Business Value of Agile Software Methods

Maximizing ROI with Just-in-Time Processes and Documentation

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About the Book

The Business Value of Agile Software Methods is a comprehensive methodology for quantifying the costs and benefits of using agile methods to create innovative software products. Using cost of quality, total cost of ownership, and total life cycle costs, the authors estimate return on investment and net present value of agile methods. For the first time, the use of advanced measures such as real options is utterly simplified. This book disarms explosive issues related to the adoption of agile methods. It provides a broad survey of cost and benefit data from an analysis of hundreds of projects. It then introduces the industry's first top-down parametric models for estimating the costs and benefits of agile methods. Furthermore, it contains numerous examples on how to estimate the costs and benefits of the major types of agile methods such as Scrum and Extreme Programming, among others.

Key Features

- Identifies the major types and kinds of agile methods, along with the major best practices, as a pretext for mixing and matching them to create super-hybrids.
- Introduces a complete family of metrics and models specially designed for agile methods, rather than saddling projects with traditional industrial-age measures.
- Provides one of the first and only comprehensive compilations of the costs and benefits of agile methods from an analysis of hundreds of real-world projects.
- Presents a suite of top-down metrics, models, and measurements for estimating the costs, benefits, return on investment, and net present value of agile methods.
- Illustrates the first simple-to-use parametric models of real options for agile methods since the inception of the Nobel-prize winning Black-Scholes formulas.

Web Value Added

WAV Offers free downloadable ROI spreadsheet models for Scrum, Extreme Programming, Pair Programming, Test-Driven Development, and Agile Methods (with detailed metrics, models, measurements on the costs, benefits, benefit/cost ratio, breakeven point, net present value, return on investment, and real options of agile methods).

- **Agile Methods Business Value Metrics**: One of the first sets of soft-side metrics, measurements, and models specially designed for use with agile methods to measure customer collaboration and customer satisfaction, individuals and interactions (teamwork), iterative and incremental development, and flexibility or adaptability to change. Metrics for agile methods are based on scholarly theoretical models from the fields of organizational behavior, psychology, sociology, marketing, and new product development (rather than just another adaptation of traditional industrial-age metrics such as effort and defect density). Agile metrics for customer collaboration are designed to measure such properties as interaction frequency, communication quality, relationship strength, customer trust, customer loyalty, and customer satisfaction. Agile metrics for individuals and interactions are designed to measure such properties as team competence, team motivation, team cooperation, team trust, team cohesion, and team communications. Agile metrics for working software are designed to measure such properties as time-boxed iterations, iteration size, iteration frequency, iteration number, operational iterations, and validated iterations. Agile metrics for responding to change are designed to measure such properties as process flexibility, technology flexibility, design flexibility, individual flexibility, management flexibility, and organizational flexibility.

Agile Methods Business Value Metrics

Value	Definition	Metric
Customer Collaboration	Customer collaboration metrics measure the degree of customer interaction during development. And, vice versa, they measure how well the programmers interact with the customers to develop software. After all, isn't that the primary purpose of agile methods versus traditional methods? That is, agile methods are a customer-driven, human-centric approach to developing software. One of the most important success factors in agile methods is how well programmers listen to their customers, capture their needs, and respond to them with working software.	• Interaction frequency • Communication quality • Relationship strength • Customer trust • Customer loyalty • Customer satisfaction
Individuals and Interactions	Individual and interaction metrics measure the degree of interaction between software developers. Agile methods are a human-centric way of developing software. This applies to developer interactions and not just with customers. One of the most important factors in agile methods is how well developers interact with one another to capture customer needs and respond to them in frequent intervals with working software. Talented, skilled, and motivated programmers must work together in high-performance teams to solve complex software problems.	• Team competence • Team motivation • Team cooperation • Team trust • Team cohesion • Team communications
Working Software	Working software metrics measure how well developers create frequent iterations of operational software. Agile methods are a customer-driven, iterative approach to create business value with working software every two to four weeks. One of the most important success factors in agile methods is for developers to create working software for customers to evaluate. Developers must create working software in small, time-boxed, frequent, numerous, and operational iterations. That is, the entire agile methods life cycle is executed every two to four weeks.	• Time-boxed iterations • Iteration size • Iteration frequency • Iteration number • Operational iterations • Validated iterations
Responding to Change	Responding to change metrics measure how well developers can adapt to new or changing customer requirements. Agile methods are a customer-driven, adaptable approach to implement and deliver a few user stories every two to four weeks. One of the most important success factors in agile methods is for developers to adapt processes and products to new user stories. Developers must have an attitude, culture, aptitude, process, product, and technology that are adaptable to changing situations. Responding to change also involves flexible tools and automation.	• Process flexibility • Technology flexibility • Design flexibility • Individual flexibility • Management flexibility • Organizational flexibility