

Resume

EMANUEL R. BAKER, Ph.D.

Summary of Experience

Emanuel R. Baker, Ph.D., a Principal and co-founder of Process Strategies, Inc., specializes in software and system process management consulting. He has over thirty years of software development, management, and consulting experience. His areas of expertise include software and system development process appraisals, systems engineering, software configuration management, software quality assurance, software test, software standards development, requirements management, as well as training in these disciplines.

Dr. Baker has worked with leading companies and government organizations in the United States and overseas in a diverse number of industries such as pharmaceuticals, aerospace, technology, telecommunications, software development, research, and retailing.

Selected Engagements

- ❑ Dr. Baker is certified by the SEI as a Lead Appraiser for the Standard CMM Integration (CMMI) Appraisal Method for Process Improvement (SCAMPI) for the CMMI for Development (CMMI-DEV), CMMI for Acquisition (CMMI-ACQ), and the CMMI for Services (SVC) models and as an instructor for the Introduction to the CMMI course for these models. He is certified by the SEI as a high maturity lead appraiser, permitting him to lead SCAMPI Class A appraisals for organizations seeking a rating at Maturity Level 4 or 5. He was in the first class ever trained by the SEI to lead appraisals back in October 1990. He has performed many SCAMPI assessments for a variety of clients, including the automotive industry, several large overseas-based multi-national corporations that provide systems and services over a large number of market sectors, and a major U.S. corporation that provides systems and services for the federal and private sectors.
- ❑ Dr. Baker is authorized by the SEI to observe and evaluate candidate lead appraisers for the SCAMPI B appraisal methodologies.
- ❑ Dr. Baker has also conducted many informal CMMI-based appraisals. These appraisals provided significant benefits to organizations that needed to establish process baselines or determine their readiness for formal SCAMPI appraisals. These informal assessments have laid the groundwork for process improvement plans that have eventually resulted in the client organization achieving the desired level on the CMMI at their next appraisal.
- ❑ Dr. Baker has been a process consultant for a number of organizations. These assignments have included evaluation of draft process infrastructure documentation, resultant work products, and general consulting relative to implementation of the CMMI.
- ❑ Dr. Baker is an experienced trainer. Dr. Baker presented seminars and courses in the US and 10 countries overseas in software engineering, software quality assurance, and the CMM for Technology Training Corporation, Digital Consulting, and George Washington University Engineering Extension Program. He has also developed and delivered training programs in software engineering and the Capability Maturity Model for software for the Defense Contract Management Agency (DCMA) and the Defence Materiel Organisation (DMO) of the Australian Department of Defence. From 1993 through 1998, Dr. Baker provided numerous course presentations of four different courses to the DCMA as part of their Software Professional Development Program.
- ❑ Dr. Baker has defined the software development and maintenance processes used by a number of clients. In conjunction with the development organization, he has defined and documented the processes to be used for project management, software development, test, documentation, configuration management, and quality assurance.

- ❑ Dr. Baker is co-author, with Dr. Ron Kenett, of a book on software process improvement, titled *Software Process Quality: Management and Control*, published in 1999. The book discusses software process improvement, assessments, strategic planning for process improvement, and establishing measurement programs to evaluate how well process improvement is progressing. Featured in this book is a description of the process developed by PSI for performing strategic planning for process improvement. The book is currently being updated by the authors to expand it to cover systems, account for advances in the technology, and cover the spectrum of process improvement models that exist today. The new version of the book is expected to be published in early 2010.
- ❑ Dr. Baker has participated in a number of industry studies as a principal investigator. Examples of the scope of these studies include classifying the various modes of software maintenance and characterizing good system deployment practices. He was responsible for creating a capability maturity model that characterizes the maturity of various deployment practices.

Professional Background

Dr. Baker is a principal officer of Process Strategies, Inc. (PSI), a consulting firm based in Los Angeles, California, and Walpole, Maine, specializing in software process appraisal services. He has been a consultant in software engineering since 1984. Prior to that, he was Manager of the Product Assurance Department of the Strategic and Information Systems Division of Logicon (now a part of Northrop-Grumman). In that capacity, along with his duties of managing the department, he also had responsibility for the contract to develop the former DoD software quality standard, DoD-STD-2168.

