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# A Guideline to Teach Agile Requirements

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## ABSTRACT

This paper presents a specific sequence of collaborative workshops dedicated to build a first version of a product backlog. This backlog is composed by user stories refined from a first idea of the product to develop.

## KEYWORDS

Agile Requirements, Collaborative Workshops, User Stories

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## 1 INTRODUCTION

In agile, like traditional software development, work begins by capturing customer requirements. The specification can also be seen as a process to bridge the gap from the business problem (why?) towards clear explanations about the solution to develop (what?). Providing relevant and unambiguous requirements specification is one of the biggest challenges in software engineering [1].

Agile methodologies (e.g. Scrum or Extreme Programming) provide a process framework to develop products. However, they postulate that an initial product backlog exists. Even if agile requirements engineering is a recent topic, a systematic literature review about agile requirements shows that skateholder and user involvement are critical success factor and collaboration and building a shared understanding of the user perspective are essential [8].

In the figure 1, we present a sequence of collaborative workshops to teach agile requirements from a product vision to relevant user stories describing the *right* product. First, we capture requirements in order to build a vision by discovering the problem and identifying first features of a solution which maximize customers benefits and value proposition. Second, we refine these features to epics and we begin to split into user stories. Third, we promote discussion around user stories to detail them, share common understandings and ensure domain language.

This sequence of collaborative workshops was presented and practiced during a 3-days course about agile requirements for a professional Bachelor dedicated to Development and Software Quality. The objective was not to write code, but to produce a prototype with Marvel<sup>1</sup>. Then, in the context of a supervised project in full agile development, team of 7 students proposed their own product ideas. Each team re-used these workshops to initialize their product backlog around one specific product idea during two days.

This sequence of workshops is based on our experience and inspired by Specification By Example [1] and User eXperience techniques. Each workshop will be briefly described according to its position in this sequence at the next section.

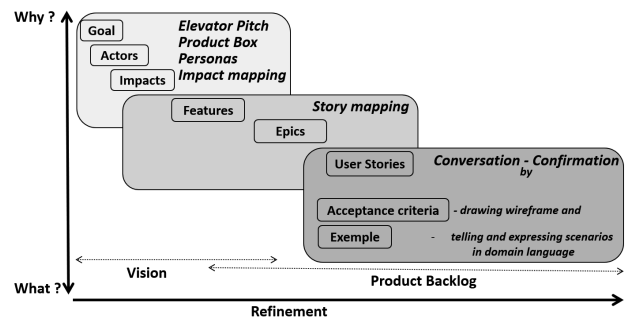


Figure 1: A guideline from vision to user stories

## 2 WORKSHOPS SEQUENCE

### 2.1 From goal to features

**2.1.1 Elevator Pitch.** An elevator pitch is a short summary used to quickly and simply define a product, service, or organization and its benefits to customers. It should be possible to deliver the summary in the time span of an elevator ride, or approximately 30 seconds to two minutes [5]. The workshop consists of exploring and sharing the product vision by collaboratively writing a summary based on the following template :

- For ...** (the product's target market)
- Who/That ...** (describe what need your product solves)
- Our Product ...** (product name, or product category)
- That Leads To ...** (main advantage, appealing reason for purchase)
- Unlike The ...** (principal competing alternatives)
- Our Product Offers ...** (describe main differentiation)

At the end of the sequence, a new iteration of the elevator pitch can be requested. This new version generally shows that the vision of the project has been refined thanks to the next workshops that helps to better target the product goal and to better define the main features to develop.

<sup>1</sup><https://marvelapp.com>

**2.1.2 Product Box.** The Product Box is the next workshop used to refine and share the vision. The goal of the product box is to identify the most exciting product features [6]. Each member of the team is asked to imagine that the product will be sold on store shelves or at a trade show, such as a product box. A blank white cardboard box is provided each team. The team must then imagine a name for the product, marketing slogans, pictures and some key arguments. They build boxes through materials (newspapers, stickers, color papers) or just by writing target phrases. Once the box is finished, each team presents their box to sell their product. A discussion is then initiated (who want to buy this box ? why ?) and the other teams give feedback on the product to improve its functionality and use.

