

About the Selection of a Business Process Improvement Methodology

Towards the Development of a Supporting Meta-Methodology

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Abstract: Organizations seek to change the design of their business processes in order to respond to a changing and challenging environment. A wide variety of business process improvement methodologies exist which aim to support practitioners in this effort. However, the selection of an appropriate approach is by no means trivial. Ideally, the characteristics of the methodology applied should fit the characteristics of the process improvement project in order to yield the best results. In this research proposal, we outline how the design science research methodology (DSRM) is adopted to develop, test, and evaluate a meta-methodology for the selection of an appropriate business process improvement methodology.

Keywords: business process improvement, process redesign, process innovation, methodology selection, methodology development, design science research

1 Introduction

The organic nature of organizations, the need to respond to increasing competitive pressure and customer expectations, and the ever changing organizational environment, to only mention a few, are challenges that call for a consideration how business processes are designed and carried out [Du13]. To respond to these challenges, practitioners use and rely on methodologies instead of chaotic “trial-and-error” approaches to systematically derive improved business processes [KTG97]. Business process reengineering as first introduced by Hammer [Ha90, HC93], and business process redesign as responded by Davenport and Short [DS90] are historically developed methodologies that aim to guide practitioners through the process of process improvement. Since then, a variety of new and refined business process improvement methodologies have been introduced.

The selection of an appropriate methodology plays a key role for the success of the improvement project [In02] and thus should be considered carefully. However, given the numerous methodologies on the market, this selection is not a trivial task. Several studies have undertaken the effort to merge different improvement approaches with the aim to combine their advantages [GKT93, LC01, HC04, PS10] or focused on customizing composite methodologies [KTG97, In02]. However, it has been shown that different

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methodologies are most appropriate for dealing each with a specific type of problem [JK84], so the usefulness of holistic improvement approaches can be questioned.

To the best of our knowledge, there is no systematic approach that guides practitioners through the selection of an appropriate business process improvement methodology that meets the improvement project's characteristics. Therefore, it is our intention to address this research gap accordingly and develop a meta-methodology which guides through the selection of an improvement methodology that meets the improvement project's needs. Against this background, the research question is

- How can organizations find a business process improvement methodology that supports their improvement project most appropriately?

In the following section the background and motivation will first be elaborated. In the consecutive method section, it will be outlined, how the research question is planned to be answered. This proposal ends with a description about the expected research contribution.

2 Background & Motivation

In the broad sense, a methodology can be defined as “any kind of advice given to analysts about how they should proceed to intervene in the real world” [JK84, p. 477]. More concrete, a methodology is a set of principles a user adopts to guide through the actions to improve a perceived real-world problem situation [Ch84]. The problem in this case is the discrepancy between the current and the potential state of a business process, in terms of fulfilling the specified improvement objective(s). A methodology in the context of process improvement guides through and limits the (potentially unlimited) solution space from all available- to a specific process design.

2.1 Improvement methodologies and their characteristics

There is a great number of improvement methodologies available on the market. In this context we use the term business process improvement generically: it entails all initiatives to change the design of a business process for the better, e.g. process redesign, -reengineering, -innovation, and -optimization. There exist specific methodologies for different kinds of processes (e.g. knowledge intense [MBI15] and supply chain processes [PNR14]) and methodologies for different sectors (e.g. for the public-, construction-, and education sector [KW05, KBW07, Ab11]). Methodologies also differ in their scope: From rather narrowly focusing on the act of redesigning the process itself [LC01], to a rather holistic approach [Po98]. Additionally, methodologies are more or less strict about the application of the steps and activities involved. For instance, [SB05] is purposely developed as a structured step-by-step approach, while [KW05] was designed with a minimum of procedural structure. Both are claiming that their specific methodological

design is beneficial for achieving the improvement goal. These and other characteristics lead practitioners to be confused by the choice of methodologies available [In02].

2.2 Improvement projects and their characteristics

A business process improvement project has distinct characteristics. Kettinger et al. [KTG97] for instance identified four characteristics, namely project radicalness, process structuredness, customer focus, and potential of IT enablement. Project radicalness and customer focus is what we label as the ‘improvement intensions’, the process structuredness is part of the ‘business process’ characteristic. We want to add improvement objectives to this list of characteristics, as these set out the direction of the improvement effort. The improvement objectives should be derived from the firm’s strategic vision [DS90]. Typical objectives, to only mention a few, are cost reduction, time reduction, increased output quality, but also improved quality of work life, empowerment [DS90], flexibility [JR05] and innovation [In02], or a mix of these. Improvement projects are likely to have other characteristics that define them, which we intend to identify.

2.3 Finding an appropriate improvement methodology

As the work of Jackson and Keys [JK84] points out, a problem-solving methodology is likely to be of use for a specific type of problem and the problem’s context. They specifically state that “no one methodology is likely to be of use in all circumstances” [JK84, p. 477]. It is thus crucial to analyze the problem context correctly as well as to identify the appropriate methodology for this problem [JK84]. In the context of business process improvement it has also been acknowledged, that specific characteristics of the improvement project call for different methodologies [KTG97].

