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SITUATIONAL ROADMAP DEVELOPMENT FOR BUSINESS PROCESS IMPROVEMENT VIA A MODELING TOOL

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Research in Progress

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Abstract

The integration of new technologies as well as the need to increase customer satisfaction and reduce costs require companies to continuously analyze and improve their business processes. Hence, Business Process Improvement (BPI) ranks high on the agenda of many companies. However, existing methods like Six Sigma are often perceived as overly complex for projects with a limited scope. Therefore, more and more companies focus on the application of a few selected BPI techniques only, which are logically arranged in the form of "roadmaps" to tackle process weaknesses. Against this backdrop, the concept of "tool-supported situational roadmap development for BPI" along with a corresponding prototype are introduced. The approach builds on conceptual modeling and is technically realized by means of a metamodeling platform. Accordingly, the research offers practitioners a solution to systematically create project-specific roadmaps for BPI to improve process performance.

Keywords: Business Process Improvement, Metamodeling, Roadmap, Method Engineering.

1 Introduction

New digital technologies like cyber-physical systems (CPS), internet of things (IoT), cloud manufacturing, augmented reality and additive manufacturing offer new potential for value creation these days (Hänisch, 2017, Kiel et al., 2017). However, the successful integration of these novel technologies into a company's existing business processes usually comes with profound process redesign and improvement efforts (Denner et al., 2018). Considering this, Business Process Improvement (BPI) (Harrington, 1991) has become an important task for enterprises to meet customer requirements, remain competitive and prepare the ground for the introduction of digital technologies (Cozzolino et al., 2018, Harmon and Garcia, 2020). In light of this, manifold methods have been created in recent decades to improve business processes, such as Six Sigma, Lean Management or Total Quality Management (TQM) for instance. Nevertheless, a lot of practitioners perceive these methods to be immoderately complex and over-dimensioned for improvement projects with a limited scope (Davis, 2013). Moreover, literature identifies methodological flaws in existing methods, which may lead to unforeseen challenges upon their application (Antony and Gupta, 2019, Zellner, 2011). As a result, process managers often prefer a manageable set of BPI techniques (cf. Andersen, 1999) to eliminate process weaknesses rather than the application of comprising methods (Davis, 2013, McGee-Abe, 2015). For this purpose, BPI techniques are selected and integrated in the form of a roadmap, which is a logical arrangement of techniques (e.g., Failure Mode and Effects Analysis, etc.) (cf. Meran et al., 2013) to support all key phases of a BPI project and to arrive at propositions for process improvement (Johannsen and Fill, 2017). While proprietary roadmaps for BPI are introduced in the literature (cf. Adesola and Baines, 2005, Johannsen and Fill, 2014), there is a lack of standardized and tool-supported approaches to easily construct and directly instantiate enterprise-specific BPI roadmaps. At this point, ideas from Method Engineering – a discipline which has long dealt with the systematic construction of enterprise-adapted methods for designing information systems (IS) – can be referenced (cf. Brinkkemper, 1996, Goldkuhl and Karlsson, 2020, Ralyté and Rolland, 2001). For instance, in Situational Method Engineering, "method chunks" (Ralyté et al., 2006) are combined to arrive at

methods for particular project situations (Mirbel and Ralyté, 2006). Similarly, BPI techniques may be purposefully integrated to create project-specific roadmaps that structure BPI projects (cf. Johannsen, 2020). It is in this context that this paper hereafter refers to situational roadmap development for BPI. Conceptual modeling may support method engineers in purposefully constructing BPI roadmaps, because interconnections between its elements can be purposefully visualized (e.g., Recker et al., 2021). Hence, the objective of this research is to develop a modeling tool to easily create, instantiate and apply situational BPI roadmaps that are adapted to individual needs. Thereby, the resulting BPI roadmaps make use of BPI techniques that have been realized as conceptual model types.

This research-in-progress paper unfolds as follows: In the next section, the foundations of BPI as well as a theoretical concept for situational roadmap development for BPI are introduced. Afterwards, the research procedure, the design of the approach and a first prototypical implementation by means of a metamodeling platform are described. The paper concludes with a summary and an outlook on the upcoming research steps.

