



## Using human opinion for parameter tuning of Software cost estimation in agile software methodology of Prototyping an algorithm

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### ABSTRACT

Agile methodologies provide a structure for highly collaborative software development. Rather than adhering to traditionally long periods of upfront requirements gathering and design before software production, agile teams

elicit feedback early on in the process, and deal with the complexities of software development by practicing rapid iterative development from project inception. A major cause of failure of many software projects is the lack of accurate and early cost estimation. Barry Boehm proposed Constructive Cost Model also known as, COCOMO Model which used basic regression formula with parameters derived from historical project data and characteristics of the current project for estimating the cost of software. This model is a high risk due to low accuracy and lack of reliability. This is where the need of optimization comes in. Various approaches like Genetic Algorithm have already been applied for tuning of the parameters of COCOMO in order to increase its accuracy and reliability. Regardless, that humans are the most intelligent social animals, an approach based on crowd dynamics, opinion dynamics, language dynamics is seldom used for optimization. Interaction between humans gives rise to different kind of opinions in a society. The process of opinion formation evolves from collective intelligence emerging from integrative forces of social influence with disintegrative effects of individualization. Opinion dynamics leads to efficient decision making and so, we propose an approach based on human opinion dynamics for effective and accurate software cost estimation.



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### I. INTRODUCTION

Agile methodologies provide a structure for highly collaborative software development. Developed in the 1990's, the adaptive methodologies were formulated by and for developers in reaction to perceived deficiencies in conventional 'top down' or 'plan driven' methods. Commonly associated with 'lean' engineering (e.g. Poppendieck Poppendieck, 2003), agile software development closely follows the flow of business value, with a focus on activities that directly contribute to the project end goal of quality software.

Accurate software cost estimation has a great significance for both software development team and customers involved in the project [1][2]. Estimating the effort, time plan and staffing levels required to develop a software project is referred as software cost estimation. Standish group reported, in U.S 53% of software projects ran over 189% of the original estimate due to lack of early estimation. But, estimation is definitely not enough, the key lies within accurate estimation. The Constructive Cost Model (COCOMO) first used in 1981, laid a more calculative

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