

AN OPERATING MODEL FOR DYNAMIC REQUIREMENTS MANAGEMENT IN AGILE SOFTWARE DEVELOPMENT

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Requirements management (RM) is one of the most important and weak-formalized disciplines in the modern software engineering. To resolve this problem the several adaptive methodologies called as agile software development (ASD) were proposed, especially the Scrum-method [1]. At the same time, most ASD methods do not provide well-specified and repeatable procedures to support RM.

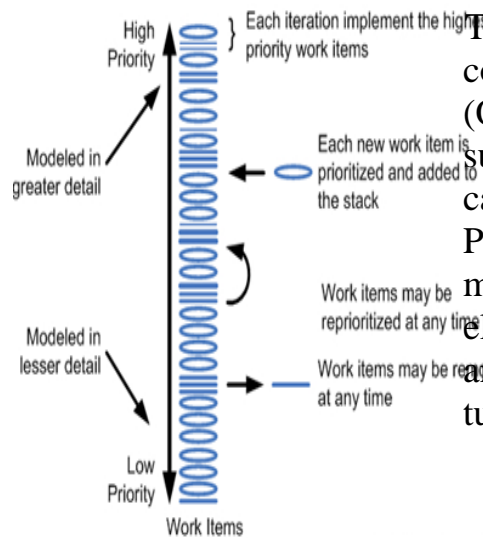


Fig. 1 – DRC in progress [1]

To provide RM for ASD in an effective and correct way the appropriate operating model (OM) can be proposed [2]. Such an OM supposes to build a dynamic requirements catalog (DRC), see Fig. 1, using an initial Product Backlog (PB) in terms of Scrum-method. Besides that to form DRC the elaborated OM utilizes the appropriate methods and quality metrics which can be presented as a tuple

$$OM(DRC) = \langle PB, Workflows, Metrics \rangle,$$

where $Workflows = (LSA, AGORA, QFD)$ is a set of operating algorithms in order to implement the follows methods:

1) LSA (Latent Semantic Analysis) method allows to process initial textual requirements description in PB, and to eliminate their possible duplication and redundancy; 2) AGORA (Attribute-Goal Oriented Requirements Analysis) method to check a correctness of requirements definition and to identify possible logical contradicts between them; 3) QFD (Quality Function Deployment) method to prioritize all requirements to build a final DRC. The set of *Metrics* includes the appropriate quantitative parameters to estimate requirements quality attributes like correctness, unambiguous, completeness and some others.

References:

1. Anderson D. J. Agile Management for Software Engineering / D.J. Anderson // Prentice Hall, 2007.
2. De Vries, M. A Method for Identifying Process Reuse Opportunities to Enhance the Operating Model / M. de Vries, A. van der Merve, P. Kotze, A. Gerber // IEEE International Conference on Industrial Engineering and Engineering Management, 2011.