Prior to that, he was employed at TRW (now a part of Northrop-Grumman). In 1972, he assumed the position of section head in the Software Systems Engineering Department on the Site Defense Program, a landmark program in the development of standards and procedures for software development, configuration management, and quality assurance practices. Dr. Baker played an important role in the development of these standards and procedures, which later became the software development policies, standards, and procedures for the entire division. Later, he transferred into the Product Assurance area, playing an important role in the continuing development of software configuration management and quality assurance procedures used at TRW. During the last two years of his tenure at TRW, he assumed the position of Assistant Project Manager for Product Assurance on the BETA Project, an early tactical data fusion project, utilizing extensive amounts of sensors, software, and displays to remotely depict battlefield conditions.

Prior to joining TRW, Dr. Baker was employed at Aeronutronic (now Loral) as head of the Data Reduction Unit, where he was involved in the conversion of a manual data reduction system to a computerized one. Prior to that, he was an aerodynamics flight test project engineer at Hughes Aircraft. It was there that he had his first exposure to software, learning to program missile failure trajectories in assembly language on a Burroughs E-102 computer.

Dr. Baker has authored and co-authored a number of papers and articles on software quality, configuration management, and software process assessments.

Dr. Baker is a member of the Steering Committee of the Los Angeles and Southern California chapters of the Software Process Improvement Network (SPIN).

Education and Certifications

Dr. Baker has a B.S.M.E. from New York University and the M.S.M.E. from the University of Southern California. In addition, he holds a M.S. and a Ph.D. in education from the University of Southern California.

Dr. Baker is certified by the Software Engineering Institute as a Lead Appraiser for the Standard CMM Integration (CMMI) Appraisal Methodology for Process Improvement (SCAMPI) for the CMMI-DEV, CMMI-ACQ, and the CMMI-SVC models. He is certified by the SEI as a high maturity lead appraiser. He is also authorized by the SEI as an instructor for the "Introduction to the CMMI" course for both models and to observe candidate SCAMPI B lead appraisers.

Publications

1. Baker, Emanuel R. and Fisher, Matthew J. "A Software Quality Framework", Concepts: The Journal of Defense Systems Acquisition Management, Autumn 1982, Vol. 5, No. 4.
2. Baker, Emanuel R. and Fisher, Matthew J. "A Software Quality Framework", Fourth International Conference of the Israel Society for Quality assurance, October 18-20, 1982, Herzliyah, Israel.
3. Baker, Emanuel R. and Fisher, Matthew J. "Software Quality Program Management", IEEE International Conference on Communications (ICC), June 19-22, 1983, Boston, MA.
4. Baker, Emanuel R. and Fisher, Matthew J. "Software Quality Program Organization", Fifth International Conference of the Israel Society for Quality assurance, October 23-25, 1984, Tel Aviv, Israel.
5. Cooper, V. L. and Baker, Emanuel R. "The Case for DoD-STD-SQS", IEEE Computer Software and Applications Conference (COMPSAC), November 7-9, 1984, Chicago, IL.
6. Baker, Emanuel R. and Fisher, Matthew J. "Software Quality Program Organization", in Handbook of Software Quality Assurance, Schulmeyer, G. Gordon and McManus, James I., ed., New York: Van Nostrand Reinhold Company, Inc., 3rd Ed, 1999.
7. Baker, Emanuel R., "TQM in Mission Critical Software Development", in Total Quality Management for Software, Schulmeyer, G. Gordon and McManus, James I., ed., New York: Van Nostrand Reinhold Company, Inc., 1992.
8. Baker, Emanuel R. and Kenett, Ron S. Software Process Quality: Management and Control, New York: Marcel Dekker, Inc., 1999.
9. Baker, Emanuel R., "Software Development Library", in Encyclopedia of Software Engineering, Marciniak, John J., Ed., New York: John Wiley & Sons, Inc., 1994, and 2nd ed., 2002.
10. Baker, Emanuel R., "Software Development File", in Encyclopedia of Software Engineering, Marciniak, John J., Ed., New York: John Wiley & Sons, Inc., 1994, and 2nd ed., 2002.
11. Baker, Emanuel R., Corson, B., Cooper, V. Lee, and Stevens, Arthur E. "A Concept For A Software Acquisition Management Maturity Model (SAM³)", Program Manager, Defense Systems Management College, Fort Belvoir, VA, July/August 1994.
12. Baker, Emanuel R., "A Different Approach to the SEI's Capability Maturity Model (CMM)", International Conference on Reliability and Quality in Design, March 16-18, 1994, Seattle, WA.
13. Baker, Emanuel R., "A Proposed New Structure for the Capability Maturity Model (CMM)", 4th International Conference on Software Quality, October 3-5, 1994, McLean, VA.
14. Baker, Emanuel R., "Transforming Assessment Findings into Action Plans", 1995 Southeastern Quality Conference, October 23-24, 1995, Atlanta, GA.