2 Foundations

2.1 Business Process Improvement (BPI)

The purpose of BPI is to raise the efficiency and effectiveness of a business process in terms of delivering output for customers (Harrington, 1991). In recent years, many BPI approaches have been developed that help to transform employees' implicit process knowledge into process improvement suggestions by means of BPI-related procedure models (e.g., Adesola and Baines, 2005, Zellner, 2011). Moreover, literature discusses the usage of "patterns", which support BPI efforts through the modification of business process elements (e.g., activity, organizational unit, etc.) (Bergener et al., 2015, Lang et al., 2015, Lohrmann and Reichert, 2016). Furthermore, the extraction of business process redesign suggestions from raw text with the help of Natural Language Processing is a subject of investigation (cf. Mustansir et al., 2022). Moreover, process mining is discussed in BPI literature as an instrument to reflect as-is-process instances against should-be-process definitions (cf. Graafmans et al., 2021). Considering the diverse research streams in BPI, *Vanwersch et al.* (2016) introduced a framework to systematically categorize BPI use cases. However, the literature also outlines methodological deficiencies of BPI methods (cf. Zellner, 2011).

The documentation of emerging knowledge in BPI projects is a decisive success factor, because the results may be purposefully further processed and BPI efforts coordinated more effectively (Antony and Gupta, 2019, Breyfogle, 2010, Johannsen and Fill, 2014). In light of this, conceptual models play an important role, because they facilitate people-oriented communication, understanding and the application of technological knowledge engineering techniques such as the automated processing of model content (Mylopoulos, 1992). Consequently, various model types and graphical representation techniques come to be used in BPI practice to document project results (cf. Anaby-Tavor et al., 2010). For instance, diagram types like the Ishikawa Diagram or the SIPOC (supplier, input, process, output, customer) Diagram have been proposed (cf. Meran et al., 2013), while modeling techniques like UML or BPMN are applied as well (cf. Ferrante et al., 2016).

2.2 Selection of BPI techniques and Roadmap Construction

Although various BPI methods have been established over the years, many practitioners perceive present BPI approaches (e.g., Six Sigma) as overly complex for projects of a limited scope (e.g., Davis, 2013, McGee-Abe, 2015). Because of that, enterprises increasingly prefer to select singular BPI techniques to cope with process weaknesses (cf. Davis, 2013, McGee-Abe, 2015). The chosen BPI techniques are then logically and chronologically arranged. That way, an enterprise-specific roadmap for BPI emerges (cf. Johannsen and Fill, 2014). In Method Engineering, *Mirbel and Ralyté* (2006, p. 61) define a "roadmap" as a "path in a method or a specific sequence of method chunks". In line with this definition, a BPI roadmap is interpreted as a sequence of BPI techniques that guide employees in developing solutions to

mitigate process weaknesses (Johannsen and Fill, 2017). A key factor in building BPI roadmaps is the purposeful selection and integration of BPI techniques (cf. Antony and Gupta, 2019, Johannsen and Fill, 2014). Thereby, a (BPI) technique is interpreted as an instruction to create a certain result (Gutzwiller, 1994) in the course of a BPI project hereafter (for examples see: *https://tinyurl.com/yhw5zts6*). In this context, manifold criteria for selecting BPI techniques have been recently proposed, such as "ease-of-learning", "required input" and "flexibility" (e.g., Hagemeyer et al., 2006, Thia et al., 2005). However, there are challenges: First, profound knowledge of BPI techniques is required to properly evaluate them on the basis of such criteria. Second, there is a lack of tools that support the automatic selection and integration of techniques to develop BPI roadmaps (Johannsen, 2020). Although, more than 500 commercial software providers for quality management can be found (e.g., via https://www.capterra.com.de), these primarily focus on the analysis of data, project management, quality control across the product lifecycle, compliance regulations or the organization of quality trainings but not on BPI roadmap construction. Contrary, existing tools for Method Engineering put a special emphasis on information systems modeling (cf. Hoppenbrouwers et al., 2008, Ralyté et al., 2004). The construction of situational approaches for the domain of BPI is not the focal point yet. Third, the integration of the BPI techniques is not without problems, because functional interdependencies have to be considered (Bruhn, 2019, Johannsen, 2017). Hence, BPI techniques may have synergies to one another but can also pursue opposing goals (e.g., increase of quality vs. reduction of costs) (Bruhn, 2019, Johannsen, 2017). Considering these challenges, the development of tool support to create situational BPI roadmaps seems promising.

