Financial Evaluation and Optimization of Business Processes

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ABSTRACT

Designing and optimizing a Business Process based on its financial parameters is a challenging task which requires well defined approaches, actions and recommendations which when implemented lead to tangible and quantifiable results. In this paper the authors consider Business Processes represented through the Business Process Modeling Notation with their Costs evaluated through a pattern based methodology. Using this concept of Cost calculation the authors analyze the effect of different well known best practices on the financial parameters of the process. In this study the authors also evaluate the impact of each task in a process on the overall Cost through Sensitivity Analysis leading to a structured approach to parameter variation to achieve financial optimization. The study briefly introduces the Business Process Modeling Notation, Workflow Patterns, and available Performance Measures Evaluation Techniques and recommends an adaptation of Devils Quadrangle suitable for impact evaluation.

Keywords: Best Practices, Business Cost, Business Performance Management, Business Process, Business Process Modeling Notation, Cost, Devils Quadrangle, Reliability, Sensitivity Analysis, Workflow Patterns

INTRODUCTION

In the recent years, after Service Oriented Architecture and Business processes have taken center stage, a lot of research has gone into the trying to establish methodologies which evaluate and optimize the Business Processes. New fields of research have come to forefront which makes implementation, execution and optimization of Business processes feasible and profitable for organizations. The new methodologies try to establish a management perspective to the implementation of a service, stressing upon financial and economic factors such as returns, the Cost of implementing a service or making sure that there is Reliability in the service being offered.

Existing frameworks recommend best practices so as to optimize the Business Process and these take the complete Business process
together with its surrounding attributes into consideration. Nevertheless computing the Cost of a Business Process such that it is a tangible and measurable value continues to be a complicated and cumbersome process. Estimating the profitability of an idea before it is implemented is a difficult task and techniques that allow us to do this as early as possible is very important in decision making. This requires approaches and practices that incorporate techniques for tangible evaluation of expenses and benefits for each implementation.

The aim of our study is to introduce a methodology for Cost calculation of Business Processes by breaking them into repeating patterns. Using this methodology the study evaluates well-known best practices for their financial impact on the processes.

We start by introducing the terms Cost, Reliability and Business Cost for a process. We then implement a methodology in which the Cost of a Business Process is calculated by considering the Cost and Reliability of each action or task in the process. This methodology breaks the Business Process, represented using the Business Process Modeling Notation (BPMN), into repetitive patterns, resulting in a Cost and Reliability factor for each of these patterns. As a result the overall Cost, Reliability and the Cost incurred to achieve one successful execution of the Business Process are calculated. We call the Cost incurred to achieve one successful execution of the Business Process as the Business Cost of the process.

By implementing this Cost calculation methodology we have evaluated individual Business Processes with the help of a method called Sensitivity Analysis (Triantaphyllou, 2000). Sensitivity Analysis is the study of the changes in the output of a statistical model when the input parameters of the model undergo a systematic variation. We use Sensitivity Analysis to find problem areas in a Business Process where an optimization can be implemented by parameter variation. We vary the Reliability of each task in a Business Process which results in changing the overall Cost. As part of the study we explain briefly the different well-known Performance Measures Evaluation Techniques available in literature and recommended an adaptation to the Devils Quadrangle as a suitable technique for evaluating financial optimizations of Business processes.

COST, RELIABILITY AND BUSINESS COST

Business Processes are defined with different perspectives and objectives, be it internal or external, customer or industry oriented, product or process oriented. The processes have distinct characteristics; Cost and Reliability are two of them. Every Business Process when executed incurs a certain amount of Cost and performs at certain Reliability. Due to these reasons, the returns from a process and the optimization of the same have always a high importance when an organization decides to implement a Business Process. This calculation decides if to have the process at all or not. There would be very few cases where the returns from a process are negative. The aim of undertaking financial optimization is to find out how we could implement a process which gives the maximum returns. The concern is how to calculate and reason out the Cost of a process (either implemented or still in design).
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