrey, W., "CASE Planning and the Software Process," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-89-TR-26, May 1989.

8.2.5.4 Testing

[BURN99]

Burnstein, I., Homyen, A., et al, "A Testing Maturity Model for Software Test Process Assessment and Improvement," in *ASQ Software Quality Professional*, Vol. 1, Issue 4, September 1999, pp. 8-21.

[DAIC96]

Daich, G., "Emphasizing Software Test Process Improvement," in *Crosstalk: The Journal of Defense Software Engineering*, Vol. 9, No. 6, June 1996, pp. 20-26.

8.2.6 Peer Reviews (PR)**[ACKE89]**

Ackerman, A., Buchwald, L., and Lewski, F., "Software Inspections: An Effective Verification Process," in *IEEE Software*, Vol. 6, No. 3, May 1989, pp. 31-36.

[FAGA88]

Fagan, M., "Advances in Software Inspections," in *IEEE Transactions on Software Engineering*, Vol. 12, No. 7, July 1986, pp. 744-751. Reprinted in *Software Engineering Project Management*, R.H. Thayer (ed), IEEE Computer Society Press, 1988, pp. 416-423.

[FREE90]

Freedman, D., and Weinberg, G., **Handbook of Walkthroughs, Inspections, and Technical Reviews**, Third Edition, Dorset House, New York, NY, 1990.

[GLAS99]

Glass, R., "Inspections - Some Surprising Findings," in *Communications of the ACM*, April 1999, pp. 17-19.

[GRAD94]

Grady, R., and Van Slack, T., "Key Lessons in Achieving Widespread Inspection Use," in *IEEE Software*, Vol. 11, No. 4, July 1994, pp. 46-57.

[JOHN98]

Johnson, P., and Tjahjono, D., "Does Every Inspection Really Need a Meeting?," in *Empirical Software Engineering*, Kluwer Academic Publishers, Vol. 3, No. 1, Boston, MA, 1998, pp. 9-35.

[KNIG93]

Knight, J., and Myers, E., "An Improved Inspection Technique," in *Communications of the ACM*, Vol. 36, No. 11, November 1993, pp. 51-61.

[MASH93]

Mashayekhi, V., Drake, J., Tsai, W.-T., and Riedl, J., "Distributed, Collaborative Software Inspection," in *IEEE Software*, Vol. 10, No. 5, September 1993, pp. 66-75.

[PARN87]

Parnas, D., and Weiss, D., "Active Design Reviews: Principles and Practices," in *Journal of Systems and Software*, Vol. 7, No. 4, December 1987, pp. 259-265.

[RADI02]

Radice, R., **High Quality Low Cost Software Inspections**, Paradoxicon Publishing, Andover, MA, 2002.

[RUSS91]

Russell, G., "Inspection in Ultralarge-Scale Development," in *IEEE Software*, Vol. 8, No. 1, 1991, pp. 25-31.

[WELL93]

Weller, E., "Lessons from Three Years of Inspection Data," in *IEEE Software*, Vol. 10, No. 5, 1993, pp. 38-45.

[WIEG02]

Wieggers, K., **Peer Reviews in Software**, Addison-Wesley, Reading, MA, 2002.

8.3 Maturity Level 4 – Managed

[PAUL00]

Paulk, M., Goldenson, D., and White, D., "The 1999 Survey of High Maturity Organizations," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-2000-SR-002, February 2000.

[PAUL02]

Paulk, M., and Chrissis, M., "The 2001 High Maturity Workshop," Software Engineering Institute, Carnegie Mellon University, CMU/SEI-2001-SR-014, January 2002.

8.3.1 Statistical Process / Quality Control (QPM, SQM)

[BOX96]

Box, G., and Bisgaard, S., "The Scientific Context of Quality Improvement," in *ASQC Quality Progress*, June 1987, pp. 54-61. Reprinted in *IEEE Engineering Management Review*, Vol. 24, No. 1, Spring 1996, pp. 33-42.