2.3   Tool-Based Situational BPI Roadmap Development

In general, the construction and implementation of method specifications is the task of method engineers (Kelly and Rossi, 1998, Kumar and Welke, 1992). Method Engineering thereby focuses on the design, construction and adaptation of "methods, techniques and tools" for IS development (Brinkkemper, 1996, p. 276). The field is closely connected to Design Science (cf. Goldkuhl and Karlsson, 2020) and its principles are increasingly applied to BPI as well (cf. Denner et al., 2018). As an example, *Saidani and Nurcan* (2008) propose their "business method" concept, which builds on a set of metamodel chunks that can be situationally combined or configured to model business processes. Furthermore, *Denner et al.* (2018) use Method Engineering to design a method to utilize the potentials of digitalization for business processes. Nevertheless, the software-based situational construction of methods for BPI is an underresearched topic yet. Because of that, a first theoretical concept for tool-based situational BPI roadmap was outlined in a previous work (Johannsen, 2020) (see Fig. 1). The proposed approach builds on the idea of Situational Method Engineering (Mirbel and Ralyté, 2006, Ralyté et al., 2003) and was adapted for the BPI field.
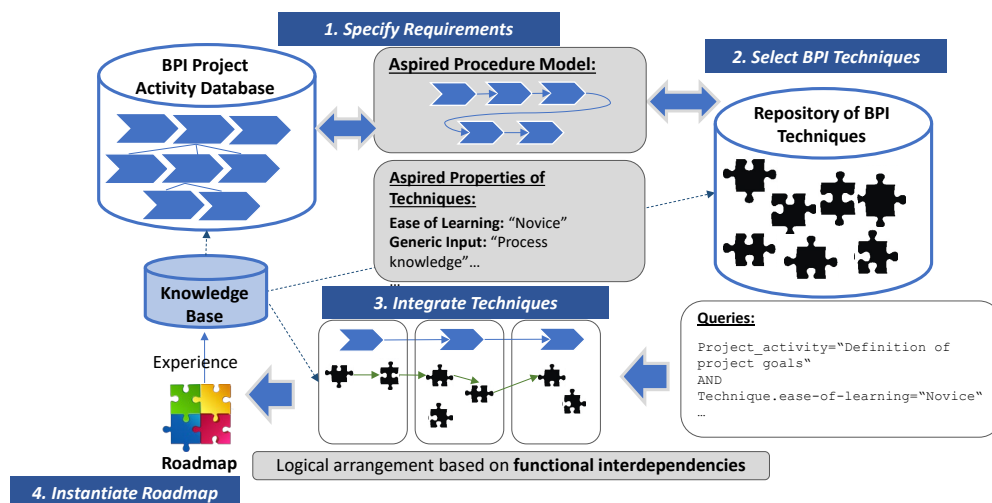

Figure 1. Approach for tool-based situational BPI roadmap development (Johannsen, 2020).

In a <u>first step</u> *(specify requirements)*, users specify their requirements for the BPI roadmap. More concretely, the activities and phases (e.g., measure process performance, model process, etc.) (cf. Harrington, 1991) to be performed in a BPI project need to be defined. The user is supported in this task by the so-called "BPI project activity database", from which activities can be retrieved and logically arranged. Also in this step, users specify the properties of the BPI techniques (e.g., ease-of-learning, etc.) (e.g., Hagemeyer et al., 2006). In a <u>second step</u> *(select BPI techniques)*, suitable BPI techniques are retrieved from a "repository of BPI techniques" with the help of queries building on previously defined requirements (activities and properties). After that, the selected BPI techniques are integrated to form the BPI roadmap in a <u>third step</u> *(integrate techniques)*. At this point, the functional interdependencies also need to be considered and hence, the interplay between BPI techniques. As soon as the final arrangement of BPI techniques has been fixed, the roadmap may be directly instantiated by means of the tool in <u>step four</u> *(instantiate roadmap)*. The experience gained throughout BPI projects can be fed into a corresponding knowledge base.

