Using Measurement to translate Business Vision into Operational Software Strategies

In today's competitive market, organizational success depends on the alignment and synchronization of goals and strategies at all levels of the organization from corporate strategy in terms of market opportunities or competitiveness to project objectives such as increased product reliability or reduced development schedule. This requires an integrated approach for mapping business goals onto project goals and managing projects with data so that goal achievement can be monitored and strategies evaluated. This presentation focuses on an extension of GQM, called GQM$^+$Strategies, that aims at accomplishing these objectives.

Biography

Dr. Victor R. Basili is Professor of Computer Science at the University of Maryland and Senior Research Fellow at the Fraunhofer Center for Experimental Software Engineering. He was one of the founders and principals in the Software Engineering Laboratory (SEL) at NASA/GSFC. He works on measuring, evaluating, and improving the software development process and product via mechanisms for observing and evolving knowledge through empirical research, e.g., the Goal/Question /Metric Approach, the Quality Improvement Paradigm, the Experience Factory. Dr. Basili received his PhD in computer science from the University of Texas.

Bio (long) – in case you want to add anything to the short one.

Dr. Victor R. Basili is a Professor of Computer Science at the University of Maryland, College Park (since 1970), where he served as Chairman from 1982 to 1988. He founded the Fraunhofer Center for Experimental Software Engineering – Maryland, where he served as Executive Director from 1998 - 2004. He was one of the founders and principals in the Software Engineering Laboratory (SEL) at NASA/GSFC (1976 - 2001).

He received a B.S .from Fordham College and an M.S. from Syracuse University both in Mathematics. He holds a PH.D. in Computer Science from the University of Texas at Austin. He is a recipient of the Laurea Honoris Causa in Informatic Engineering from the University of Sannio in Italy (2004) and an Honorary PhD in Natural Sciences (dr.rer.nat h.c) from the University of Kaiserslautern in Germany (2005).

He has been working on measuring, evaluating, and improving the software development process and product for over 30 years. Methods for improving software quality include the Goal Question Metric Approach (GQM), a method for defining and interpreting measurement data, the Quality Improvement paradigm (QIP), an evolutionary engineering approach that uses measurement and feedback loops to evolve processes based upon their effects in practice, and the Experience Factory organization (EF), a learning organization for the software industry. He has worked on the development of experience bases for a variety of applications, including the development of HEC codes.

Methods for improving software development include the Iterative Enhancement Life Cycle Model, an incremental development approach that builds the next increment based upon analysis of the previous increment, and the development of scenario based reading techniques for evaluating various software artifacts including Perspective Based Reading (PBR) for reading requirements documents. Methods for cost estimation include the meta-model for resource estimation, and Optimized Set Reduction OSR for building empirical models of cost and schedule.

He has developed, tailored, evaluated and evolved these techniques for several organizations. He has taught courses on this material both at the University and for specific organizations. He has worked with many organizations, including AT&T, Boeing, Daimler-Chrysler, Ericsson, FAA, GE, GTE, IBM, Lucent, MCC, and Motorola and has been a grant recipient from NSF, NASA, AFOSR, ONR, AFOSR, AFRL, DARPA, IBM, Burroughs, Hughes, VITRO, NEC, Finseil, Amdahl, Coopers and Lybrand, Toho Gas, Ricoh, Mutsuhito Panasonic, Sogei, Daimler Benz, Bellcore, and. Fujitsu.

He is a recipient of a 1989 NASA Group Achievement Award, a 1990 NASA/GSFC Productivity Improvement and Quality Enhancement Award, the 1997 Award for Outstanding Achievement in Mathematics and Computer Science by the Washington Academy of Sciences, the 2000 Outstanding Research Award from ACM SIGSOFT, and the 2003 Harlan Mills Award for the IEEE Computer Society. In 2005 there was a Symposium held in his honor: Foundations of Empirical Software Engineering: Legacy of Victor R. Basili at the 27th International Conference on Software Engineering (ICSE 2005), St. Louis, MO, consisting of speeches by colleagues and a book of selected papers by Professor Basili was published by Springer in May 2005. In 2007 he was awarded the Fraunhofer Medal.

Dr. Basili has authored over 250 journal and refereed conference papers, has served as Editor-in-Chief of the IEEE Transactions on Software Engineering, and as Program Chair and General Chair of the 6th and 15th International Conference on Software Engineering, respectively. He is an editor of the Journal of Systems and Software. He is founding co-editor-in-chief of the Journal of Empirical Software Engineering.