

Modeling Risk-Benefit Assumptions in Technology Substitution

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Abstract. This paper describes the application of comparative simulation models to reason about the economic risks and benefits of adopting new methods and tools for software development. It addresses three questions: (i) can technology substitution be modeled with sufficient confidence? (ii) what modeling strategy is most appropriate? and (iii) what are the outcomes of modeling technology substitution on an industrial case study? The end goal is to develop models that support economic evaluations that are necessary and sufficient to support technology substitution decisions. Such models will help developers and managers to assess the value of a new technology and employ strategies to de-risk its adoption.