We argue that the concept for tool-based situational BPI roadmap development shown above can be purposefully realized by means of conceptual modeling and modeling tools. In this respect, the benefits of conceptual modeling and software tools for method construction are widely recognized in Method Engineering (e.g., Karlsson and Wistrand, 2004, Tolvanen, 1998, Tolvanen and Lyytinen, 1993). Hence, method fragments or chunks (e.g., techniques, activities, etc.) are set in relation to one another, which leads to a complex structure of interconnected method elements (cf. Baumöl, 2008). This complexity can be decreased through the use of conceptual models (cf. Anaby-Tavor et al., 2010, Recker et al., 2021), which purposefully visualize the interrelations between the method elements and therefore help to structure the specification of the method. Considering this, the chronological arrangement of activities and techniques as well as functional interdependencies between BPI techniques may thus be systematically described with the help of conceptual models as well (Fig. 1).

The aspired implementation effort brings up novel insights: First, it is shown, which domain-specific adaptations (e.g., consideration of functional interdependencies between BPI techniques, selection of BPI techniques by help of properties) have to be made when transferring established ideas from Method Engineering to BPI for the purpose of situational roadmap construction. Second, ways to technically address these domain-specific peculiarities via a modeling tool prototype are proposed. That way, a better understanding for the link between Method Engineering and BPI emerges.

3 Research Procedure

To prototypically realize the proposal for tool-based situational BPI roadmap development (Fig. 1), a Design Science (DS) approach (cf. March and Smith, 1995, Peffers et al., 2007) is used, whereby the artifact types "construct" (design of the technical realization) and "implementation" (technical realization) will be the major outcomes of this effort (cf. Peffers et al., 2012).
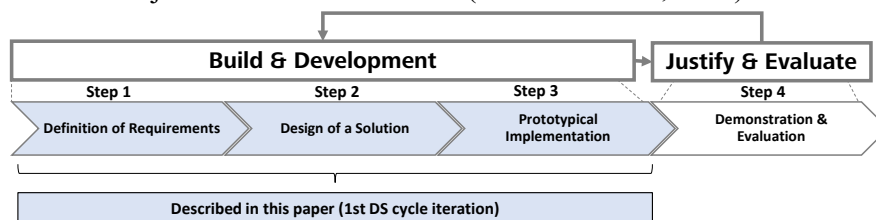

Figure 2. Procedure of this research (based on: March and Smith, 1995).

Hence, in a first step, the requirements on the approach are to be identified *(Fig. 2 – step 1)*. In DS, these are generally derived from the problem definition and knowledge about the feasibility concerning the application environment (cf. Hevner, 2007). Afterwards *(step 2)*, the solution is to be designed, which lays the groundwork for the upcoming implementation to arrive at a running modeling tool *(step 3)*. In a next step, the applicability and usability of the prototype will be demonstrated and evaluated in real-life scenarios *(step 4)*. Based on the feedback gained, revisions will be made by jumping back to the

"build & development" stage (March and Smith, 1995), indicating a new iteration of the cycle. This research-in-progress study presents current results from the first iteration of the shown DS cycle (Fig. 2). Hence, initial requirements are described, and the design and implementation of a first prototype introduced (steps 1 to 3).

4 Definition of Requirements

For the specification of requirements in a first DS cycle (Fig. 2), we refer to literature on the one hand. On the other hand, we consider requirements that came up in several cooperation projects with partners from the financial services and fleet management industry over a period of three years. In brief, the projects dealt with the construction and application of enterprise-adapted BPI methods to analyze and redesign business processes in various business units. In this regard, many workshops took place involving employees with different BPI skills. Besides working collaboratively on project tasks, these workshops were also used to gather participants' expectations towards the design of BPI methods.

No.	Requirements (Rqs.)	Explanation
1*	Retrieval of activities from an activity database	The capability to specify the activities of a BPI project on the basis of a pre-defined "BPI project activity database" is sought (cf. Baumöl, 2008).
2*	Automatic selection of BPI techniques on the basis of properties	BPI techniques should be selectable based on criteria/properties (e.g., ease-of-learning, required input, etc.) (e.g., Hagemeyer et al., 2006).
3*	Integration of BPI techniques on a graphical level considering functional interdependencies	The BPI techniques are to be integrated on a graphical level, while functional interdependencies (e.g., synergies) are considered automatically (cf. Bruhn, 2019).
4*	Direct instantiation of the developed BPI roadmap	The option to instantiate the created BPI roadmap in the tool is a desired goal.
5	Option to document experiences	There should be the ability to document experience (cf. Baumöl, 2005) gathered in BPI projects by working with the roadmap.
6	Design of BPI techniques as model types	The BPI techniques in the repository should be designed as model types to purposefully codify and document project results (cf. Mylopoulos, 1992).
7	Construction of the BPI roadmap with the help of a conceptual model type	To facilitate the construction of the roadmap, a corresponding model type should be given, which allows method elements to be interconnected on a graphical level and the roadmap specification to be structured (cf. Karlsson and Wistrand, 2004, Tolvanen, 1998, Tolvanen and Lyytinen, 1993).
8	Generation of reports	Users should be able to easily generate beneficial reports that summarize information captured in model instances (cf. Johannsen and Fill, 2014).
9	Final selection of proposed BPI techniques	The user should have the option to individually choose the BPI techniques – that have been proposed by the tool – to work with.
Legend: *Requirements directly addressing the steps of the concept		

Table 1.   Requirements.

Table 1 summarizes the requirements. Thereby, the requirements 1 to 4 *(Rqs. 1–4)* are directly derived from the singular steps of the concept for tool-based situational BPI roadmap development (Fig. 1). The other requirements (*Rqs. 5–9*) address the feasibility and usability of the solution in practice (cf. Hevner, 2007) and were deduced from literature and the feedback collected during abovementioned practice projects. Hence, the experience gained in projects should be documentable and used for further roadmap construction efforts *(Rq. 5)*. Furthermore, the tool ought to use conceptual model types to properly codify the project results, to be purposefully further processed in later steps *(Rq. 6)*. The roadmap construction process should be supported by a corresponding model type to visualize the roadmap's structure and to reduce complexity *(Rq. 7)*. However, the user should also be given the option to make the final selection on the techniques contained in the roadmap *(Rq. 9)*. Finally, beneficial reports (e.g., process problem report) should be automatically generated to prepare the foundation for decision-making in BPI (e.g., Johannsen and Fill, 2014) *(Rq. 8)*.

5 Design of a Solution

Figure 3 provides an overview of the design for the technical realization of the "tool-based situational BPI roadmap development" approach. The specification of the requirements for the BPI roadmap (Fig.

1 – *step 1 "specify requirements" & Rq. 1*) is enabled with the help of a model type called "Roadmap Construction Model" *(Rq. 7)*. The metamodel for the "Roadmap Construction Model" consists of the classes "activity", "technique property construct" and "BPI technique" (see Fig. 3). The class "activity" enables the user to define the steps of a BPI project to be covered by the BPI roadmap on an instance level. This is realized by means of a corresponding attribute "activity", which offers the user a drop-down list to assign a BPI activity (from the BPI project activity database) to the modeling construct (e.g., visualization of the process, etc.). Furthermore, each activity is assigned an instance of the class "technique property construct". The "technique property construct" subsumes attributes to specify the desired properties of the BPI techniques. More precisely, the attributes "purpose of the technique", "ease-of-learning", "input" and "output" are offered (cf. Hagemeyer et al., 2006). These attributes are chosen for a first tool version, because they can be easily specified by users with different background knowledge of BPI and enable the automatic identification of functional interdependencies *(Rq. 3)* (e.g., Johannsen, 2017). The "purpose of the technique" is automatically set in accordance with the user-defined connection between the constructs "activity" and "technique property construct".
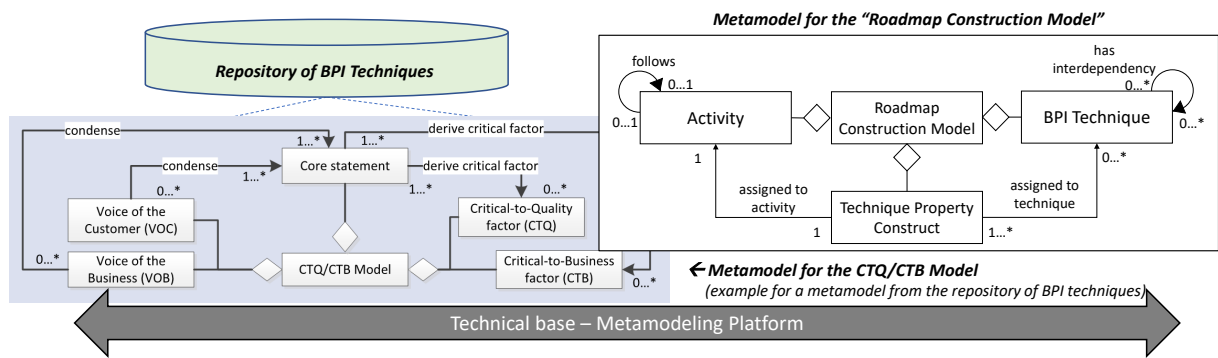

Figure 3. Design of the technical realization.