Publications (Cont.)

15. Baker, Emanuel R., and Koch, Frank J., “Strategic Planning for Software Process Improvement: Techniques for Objectively Making the Hard Decisions”, Software Management Conference, February 15-18, 1999, San Jose, CA, Software Engineering Process Group Conference, March 9-11, 1999, Atlanta, GA, SEA99 Conference, April 12-14, 1999, Canberra, Australia, and Practical Software Quality Techniques Conference, September 19-20, 2000, Minneapolis, MN.
16. Clark, Elizabeth K. Bailey, Forbes, James A., Baker, Emanuel R., and Hutcheson, Donald W., “Mission-Critical and Mission-Support Software: A Preliminary Maintenance Characterization”, *CrossTalk*, June 1999.
17. Baker, Emanuel R., “The Process Database Minefield”, Los Angeles Software Process Improvement Network (SPIN), May 24, 2000.
18. Baker, Emanuel R., and Wakeham, Myles G., “JAD and Requirements Management”, Los Angeles Software Process Improvement Network (SPIN), September 27, 2000, and the Southern California Quality Assurance Association (SCQAA), November 15, 2000.
19. Baker, Emanuel R., “Software Quality Assurance”, in Encyclopedia of Software Engineering, Marciniak, John J., Ed., New York: John Wiley & Sons, Inc., 2002.
20. Baker, Emanuel R., “Which Way, SQA?”, *Software*, Computer Society of the Institute of Electrical and Electronic Engineers, January/February 2001.
21. Baker, Emanuel R., and Hantos, Peter, “GQM-Rx – A Prescription to Prevent Metrics Headaches”, Proceedings of the World Multiconference on Systemics, Cybernetics, and Informatics, Orlando, FL, July 22 – 25, 2001.
22. Baker, Emanuel R., and Hantos, Peter, “The influence of Process Maturity on Metrics Program Success”, Proceedings of the Nineteenth Annual Pacific Northwest Software Quality Conference, Portland, OR, October 16 – 17, 2001.
23. Baker, Emanuel R., “Future Directions in Software Quality Management”, *Software Management*, Reifer, Donald J., ed., IEEE Computer Society Press, 2002.
24. Forbes, James A., Bodiford, Kurt, and Baker, Emanuel R., “Improving Information Management Software System Deployment Practices”, *Crosstalk*, June, 2003.
25. Forbes, James A., and Baker, Emanuel R., “Improving Hardware, Software, and Training Deployment Processes”, Proceedings of the International Conference on Software Maintenance, Amsterdam, Holland, September 24 – 26, 2003.
26. Baker, Emanuel R., and Forbes, James A., “A Model for Improving Deployment Practices”, Proceedings of the 9th World Multiconference on Systemics, Cybernetics and Informatics (WMSCI 2005), Orland, FL, July 10 – 13, 2005.

Publications (Cont.)

27. Baker, Emanuel R., Fisher, Matthew J., and Goethert, Wolfhart, “Quality: A Conceptual Framework”, CMU/SEI-2007-TN-002, December 2007.

28. Baker, Emanuel R. and Kenett, Ron S., CMMI and Process Improvement for Systems and Software: Planning, Implementation, and Management, Auerbach Books, in publication.

29. Baker, Emanuel R. and Fisher, Matthew J., “Evaluating Process Quality from an Appraisal Perspective”, CMU/SEI-2009-TN-022, November 2009.

30. Baker, Emanuel R., Fisher, Matthew J., and Gross, Charlene, C., “Evaluating Artifact Quality from an Appraisal Perspective”, CMU/SEI-2009-TN-021, November 2009.