**2.1.3 Personas.** Difficulties raised by students are in targeting the users and in identifying the main purposes of the product. A reflection on personas can help them to refine their vision and then make effective design decisions. The notion of personas was initially proposed by [4]: they are defined as pretend users, not real people rather hypothetical archetypes of actual users whose behaviors, motivations and goals are close. Personas should also be discovered through an investigation phase. However, this phase is time-consuming and at first students are simply invited to imagine personas.

Such a workshop consists of creating more or less detailed cards that include name, picture, storytelling on the life of the character (behavior, skills, attitudes, environment) to make the personas a realistic character and identify the needs, objectives, expectations, and obstructions that could incite them or not to use this product.

**2.1.4 Impact Mapping.** Impact Mapping is a strategic planning technique used to help teams align their activities with overall business objectives and make better roadmap decisions [2]. It is a graphic tool which allows clear marking of project's measures and focusing only on necessary assumptions. The impact map is a four-level mindmap created collaboratively by answering the following questions: why, who, how and what. The *why* focuses on a business goal that should be SMART (Specific, Measurable, Attainable, Relevant, Time-Bases). The *who* depicts the actors (or personas) who contribute to achieve this goal. The *how* identifies the behaviors changes (impacts) on the actors to achieve the goal. The *what* is about deliverables to support the required impacts. It helps to outline the scope of the product through main features to develop.

Drawing an impact map is not easy, that is why this workshop is used (or not) as first iteration to make effective design decisions. As the scope is generally limited to features in the map, the story mapping will then help refine the features in user stories.

## 2.2 From features to user stories

**Story Mapping** is presented by [7] as an idea to use a simple map you can work with others to tell a product's story and see the big picture form as you do. It is an approach to specifying, organizing and prioritizing user stories in a two-dimensional map. This artefact is product backlog which offers a product vision in releases. The high-level of horizontal axis represents a narrative flow where the activities performed by a user to illustrate the behaviour of the

system are first ordered. It is focus on users and their experience, as if you are telling the story about your user to someone else. Determining these major activities becomes quite easy if an impact mapping has been done previously. The activities are then decline into larger (epic) or smaller (user story) stories. An epic is a too large story that can't be delivered within a single iteration. An epic can be split into smaller user stories, either during this workshop, either thereafter during backlog refinement sessions regularly conducted in the further development. The vertical axis group the stories in release to plan the development. The backlog is also prioritized such that the most valuable stories are highest.

The first horizontal row also represents a *walking skeleton*, a minimum set of user stories to implement to deliver a usable version of the product. Working through successive rows fleshes out the product with additional functionality.

## 2.3 User Stories

User stories are functional increments that add business value to the product. User stories are well-known as the 3 C's model. As mentioned in [3], while the Card may contain the text of the story, the detail are worked out in the Conversation and recorded in the Confirmation. The Cards are written during the story mapping where they are filled with just enough text (like a title) to identify the requirement.

First, we focus on stories of the *walking skeleton*. To promote **conversation**, we first recommend to collaboratively drawn wireframes on the blackboard. This work consists in illustrating requirements using concrete examples to clarify meaning. It allows a shared understanding, a needs alignment, a first identification of acceptance criteria of a story and sometimes the discovery of new user stories.

To be unambiguous, a good specification should be precise and testable. To be useful, it should be self-explanatory, focused, and in domain language. Afterwards, to refine details about the **confirmation** of a story, it is possible from previous wireframes to tell, in domain language, precise examples of scenarios of a story. Each example can then be written using a formalism based on the Gherkin language which helps to break down it in 3 steps and allows express an example as an acceptance test with a *Given* step (to install some initial context), a *When* step (to describe an occurred event) and a *Then* step (to ensure some outcomes). This formalism leaves the opportunity to automate (or not) these acceptances tests during the development.

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