TESNA for Real-Time Monitoring of Agile Software Development

Agile Software development encourages very short development and delivery cycles, which makes it difficult to monitor using traditional techniques. The dependencies between software components are complex and evolve over time. Moreover, software project teams are dynamic and their task responsibilities change over time. In such an agile scenario the software architecture and the software process can quickly evolve into structures unintended at the design stage. If dependencies during the software development are not monitored and controlled, the software project can become unmanageable.

We have developed a tool called *TESNA* (TEchnical and Social Network Analysis) that can monitor the progress of software development. By using *TESNA* we can monitor the evolution of the software project so that management can take action when deviations from the intended design occur. The three network structures that can be analyzed are:

1. The dependency graph of the software components
2. The structure of the developer tasks
3. The social network of the developers

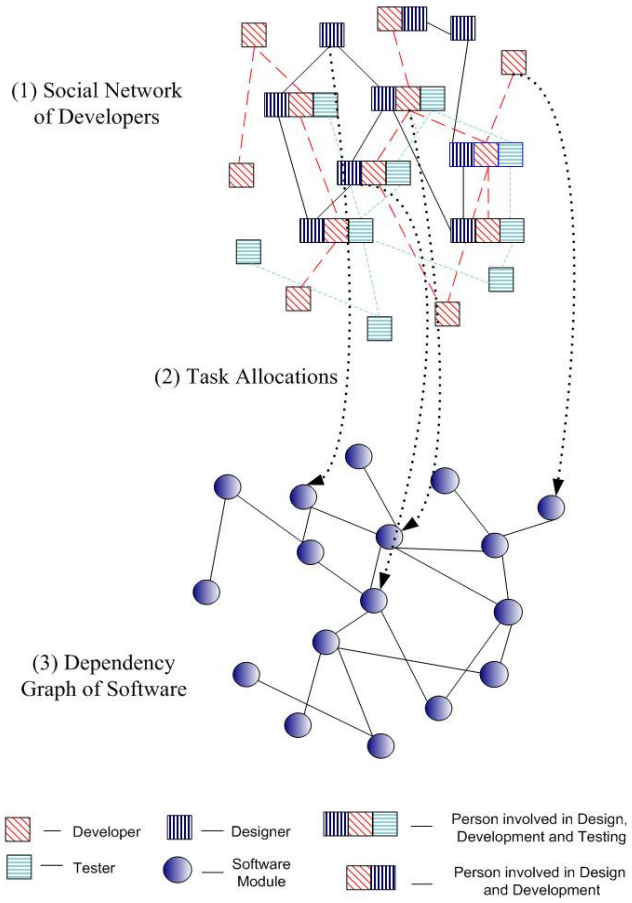
Participating in TESNA

As a company developing software you can participate in the TESNA project. If you are using a code repository and mail or chat software for communication in the software team, the TESNA tool can help you gain more insight into the current state and evolution of your software project. To conduct our analysis, we need access to the code repository in order to collect information on who is working on which part of the software package at various points of time. In addition, we need access to the chat/e-mail archive in order to gather the social network information of the developers. We also conduct interviews to make sure that the data from the different sources is reliable.

We have performed a detailed case study of a software company called Mendix (located in Rotterdam). The results have been very beneficial to the project, with the CEO highly recommending the tool.

TESNA for Software Development

- **TESNA** can analyse the social network of the developers over a period of time and find out problems related to their comminication structure (see (1) in the figure below).
- **TESNA** detects coordination problems in the structures of the allocated tasks to the developers along with a pictorial representation of how these task allocations change over time (see (2) in the figure).
- **TESNA** displays the dependency graph of the source code under development. This helps in detecting potential structural problems that don't show up in code analysis done by traditional CASE tools (see (3) in the figure).



What you get in return

In return for your participation, we can help and identify coordination problems that exist in your company. An identification of these problems can help you redesign your Software Processes, resulting in increased productivity of your software team.

For Further Information

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