



„The management has to define suitable policies for measuring the software quality”

Interview: *Professor Dr. Giancarlo Succi is Director of the Center for Applied Software Engineering (CASE) of the Free University of Bolzano, Italy. His research interests are: Agile Methodologies, Open Source Development, Empirical Software*

Engineering, Software Product Lines, Software Reuse, and Software Engineering over the Internet.

SCCH: *At present, one major topic is Open Source Software. Due to your opinion – how will Open Source communities influence modern Software-Engineering?*

Dr. Giancarlo Succi: Software development has not progressed in the last 50 years as fast as hardware development. However, in the last 10-15 years some remarkable changes have occurred: Agile Methods, Tools for Supporting the Software Engineering Process, the so-called Design Patterns, the widespread of Open Source. In particular, for Europe Open Source could be a major opportunity. On one side there is a shift of costs from software licenses to services, on the other side there is a lowering of the entry barriers in the software market; both effects are especially advantageous in places without major software producers and with large populations of SMEs -the European Union!

SCCH: *What projects are ongoing on OS, especially on its quality?*

Dr. Giancarlo Succi: Currently, we are working on the project QUALIPSO. Within this EU seventh framework project we have analyzed the quality of Open Source Software. We found out, that the quality is not lower than in proprietary software. We are also trying to set up in South Tyrol a large competence center in Open Source and we are now drafting a suitable business model for it.

SCCH: *Measurement in software production – how can companies implement measurement initiatives and how should they deal with the employees' fear of “big brother is watching you”?*

Dr. Giancarlo Succi: The quality of the software needs to be ensured throughout the development process. Therefore, the management has to define suitable policies for measuring such quality.

An inappropriate usage of measurement, though, may produce damages to the company. There are several anecdotes about this: for example one company measured the productivity of its employees by the number of the lines of code written. The net effect of such policy was that in the company software engineers produced a lot of lines of code but in bad quality, and avoided all the best practices that helped in factoring out behaviors (loops, functions, etc). The result was a disaster.

Altogether, the management has to define the relevant metrics but also the specific means of adopting it with a very pragmatic approach, supporting the development

process and not creating perverse dynamics. The same reasoning applies to the “Big Brother syndrome:” I strongly recommend all managers applying a pervasive measurement process not to use it to evaluate their employees, but keep all the measurement absolutely anonymous, while revealing the details only to the individuals who produced such details. I strongly believe that the vast majority of software developers and engineers aim at improving their skills: therefore, once assured that the collected metrics will not be used in any way against them, they will be the strongest supporters of a measurement plan.

We have developed a specific methodology to apply these and other measurement principles inside an organization, also with the help of suitable tools, like a non-invasive metrics collection system and a customizable dashboard to review and comment the results of measurement.

SCCH: *What are the main aspects of dynamic software production environments?*

Dr. Giancarlo Succi: The two key concepts are metrics and experience collection. Agile methods spin off Lean Management. However, while Lean Management emphasizes the role of measurement, too often metrics have not been part of an agile process, as they have been considered waste.

Now we have found out that coupling agile methods with a systematic approach to measurement and experience collection companies can really manage very dynamic production environments. This is not just another hype: it is the consolidation of years of research; as a matter of facts, it is rooted in classic concepts, such as the Experience Factory and the Goal Question Metrics (GQM).

SCCH: *Brain Gain – how could Computer Science be more attractive?*

Dr. Giancarlo Succi: I’m in the board of AICA, the Italian Association of Computer Scientists and one of the key issues we face is to define new strategies for increasing the interest in science. The image of computer science is not attractive for young people. We must tell them, that computer science is not hacking, it is a rigorous discipline that can result in very different successful careers. Moreover, learning Computer Science in high school should not be considered in any way a prerequisite.

SCCH News: *What further activities do you plan for the Center for Applied Software Engineering?*

Dr. Giancarlo Succi: We are now heavily involved in Open Source, Agile Methods, Business Process Modeling, eGovernment, and eLearning. We are now also steering in the direction of the so-called “service science.” Moreover, we are now studying how to accelerate the transfer from research into practice.

Interesting links:

- Center for Applied Software Engineering (CASE): www.case.unibz.it
- Tom De Marco: <http://www.systemsguild.com/GuildSite/TDM/TDMBio.html>
- Competence Center Open Source: <http://www.cocos.bz/>
- QUALIPSO: <http://www.qualipso.org/>