An Agile Technique for Prioritizing Features in Environments with Multiple Stakeholders
Initial Proposal

Eduardo Cristiano Negrão, Aeronautical Institute of Technology
ITA
São José dos Campos, São Paulo - Brazil
eduardocnegrao@gmail.com

Eduardo Martins Guerra, Aeronautical Institute of Technology
ITA
São José dos Campos, São Paulo – Brazil
guerraem@gmail.com

Abstract— In corporations where the focus is very dynamic business inserted in web environments, agile methods can fully meet almost all needs. However, in some particular companies, there are multiple stakeholders, who represent different interests in prioritizing activities. There is, consequently, a heavy challenging to implement agile methodologies which deal with such conflicts in order to prioritize the features of the system. It is important to focus on higher earned value as possible and consider the technical risks exposed by the development team. These barriers often lead these companies to abandon such agile methods, incorporating a philosophy of chaotic work. This paper proposes an agile technique for prioritizing features in environments with multiple stakeholders and reports a successfull experience in its usage.

Keywords – agile methodologies, planning, prioritizing, estimating.

I. CONTEXT

The software product, which is contextualized in this paper, involves the work of a development team aligned to another team of business analysts. It is an e-commerce system focused on health care. It involves the marketing of high-cost products of hospitals, such as orthosis, prostheses and other special cirurgical materials. So, the application has features to meet the needs of five different actors: hospitals buyers, product suppliers, health plan operators, hospital service providers and system administrators.

The agile methodology used is the Scrum [4]. The team that meets the demands of maintenance and evolution of this software is composed by three developers, one professional of quality assurance and one Scrum Master.

In this case, the application does not have a single product owner. Actually, it has one person responsible for each area, giving a total of five main stakeholders. All of them participate in the planning meeting in order to prioritize product backlog and sprint backlog, bringing demands from customers which they represent. When it is possible, they have tried to prioritize them within a general consensus. However usually this reality is very different: there is a wide disparity of interests, generating conflicting priorities and increasing the planning efforts.

Some proposals [1] attempt to minimize the planning efforts, however, they do not address all solutions to solve the problems in contexts wich involves more then one stakeholder from different business areas. This paper documents the adopted solution to define a technique to prioritize software requirements, organizing impartially product backlog and sprint backlog, aiming solely to increase the return on investment of the corporation. This work also describes the search for consolidated existing techniques and how they can be adapted and combined to the described context.

Therefore, nowadays, with the high dynamism and diversity of internet businesses, this problem is common and recurrent in such corporations. As a consequence, it is extremely important that studies aimed at mitigating these problems are considered and evolved.

II. MAJOR OCCURRED PROBLEMS

As mentioned previously, the company has faced the stakeholders' conflict of interests to prioritize the demands of their customers. As a result, this contest increases the development team effort to expose the barriers and technical risks which are important to maintain the software higher quality.

Therefore, stakeholders considered to abandon the agile methods, which where considered by them to be very inflexible, since the adopted methodology did not allow new business demands to interrupt an iteration in course. Such demands were often considered urgent by them, however, after being developed, these features are usually never or rarely used. This situation avoids the development of others demands that could be developed primarily to deliver greater value to the business application, meeting the real needs of a higher number of customers.

Therefore, it is extremely important to the project success to define better ways to prioritize features, thus mitigating the risks of building a low-value software to the customers and avoiding the abandonment of agile techniques.

III. Initial Approach

Given these problems, the major objectives is to define a planning technique to prioritize development features in this environment. The approach was to use agile values and techniques, in order to decrease that planning efforts and balance the existing technical risks and business interests.

The solution based on techniques already established in the agile world, such as the *Relative Weighting*, *Kano*, *Theme Screening* and *Theme Scoring* [1]. The *Relative Weighting* was chosen as an approach that best fits the solution of the problem encountered.

The *Relative Weighting* method was adopted since it provides a more efficient way to classify the priorities for each requirement. In this technique not only the relative benefit of adding that feature is considered, but also how much the product would be hurt if it were *not* included. To get the complexity of each story [2], story points are estimated by methods such as the planning poker [1].

The *Relative Weighting* contributed positively to the planning activities, since it reaps the business value and technical costs scores in a more democratic approach.

IV. Proposed Agile Planning Technique

During the deployment of *Relative Weighting*, some deficiencies were encountered. In short, the conclusion is that the existing methods aim prioritize the activities under the business optics at the expense of priorities associated with the technical risks. Consequently, we face situations in which some features should be taken as a technique premise to other one, but its business value assigned becomes like a low priority, then it has conflicted approaches desired by the development team with business interests from the stakeholders.

The main original *Relative Weighting* shortcoming in this context for the desired prioritization based on technical risks is that it proposes the division of the value by the cost (technical complexity), consequently the greater the complexity, less priority has the feature. This factor is contrary to what is stated by the Scrum guide [4]: *"Products are built iteratively using Scrum, wherein each Sprint creates an increment of the product, starting with the most valuable and riskiest"*.

Another factor changed in the proposed technique is the scale 1-9 used to measure the requirement value. Since sequence numbers are a bit comparatives, the use of a Fibonacci-based scale is more suitable in this situation. Therefore, in the proposed technique, the scale was defined by the following numbers: 1, 2, 3, 5, 8, 13 and 20 (the last number was round off).

To obtain a form to qualify and justify the technical risks in a principled way, the technique uses a traditional approach, often not considered in agile environments, the *Probability* & *Impact Matrix* proposed by PMBOK [3]. This approach offers ways to address the risks more fully, predicting and assessing impacts at different levels of organization and providing ways to analyze the actions to be taken. A fundamental premise of this approach that fits exactly in the objectives is the fact that *Probability* & *Impact Matrix* proposes that the greatest risk of technical requirements must be attacked first, precisely driven to the context of the real interests. Such an approach does not hurt agile principles, since it demonstrates ease of understanding, facilitated communication between team members and ease of maintenance.

Then, as a gain from the combination of the practices, the proposed planing techniqueproposes a visual way to represent and communicate the priorities to all stakeholders named as *Attractiveness versus Risks Matrix*. It represents the features organized in a table composed by quadrants of vulnerability, in which each feature has a location defined by coordinates provided by the business value versus technical risk or cost. Using this matrix, it is possible to achieve a greater transparency in the priority choices.

V. Results Assessment

Aiming to know if the proposed approach achieve its goals, assessment techniques was used intending to measure the stakeholders degree of satisfaction, its ease of use in the planning meeting and whether there was an performance optimization in the planning activities.

The first evaluation was based on questionnaires that were distributed to the stakeholders before and after the deployment in order to analyze impacts of the new approach. These reports are submitted to a qualitative assessment technique known as Gounded Theory [5].

A parallel evaluation approach used metrics based on the time measurement for the prioritization activities. These metrics assess the time spent in planning meetings and the time used for priority discussion inside them. The goal is to verify if the proposed technique directed the discussions and increases the consensus among the stakeholders.

In conclusion, the evaluation evidenced some positive results in the use of the proposed technique. As a result, the evaluation pointed out that the conflict of interest and the time spent with priorization discussions was drastically reduced, giving more time to refine the solution and to keep the team motivated within the agile.

VI. References

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