[BRAS94]

Brassard, M., and Ritter, D., **The Memory Jogger II**, GOAL/QPC, Methuen, MA, 1994.

[FENT99]

Fenton, N., and Neil, M., "A Critique of Software Defect Prediction Models," in *IEEE Transactions on Software Engineering*, Vol. 25, No. 5, September/October 1999, pp. 675-689.

[FLOR99]

Florac, W., and Carleton, A., **Measuring the Software Process: Statistical Process Control for Software Process Improvement**, Addison-Wesley, Reading, MA, 1999.

[FLOR00]

Florac, W., and Carleton, A., and Barnard, J., "Statistical Process Control: Analyzing a Space Shuttle Onboard Software Process," in *IEEE Software*, Vol. 17, No. 4, July/August 2000, pp. 97-106.

[HARE95]

Hare, L., Hoerl, R., Hromi, J., and Snee, R., "The Role of Statistical Thinking in Management," in *ASQC Quality Progress*, Vol. 28, No. 2, February 1995, pp. 53-60.

[HOUS99]

Houston, D., "Cost of Software Quality: Justifying Software Process Improvement to Managers," in *ASQ Software Quality Professional*, Vol. 1, No. 2, March 1999, pp. 8-16.

[ISHI86]

Ishikawa, K., **Guide to Quality Control**, Asian Productivity Organization, Tokyo, Japan, (available from Unipub - Kraus International Publications, White Plains, NY) 1986.

[KAN95]

Kan, S., **Metrics and Models in Software Quality Engineering**, Addison-Wesley, Reading, MA, February 1995.

[MUSA89]

Musa, J., and Ackerman, A., "Quantifying Software Validation: When to Stop Testing?" in *IEEE Software*, Vol. 6, No. 3, May 1989, pp. 19-27.

[MUSA89]

Musa, J., Iannino, A., and Okumoto, K., **Software Reliability: Measurement, Prediction, Application**, McGraw-Hill, New York, NY, 1987.

[OULD96]

Ould, M., "CMM and ISO 9001," in *Software Process: Improvement and Practice*, Vol. 2, Issue 4, December 1996, pp.281-289.

[PYZD93]

Pyzdek, T., "Process Control for Short and Small Runs," in *ASQC Quality Progress*, Vol. 26, No. 4, April 1993, pp. 51-60.

[WELL00]

Weller, E., "Practical Applications of Statistical Process Control," in *IEEE Software*, Vol. 17, No. 3, May/June 2000, pp. 48-55.

[WHEE93]

Wheeler, D., **Understanding Variation: The Key to Managing Chaos**, SPC Press, Knoxville, TN, 1993.

[WHEE94]

Wheeler, D., "Charts Done Right," in *Quality Progress*, Vol. 27, No. 6, June 1994, pp. 65-68.

[WHEE98]

Wheeler, D., and Poling, S., **Building Continual Improvement: A Guide for Business**, SPC Press, Knoxville, TN, 1998.

8.3.2 Product Knowledge Management: Domain Engineering, Product Lines, and Reuse

[BESS95]

Besselman, J., and Rifkin, S., "Exploiting the Synergism Between Product Line Focus and Software Maturity," in *Proceedings of the 1995 Acquisition Research Symposium*, Washington, D.C., pp. 95-107.

[CLEM01]

Clements, P., and Northrop, L., **Software Product Lines: Practices and Patterns**, Addison-Wesley, Reading, MA, 2001.

[PFLE96]

Pfleeger, S., "Measuring Reuse: A Cautionary Tale," in *IEEE Software*, Vol. 13, No. 4, July 1996, pp. 118-127.

[WALL01]

Wallnau, K., Hissam, S., and Seacord, R., **Building Systems from Commercial Components**, Addison-Wesley, Reading, MA, 2001.

8.4 Maturity Level 5 – Optimizing

8.4.1 Defect Prevention (DP)

[BHAN93]

Bhandari, I., Halliday, M., et al., "A Case Study of Software Process Improvement During Development," in *IEEE Transactions on Software Engineering*, Vol. 19, No. 12, December 1993, pp. 1157-1170.

[CARD98]

Card, D., "Learning from Our Mistakes with Defect Causal Analysis," in *IEEE Software*, Vol. 15, No. 1, January/February 1998, pp. 56-63.

[CHIL92]

Chillarege, R., and Bhandari, I., "Orthogonal Defect Classification – A Concept for In-Process Measurements," in *IEEE Software*, Vol. 18, No. 11, November 1992, pp. 943-955.

[COLL96]

Collier, B., DeMarco, T., and Fearey, P., "A Defined Process for Project Postmortem Review," in *IEEE Software*, Vol. 13, No. 4, July 1996, pp. 65-72.

[GALE90]

Gale, J., Tirso, J., and Burchfield, C., "Implementing the Defect Prevention Process in the MVS Interactive Programming Organization," in *IBM Systems Journal*, Vol. 29, No. 1, 1990, pp. 33-43.

[JONE85]

Jones, C., "A Process-Integrated Approach to Defect Prevention," in *IBM Systems Journal*, Vol. 24, No. 2, 1985, pp. 150-167.

[KAJI93]

Kajihara, J., Amamiya, G., and Saya, T., "Learning from Bugs," in *IEEE Software*, Vol. 10, No. 5, September 1993, pp. 46-54.

[MAYS90]

Mays, R., Jones, C., Holloway, G., and Studinski, D., "Experiences with Defect Prevention," in *IBM Systems Journal*, Vol. 29, No. 1, 1990, pp. 4-32.

[BRID97]

Bridge, N., and Miller, C., "Orthogonal Defect Classification Using Defect Data to Improve Software Development," in *Proceedings of the 7th International Conference on Software Quality*, Montgomery, Alabama, 6-8 October 1997, pp. 197-213.

8.4.2 Change Management (TCM, PCM)

[ABRA00]

Abrahamson, E., "Change Without Pain," in *Harvard Business Review*, July-August 2000, pp. 75-79.

[BASI94]

Basili, V., Daskalantonakis, M., and Yacobellis, R., "Technology Transfer at Motorola," *IEEE Software*, Vol. 11, No. 2, 1994, pp. 70-76.

[BEER90]

Beer, M., Eisenstat, R., and Spector, B., "Why Change Programs Don't Produce Change," in *Harvard Business Review*, November/December 1990, pp. 158-166.

[BOHN94]

Bohn, R., "Measuring and Managing Technological Knowledge," in *Sloan Management Review*, Fall 1994. Reprinted in *IEEE Engineering Management Review*, Vol. 25, No. 4, Winter 1997, pp. 77-88.

[DAVI92]

Davis, A., "Why Industry Often Says 'No Thanks' to Research," in *IEEE Software*, November 1992, pp. 97-99.

[FICH99]

Fichman, R., and Kemerer, C., "The Illusory Diffusion of Innovations: An Examination of Assimilation Gaps," in *Information Systems Research*, Vol. 10, No. 3, September 1999, pp. 255-275.

[KITC95]

Kitchenham, B., Pickard, L., and Pfleeger, S., "Case Studies for Method and Tool Evaluation," in *IEEE Software*, July 1995, pp. 52-62.

[KOTT95]

Kotter, J., "Leading Change: Why Transformation Efforts Fail," in *Harvard Business Review*, March-April 1995, pp. 59-67.

[MOOR91]

Moore, G., **Crossing the Chasm**, Harper Collins Publishers, New York, NY, 1991.

[ROGE83]

Rogers, E., **Diffusion of Innovations**, Third Edition, The Free Press, New York, NY, 1983.

[SCHA92]

Schaffer, R., and Thomson, H., "Successful Change Programs Begin with Results," in *Harvard Business Review*, January/February 1992, pp. 80-89.