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An Approach for Selecting Software Development
Methodologies

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ABSTRACT

Software processes or methodologies are a recent approach to address the increasing complexity of software. In recent years, we witnessed a growth and diversity in software development methodologies. Underlying principles make software development methodologies different and define a range of software projects that can be dealt with. Selecting the correct methodology is a critical factor to the success of any project. The large number of software methodologies available today and the different concerns that a project may arise make it difficult to match the project with the suitable methodology. In the present study we provide some guidelines that assist organizations to make decisions about the methodology to be used for developing a given product. A framework of factors in relation with methodology, project, and organization was provided and applied to compare the following four methodologies, which represent the mainstream in software development processes: Rational Unified Process, Extreme Programming, Cleanroom Software Engineering and Open Source Development. The framework includes the main driving factors when selecting a methodology. The Balanced Scorecard model with its four complementary perspectives was used to guide the selection process. The application of such a model was presented and illustrated in a case study for selecting a project methodology.

KEYWORDS: Software Development Processes, Software Process Comparison, Software Process Selection, Rational Unified Process, Cleanroom Software Engineering, Extreme Programming, Open Source Development, Balanced Scorecard.

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