

SOFTWARE TECHNOLOGY MATURITY MODELS

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Abstract: From enterprise systems to embedded systems, software is the key enabling force of today's businesses. Although this fact is recognized by the current business and technology managers, the complexities that come along with software, and how to deal with these, are hardly understood. This is mostly because software is "invisible" and the professional skills that are required to deal with complex software are generally unknown to the management. For this reason, software system development is largely considered as a bunch of coding activity plus some nasty process management. The businesses that are willing to apply the maturity models such as CMMI mainly focus on the processes without being conscious about the depth of the required solution techniques. The increased emphasis on architectures is mostly limited to considering the enabling technologies in system realization. On the other hand, the language of the researchers in computer science are unintelligible to the technical managers. We believe that the so called 'software crisis' is partly created due to the above listed problems. To address these challenges, we will first identify the so-called key quality and technology domains. Then we will introduce the concept of technology maturity models. A technology maturity model identifies the advancements an organization may master in due time within a key technology domain through adoption of increasingly more advanced and beneficial state-of-the-art methods, techniques and tools. Finally we will conclude the talk by emphasizing the advantages of adopting the software technology maturity models for creating successful businesses.

BRIEF BIOGRAPHY

Mehmet Aksit holds an M.Sc. degree from the Eindhoven University of Technology and a Ph.D. degree from the University of Twente. Currently, he is working as a full professor at the Department of Computer Science, University of Twente and affiliated with the institute Centre for Telematics and Information Technology. He has served many conferences and symposia. For example, he was the program (co-)chair of ECOOP'97, SACT'00, HQSAD'00, NoD'02 and AOSD2003. He was the tutorial chair of the ECOOP'92 conference and the organizing chair of the AOSD'02 conference. He has been also serving as a program committee member of many international conferences and as a reviewer of several journals. He is the co-founder and has been the co-editor in chief of Transactions on Aspect-Oriented Software Development (published by Springer-Verlag) until March 2007. Currently, he is at the editorial board of this journal. He has organized special journal issues as a co-guest editor on topics such as "Computational Intelligence in Software Engineering", "Auto-adaptable Systems", "Model Driven Architecture". In addition, since 1988, he has been serving as a reviewer of various

European projects. He has given numerous invited presentations and keynote talks. Examples in 2008 are keynote talks in Software Composition conference in Budapest, Aspect-Oriented Modeling workshop in Brussels, Informatics conference in Cesme, Software Quality and Tools Conference in Istanbul, Sysem Integration Conference in Brasilia. He is the co-founder of Aspect-oriented association, where he has served as the steering committee member until March 2008. He is the steering committee member of AITO, which organizes the ECOOP conference series. He is the steering committee member of the Turkish Software Architecture Group, which organizes National conferences on this topic. Since 1990, he has given more than 110 international and in-company courses and conference tutorials mainly in the Netherlands, but also in Canada, Denmark, France, Germany, Hungary, Ireland, Italy, Portugal, Spain, Sweden, Switzerland, Turkey and in the United States. For more than 10 years long, he has received (one of) the highest evaluations for the courses given for the post-academic organization (PAO-Informatica). He has organized special training programs for a number of multi-national companies, where he trained hundreds of software designers and

architects. As a visiting scientist, in 1989 he was at the IBM T. J. Watson Research Laboratory, New York, in 1993 at the University of Tokyo, and in 1994 at the New Jersey Institute of Technology. He has been involved in the design and implementation of many software systems. When he was working for Océ Nederland from 1981 – 1982 and 1983 - 1987, first he worked on image processing and coding techniques to be used in digital copiers. Later he worked on office system software. After moving to the University of Twente in 1987, he has been involved in many practical projects and designed various large-scale software architectures, which some of them are currently being utilized in products. Some of the research tools developed by the chair are now being used in some industrial applications. He has served as a consultant for large organizations such as in 2006 the Dutch Ministry of Traffic where he has evaluated large-scale applications of software systems managing traffic-flow. Also, in 2007 he has served the Dutch Tax office by giving consultancy and training.

