Investigation of Stakeholder Analysis in Requirement Prioritization Techniques

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Requirement Prioritization is considered as an essential process that leads to the production of a successful system by presenting the prime requirements that need to be developed. Stakeholder Analysis (SA) plays a vital role in the requirement prioritization process where it aims to select and identify the impact value of each stakeholder, depending on their significance along with the overall impact of requirements posed by them that may have on the project’s success. Thus, the aim of this paper is to investigate the stakeholder analysis in existing requirement prioritization techniques, in order to enhance the performance of existing RP techniques in producing accurate result. All existing RP techniques are critically analyzed to determine the existence of SA in their processes, presenting the execution steps that are used to performed SA process in their prioritization process. The findings of this study show that out of 66 techniques, there are only 5 techniques (evolve, mathematical programming, VIRP, RUPA and PHandler) that conducted the SA in their prioritization processes. However, the result presents that these five techniques still face issues of time consuming, manual and requiring the involvement of the experts in conducting SA process.

Keywords: Requirements, Prioritization, Stakeholders.

1. INTRODUCTION

Producing a successful system is not an easy task1,2. One main factor that can lead to a successful delivery is to maintain and meet stakeholder’s needs (requirements) of the system3-5. Thus, the first phase of system development life cycle is to elicit and extract the requirements from the stakeholders and then start implementing these extracted requirements. However, it is extremely hard for development team to implement all of the elicited requirements with limited resources such as budget, time, and staff6-8. In such case, the development team should select the most essential and prime set of requirements to be implemented and planned for system releases with respect to the available resources9. This process is defined as requirement prioritization process where determining an ordered set of requirements is performed by requirement prioritization (RP) techniques based on their perceived importance by project stakeholders7,10. Therefore, identifying and selecting the stakeholders play a key role in producing accurate result of an ordered list of requirements from prioritization process8.

In addition, stakeholders’ influence on the system’s requirements varies from one stakeholder to another different stakeholder. Hence, performing stakeholder analysis (SA) process by identifying degree of importance of the impact for each stakeholder among the participating stakeholders contribute to highlight the most critical requirements for significant stakeholders which will lead to the production of successful system11,12. As a result, the aim of this study is to focus and investigate the SA process in the prioritization process of existing RP techniques and how the SA process is executed on those techniques performed. All existing RP techniques will be analyzed critically in order to determine the existence of

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