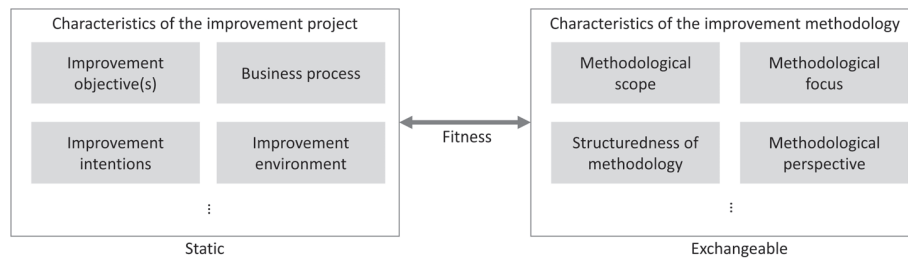


Fig. 1: Fitness between characteristics of the improvement project and improvement methodology

Thus, to increase the fitness between the characteristics of the improvement project and the corresponding methodology (Fig. 1), an appropriate methodology has to be selected [Ch97]. We define a methodology to be appropriate for an improvement project, if its characteristics match the characteristics of the improvement project, e.g. the methodological focus encompasses the type of business process to be improved. In this way it facilitates to achieve the improvement objectives and intensions for the kind of

business process to be improved. Taking into consideration the elaborated need to find an appropriate business process improvement methodology, it is the aim of this study to develop a meta-methodology that assists in finding an improvement methodology that best fits the characteristics of the improvement project.

3 Methods

To develop the meta-methodology, design science research methodology (DSRM) as introduced by Peffers et al. [Pe07] will be adopted. This methodology is extensively used for the development and evaluation of artefacts [Br11, DJ12, Sh14]. It consists of six activities, and in the following, the activities and how they are applied will be described.

The first activity ‘problem identification and motivation’ refers to the specific research problem and the value of the potential solution [Pe07]. As mentioned, characteristics of both, the improvement projects and the improvement methodologies have to be identified, since these determine the fitness between both. Hence, as a first step in this activity, a systematic literature review will be conducted as described in [Ki10] to get a comprehensive overview which methodologies for the improvement of business processes are actually available. The data collected through the literature review comprises for each methodology the following information (if applicable): Its goal and definition, the entailed steps and activities, the recommended area of application, the objectives followed, on which methodology it is built on, and which concepts it deploys. This data will then be used to find distinguishing characteristics in the improvement methodologies found. To determine characteristics that differentiate improvement projects, two sources of data will be used: First, the case studies that describe the application of methodologies found in the systematic literature review will be analyzed. To complement this data, practitioners will also be interviewed in the form of semi-structured in-depth interviews [RR12]. To analyze and interpret the data obtained in this interviews, the grounded theory method will be used as described in [SR09, ULM10]. These results are essential for the later development of the meta-methodology. Based on this, we will then justify how the characteristics of the methodology have to meet the characteristics of the improvement project and that the meta-methodology is of great use for practitioners.

In the second activity ‘define the objectives for a solution’, objectives of the solution are inferred, given the problem definition and general knowledge about what is possible and feasible [Pe07]. The desired features and functionality of the meta-methodology are closer described in this section, based on the results from the first activity and the research background.

In the third activity ‘design and development’ the methodology is created. This is done by using the theory and knowledge obtained in the first and the objectives defined in the second activity. The main task will be to find out how to match characteristics from a project systematically with characteristics of an appropriate methodology. Since it is

impractical to do this for every improvement methodology, methodologies with similar characteristics will be grouped.

The fourth activity is ‘demonstration’. Here, the artifact, in this context the meta-methodology, will be used to solve one or more instances of the problem [Pe07]. We perform this step by conducting a case study, in which practitioners with an experience in the field are asked to use the meta-methodology to select an appropriate improvement methodology for fictional improvement projects. We will conduct semi-structured in-depth interviews [RR12] with the participants to get an insight about the perceived usefulness of the meta-methodology and use this feedback to modify it accordingly.

‘Evaluation’ is the fifth activity and aims to measure how well an artifact supports a solution to the problem [Pe07]. First, it will be assessed whether the developed methodology fulfills the objectives defined in the second activity of DSRM. Since to the best of our knowledge there is no other methodology that aims to guide through the selection of an improvement methodology, it cannot be evaluated against another approach. Therefore, we introduce usability, comprehensibility, and completeness as an initial set of measures, while acknowledging that these still need to be extended and refined. To evaluate this quality attributes it is planned to design and conduct a controlled experiments with students, which is one evaluation method proposed in [He04]. The meta-methodology should also produce the same output given the same project characteristics. To evaluate this consistency, different descriptions of fictional improvement projects with distinct characteristics will be created during the design of the experiment. A group of students will then be provided a random project description, with the aim to use the meta-methodology to select an improvement methodology. The results can then be used to assess the consistency of outputs for students with the same project descriptions.

The last activity ‘communication’ aims to disseminate the research results [Pe07].

4 Expected contribution

The main contribution of this work is the development of a meta-methodology for selecting a business process improvement methodology. This will be of great help for practitioners in the initial phase of an improvement project. No two improvement projects are alike [In02] and the use of the developed meta-methodology is expected to save time during the selection process and will ultimately lead to better improvement results through meeting the improvement project’s characteristics.

The second contribution is the theoretical analysis of the characteristics of improvement methodologies, improvement projects and their interrelationship. For the further development of improvement methodologies, this theoretical basis can help to assess whether more targeted improvement methodologies for certain project characteristics still need to be developed.

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