Requirements Engineering in Traditional and Agile Contexts

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Requirements engineering (RE) is a process which defines what the system that we are developing should do (Sommerville 2010). This essay looks at some of the differences between requirements engineering in traditional and agile contexts.

Investigation by Cao and Ramesh (2008) into agile requirements engineering identified seven practices shared by 16 organizations. These practices were

Traditionally requirements have been defined at the beginning of the project. In agile context, **requirements are defined incrementally** during the development process. This iterative method is used because the customer does not usually know what they want beforehand and the requirements often change during the development. This is a contrast to traditional development where requirements should be fully known before the development starts.

Agile development places heavy emphasis on **face-to-face communication** in the requirements engineering process over the traditional written specifications. Techniques such as user stories are used instead of formal documentation.

Requirement prioritization in agile is done at the beginning of each iteration in contrast to traditional RE where it is only done once. In the traditional development, the requirement prioritization is driven by many factors such as business value, risks, cost, and implementation dependencies in contrast to agile RE which is predominantly driven by business value. Reprioritization is easier in agile RE compared to traditional RE.

Requirements in agile development are **managed through constant planning**. Since the requirements are not fixed, addressing changes is less costly compared to traditional models.

Compared to traditional methods, agile development encourages **early deployment of software**. This allows feedback from customers and is used as means of communication. Also, it avoids the overhead of formal documentation, but can lead to problems with non-functional requirements such as scalability, security, and robustness.

Agile RE can also be achieved through **test-driven development**. In this practices tests are used to specify the behaviour of the code. Test capture the complete requirements and acts as a design document that is linked to the production code. The challenge of this approach is adoption by developers and the dicipline that is required by developers.

In summary the main differences between traditional and agile RE are that agile is more flexible and developed incrementally where as traditional RE is more formal fixed document created before the development process.

Bibliography

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Sommerville, I., 2010. *Software Engineering: 9th Edition*. 9th ed. USA: Addison-Wesley Publishing Company.