A new dimension in the distinction between Requirements Engineering and Project Management

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Abstract

Even though it is agreed that Requirements Engineering (RE) and Project Management (PM) are important to project success, a common, clear and unambiguous understanding of what is meant by RE and PM does not currently exist. Common project views like CMMI [3], PMBOK [18], SPICE [26], GPM [23] or V-Model XT [29], [30] use the terms RE and PM with different meanings or, like PMBOK, even do not know the term RE at all.

Therefore, it is not possible to intuitively obtain a clear picture of how persons working in both areas will need to cooperate in order to carry out projects efficiently in actual practice. Whether they will succeed or not depends on their knowledge about project model standards, as well as their respective theoretical backgrounds, experience, abilities and communicative competencies. Conflicts may even occur as a result of unrevealed misunderstandings between persons working in both areas, because they are not even aware of the possibility of such misunderstandings arising.

The "RE&PM" working group (www.repm.de)[4] was initiated to clarify the relationship between RE and PM and to formulate suggestions for an efficient cooperation of people working in these areas. In order to approach this goal, the working group at first had to address the problem of ambiguous definitions and separation of both areas. This report presents it's proposed taxonomy. This taxonomy defines clear criteria for attributing project activities, team members and results to RE or PM. This is the necessary basis for discussing the interface between RE and PM and for optimizing their collaboration.

The working group's current results lead to the assumption that the effort to achieve a common, clear and unambiguous understanding of what is meant by RE and PM might turn out to be similar to the effort to arrive at a common, clear and unambiguous understanding of whether light with a wave length of 490 nm is considered to be green, turquoise, or blue. Analogously to the "primary colours" which make up the "light spectrum", the working group suggests five areas of expertise for the RE & PM context.

Even though this approach might be considered a fairly theoretical one, the working group expects that its results will benefit practical daily project work, such as analyzing and understanding conflicts between project members.

The authors would like to encourage readers of this report to provide their comments to contact@repm.de

Preliminary Remarks

Throughout this report, the abbreviation RE will denote the term „Requirements Engin*eering*" only. It will not denote the term "Requirements Engin*eer*". The abbreviation PM will denote the term „Project Manag*ement*" only. It will not denote the term "Project Manag*er*".

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[4] The "RE&PM" working group belongs to the German Informatics Society's (GI) "Requirements Engineering" special interest group

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3 The problem: No common and unambiguous definition of RE and PM

According to frequently cited studies [5], [27], RE is important to project success in the Information Technology (IT) sector. Suzanne and James Robertson [20] "believe it is self-evident you must know the requirements before being able to construct the right product".

PM is important to project success by definition. Requirements are an essential input for PM. They are basis for such important artefacts such as contract, project plan, budget, risk analysis[5]. And vice versa, the project manager organizes the prerequisites for all project work, including the RE work.

Therefore, RE and PM are related closely to each other.

Even though this fact is undisputed, a common, clear and unambiguous understanding of what is meant by RE and PM does not currently exist. Common project views like CMMI [3], PMBOK [18], SPICE [26], GPM [23] or V-Model XT [29], [30] use the terms RE and PM in different meanings or, like PMBOK, do not even know the term RE at all. This is the result of extensive research which has been performed by the "RE&PM" working group. Section B.6 provides detailed information about the different views of the established project models/ views.

Hence, in actual practice, we can not intuitively discern how persons, who work in both areas, will need to cooperate in order to carry out projects efficiently. Whether they succeed or not will depend on their knowledge about project model standards, various theoretical backgrounds, experience, abilities and communicative competencies. Conflicts may even occur as a result of concealed misunderstandings between persons working in both areas who are not aware of these potential conflicts.

One example of this kind of misunderstanding is a scenario where a PMI-certified project manager works together with a requirements engineer who is strongly influenced by the CMMI project model. The PMI certified project manager was trained to consider RE as being part of PM. The requirements engineer is influenced by CMMI and views RE as belonging to the area of CMMI engineering process area category [6]. This process area category is different from the CMMI project management process area and does not form part of it. Hence, the engineer influenced by CMMI requirements views RE as *not* being part of PM. Whether these different definitions of RE and PM lead to misunderstandings and conflicts or not depends on both of their communicative competencies.

4 Proposed Solution: New Taxonomy

The "RE&PM" working group[7] was initiated to clarify the relationship between RE and PM and to formulate suggestions for efficient cooperation between persons working in these areas. After the working group discovered that there is no common, clear and unambiguous understanding about what is meant by PM and RE, the working group addressed this problem first by developing its own view of projects. This made it possible to analyse and model projects independently of any established project model. Next, the working group compared its definitions with the established project models.

This section presents the taxonomy proposed by the working group. It defines and explains the three dimensions which make up the working group's view of projects. This section is concluded by a definition of the areas of expertise which, from the working group's point of view, are necessary to investigate the relationship between RE and PM. The three dimensions and the five areas of expertise represent a taxonomy for classifying project activities, team members and results.

The proposed taxonomy will better support an understanding of how projects work. However, the working group wishes to point out that consistent use of this taxonomy is only the first step and not the last step towards safely conducting concrete projects.

[5] The CMMI Project Planning process area description states "Planning begins with requirements that define the product and project" [3]. The V-Model XT contract product type depends on, among others, on diverse kinds of specifications [30].

[6] The CMMI project model does not know the term Requirements Engineering. One possible definition of this term in the CMMI context might be "RE is the combination of the requirements management and the requirements development process areas". Both process areas belong to the CMMI engineering process category.

[7] Section 1 introduces the working group and its goals.