

## Impact of Agile Methodologies on Cost Estimation Techniques in Software Industry of Pakistan

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### Abstract

One of the key aspects of a project is to deliver the project on time and budget regardless of requirement, scope and time changes. Cost estimation has always been a difficult task in software development much of which is research is done on traditional cost estimation techniques but little is researched on agile methodologies.

Agile software development (ASD) provides a mechanism in reducing cost and time along with easy to handle ever-changing business environment and requirements. This study determines the impact of agile methodologies on cost estimation techniques in software development industry by focusing on different type of agile methodologies being used in software development industry. This study reveals how cost estimation at the beginning of each iteration helps company in making more easily and accurate estimate than traditional cost estimation techniques. The most common estimate technique is expert opinion a software development organization rely upon the expert in order to provide accurate estimate.

The use of agile methodologies in software development industry for cost estimation purposes is still very new concept. For this concept to be adopted on a larger scale future in-depth study on agile methodologies is required in order to measure exact impact on cost estimation.

### Keywords:

Agile methods; Project management; Cost estimation; Software development; Systems development.

### Introduction

Ever changing business environment is now you are more dynamic and changes are even more frequent in terms of product development. They additionally interest for quick and cost effective delivery of software products and also to accept evolving necessities. In this viewpoint, software development life cycle (SDLC) and object oriented programming (OOP) approaches are widely used through the

world and most of research and study has been done on these traditional methodologies, Agile project management methodologies brought its own set of small difficulties that must be look after in order to have continuous and effective delivery of software as per client understanding and scheduling. Agile methodologies though its iterative and incremental development techniques and collaborative method of interaction between groups across the functions and organization that permits fast delivery of top notch software to address client issues furthermore oblige changes in the requirements alongside finishing the venture inside given cost and time gauges.

Agile advancement or agile methodology is project management technique which is an iterative and incremental way for designing and building activities for new product or service or software development projects. One of the major requirement to implement the agile project management is to have workforce able to completely understand and have a detail knowledge of its business needs working in highly collaborative way, in little steps, to finish little project in a small set of deliverables. These small set of deliverables, delivered to client for understating and feedback in every delivery cycle are known as iteration, and whereas each delivery cycle is call increment, to accomplish quality and feedback.

### Agile methodology

The conception of cost estimation techniques in agile methodologies is relatively new topic and there are little or no quantitative data available. Although cost estimation techniques in traditional approaches, are extensively researched and applied in software development these days.

### Methodology

Since cost estimation in software development industry is a very specific topic, we need to very careful in selection of population or sample to be more precise. Population would be Project Managers, Business Development Managers and Project Management Implementation teams, in short any person involved in cost estimation in software development industry. As population is very specific in term of cost estimations, Sample

should represent every aspect of software cost estimation techniques and impact of agile methodologies on cost estimations. Sample should have a very comprehensive experience in not only traditional cost estimations techniques but also on agile methodologies currently used in software development environments. Keeping this in mind, Sample is selected from various software houses where not only organization's size is catered but also there's primary nature of IT business as well (as pure software development organization tends to follow new techniques in more aggressive manner than others.) Hence sample is taken from large, medium and small sized organization along with their primary nature as well. Sample is consisting of 7-10 organizations.

In most of the cases cost estimation is heavily affected by requirement changes, scope changes and timeline changes in light of this changing environment project managers and Business Development managers have come up with this solution to these problems which are affecting cost estimation, most of these changes be it requirement scope or timeline can be effectively handled by using agile methodologies. Agile methodologies currently used in the software development industry has begun to take shape as small large and medium organizations begin to use agile methodologies a number of projects and products in more effective manner. Agile methodologies provide business development managers and project managers the ability to comprehend changes in business environment and act accordingly. Most effective cost estimation techniques traditionally used are COCOMO I-II, Parkinson, bottom up, top bottom, and expert opinion. Most widely cost estimation techniques used in software development industry is expert opinion with its unique ability to comprehend requirements expert opinion is very effective when used in traditional software

development life cycle (SDLC) and agile methodologies.

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