

A Framework for Classification of Change Approaches Based on a Comparison of Process Improvement Models

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Abstract. In this paper we describe a framework for classifying possible change approaches according to the stage(s) in the life-cycle where the approach is most applicable. The life-cycle model of the framework is based on an analysis of a number of existing life-cycle models for change from three different domains. The focus of this framework is on the individual improvement project and the palette of available approaches to its project manager.

1 Introduction

The Danish Talent@IT project (www.talent-it.dk) [18] studies change approaches used by companies in order to define a model for successful improvements. We want to find the applicability of these change approaches and how the applicability is related to a company's ability to perform successful changes.

Studies by Somers & Nelson [15] and Kinnula [8] have shown that different change approaches should be applied depending on where in the life-cycle the change project is. E.g. Somers & Nelson [15] have shown that "management commitment" is important in the beginning and conclusion of the life-cycle of the change project, and of less importance in the middle part. And that "dedicated resources" are only important during the actual development of the changes.

Consequently, when we should recommend a project manager which change approach to use, a classification according to the life-cycle stage of a change project seems both relevant and promising. It is also evident that there are change approaches, which extend across all of the life-cycle stages. Such issues are commonly referred to as life-cycle independent or continuous issues. These issues are currently not included in our framework for classification.

For a classification of change approaches by life-cycle stage we need a life-cycle model which extends over the entire life of a change from the original inception of the idea for the change until the stage where new ideas for change emerge based on the experiences and learning obtained from the project.

Selecting an existing life-cycle model for our classification framework would of course be the most natural. However, as we will show in this paper, some of the well-known models focus primarily on the earlier stages of a change project, while others put little emphasis on these and concentrate on the later stages. A combination of

existing life-cycle models into one comprehensive life-cycle model would seem to solve our problem.

Based on such a combined life-cycle model we will be able to classify all possible change approaches by the stage(s) where they will be most useful for a manager of a change project.

2 Life-Cycle Models for Change Projects

The life-cycle models we have studied and compared cover a number of change domains all characterized by having IT as an important enabler. For further analysis we have selected from each domain two life-cycle models which seem representative (e.g. extensively documented and referred to by others). The change domains we have selected life-cycle models from for our comparison are:

- Software Process Improvement (SPI) – section 3
- New Technology Implementation – section 4
- Business Process Reengineering (BPR) – section 5

All change models divide the execution of the project into a number of phases or stages. The number of stages and the activities performed in each stage seem to vary quite a bit. However, a closer look at the models shows an agreement on what should take place during a change project. The differences are mainly in which stage it should take place and what emphasis the model places on the issue. Our comparison of the life-cycle stages of the models can be found in section 6.

Based on our comparison of life-cycles we have then constructed a combined model (section 7) by extracting the most representative stages and distribute the activities from the models on those stages.

We shall use this combined model as the framework for classification of change approaches on the Talent@IT project.

Finally, by means of a few examples we shall demonstrate how the framework can be applied (section 8). However, to fully populate this framework with known change approaches from industry and literature remains part of our future work on the Talent@IT project.

3 Life-Cycle Models in “Software Process Improvement (SPI)”

Systematic efforts to improve software processes originated in 1986 when the Software Engineering Institute at Carnegie Mellon University (SEI) was formed by the US military with the purpose of creating a model to assess potential software system suppliers.

The SPI domain contains many life-cycle models. A comprehensive study of life-cycle models in this domain can be found in Kinnula [7]. Two of the most well-known SPI models are closely connected to maturity assessment frameworks: CMM [12] and SPICE [4]. The work on the Talent@IT project is heavily influenced by these assessment frameworks. We have therefore decided to analyze the SPI models related to CMM and SPICE: