**Requirements Engineering & Management**

Samantha M. Hipple

School of Technology and Computing, City University of Seattle

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Kendra Schraml

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Requirements engineering is the creation of stakeholder requirement specifications designed to improve the overall developmental workflow of a product. A requirements engineer is responsible for being able to justify a requirement’s existence; clarify a requirement’s meaning; describe the impact of a requirement on the overall project architecture, design, and costs; and much more. An engineer focuses on what the overall system is meant to accomplish without specifying how it should be accomplished.

The challenge the requirements engineer has is to determine the proper balance between too many and too few requirements. To get the right balance, the requirements engineer has to apply a combination of art and science. The requirements engineer focuses on the validity of requirements. Are they single, testable, clear, concise, and unambiguous? The requirements engineer also focuses on defining what a system has to do, purposefully avoiding how that system will accomplish the project objectives. Focusing on the how enables the design engineers maximum flexibility in their design efforts.

Additionally, the requirements engineer develops the overall testing strategy to plan where, by whom, on what test equipment or range, and what organizations will participate in the testing. The requirements engineer identifies validation and verification methods, testing, demonstrations, analysis, inspection, and simulation for each requirement, and confirms the approach with the stakeholders.

The requirements engineer is also often the person who evaluates the impact of a potential change, and supports the architect and program office in developing engineering change proposals. The requirements engineer will often identify the emergent effects the change may cause on downstream requirements or design constructs.

Requirements management is the process of gathering, analyzing, verifying, and validating the needs and requirements for the given product or system being developed.

Successful requirements management ensures that completed deliverables meet the expectations of the stakeholders.

Requirements can be managed using documents, however, complex systems or products in highly regulated industries mitigate risk by using trusted requirements management tools.

In this chapter, we discuss:

What requirements management is

Why requirements management is important

The fundamentals of requirements management

Conquering the top challenges of RM

Why you need a modern requirements management platform