Based on the attribute values, queries for selecting suitable BPI techniques from the repository of BPI techniques are created (Fig. 1 – *step 2 "select techniques" & Rq. 2*). As an example, the user may create an instance of a "technique property construct" and define the following attribute values: (I) "knowledge about customers" for the attribute *input*, (II) "list of project goals" for the attribute *output* and (III) "novice" for *ease-of-learning*. If this "technique property construct" were related to an "activity" instance, to represent the BPI activity "definition of CTQ (critical-to-quality) factors", the following query would be created: *"'purpose of the technique' = 'definition of CTQ factors' AND 'input' = 'knowledge about customers' AND 'output' = 'list of project goals' AND 'ease-of-learning' = 'novice'"*. To enable the selection on the basis of such queries, each BPI technique in the repository is described in light of the abovementioned attributes. After extracting BPI techniques from the repository, corresponding instances of the class "BPI technique" are automatically inserted into the model and linked to the instances of the "technique property construct" classes. In some cases, none or more than one BPI technique may be proposed. Furthermore, to highlight synergies between BPI techniques (cf. Johannsen, 2017, Johannsen et al., 2022), all instances of the class "BPI technique" are parsed and functional interdependencies are visualized by the automatic insertion of corresponding relations (Fig. 1 – *step 3 "integrate techniques" & Rq. 3*). For instance, if "technique A" creates an output (e.g., list of project goals), which is taken up as input by "technique B", a conditional interdependency exists; i.e. the output produced by a technique is taken up and further processed by another technique (e.g., Johannsen, 2017, Bruhn, 2019). In case of a complementary interdependency, the output generated by a technique creates knowledge, which facilitates the application of another technique, although no direct output-input-relationship is given (e.g., Johannsen, 2017, Bruhn, 2019). After these steps have been performed a proposition for the BPI roadmap is available and the user can make a final decision of the techniques to be included in the roadmap by activating a checkbox *(Rq. 9)*. The roadmap is then directly instantiated via the tool (Fig. 1 – *step 4 "instantiate roadmap" & Rq. 4*).

Regarding the "repository of BPI techniques", a set of 14 BPI techniques – which the authors of this study have worked with in several BPI projects – were transformed into model types for a first version of the tool *(Rq. 6)*. Figure 3 exemplarily shows the metamodel for one of these model types, namely the "CTQ/CTB Model" (CTB – critical-to-business). That way, the results of BPI projects can be properly codified and further processed afterwards (cf. Mylopoulos, 1992). Further, the experience gained in BPI projects may be documented via free-text fields and referenced by tool users any time *(Rq. 5)*. Finally, beneficial reports for BPI managers, which work on model content have been defined and can be generated upon demand *(Rq. 8)* (Johannsen and Fill, 2014).

6   Prototypical Implementation

For the implementation we refer to the ADOxx (www.adoxx.org) metamodeling platform, which has been purposefully applied in research and practice for more than two decades now (cf. Fill and Karagiannis, 2013). The architecture of ADOxx uses a database-driven client-server repository, offers a multi-user environment, a querying functionality for model content (ADOxx query language 'AQL'), and enables the automatic generation of user-defined reports (Fill and Karagiannis, 2013). Considering this, it was seen as an appropriate technical base for realizing the requirements (see Section 4) with one single platform. The dynamic visual representation of classes and relationclasses is defined with the help of the GRAPHREP language, while AQL helps to generate reports by querying model content (Fill and Karagiannis, 2013). Finally, the ADOScript language is required to implement the algorithms that are performed on the models, e.g., the extraction of BPI techniques from the "repository of BPI techniques" (see Fig. 1) (cf. Fill and Karagiannis, 2013).
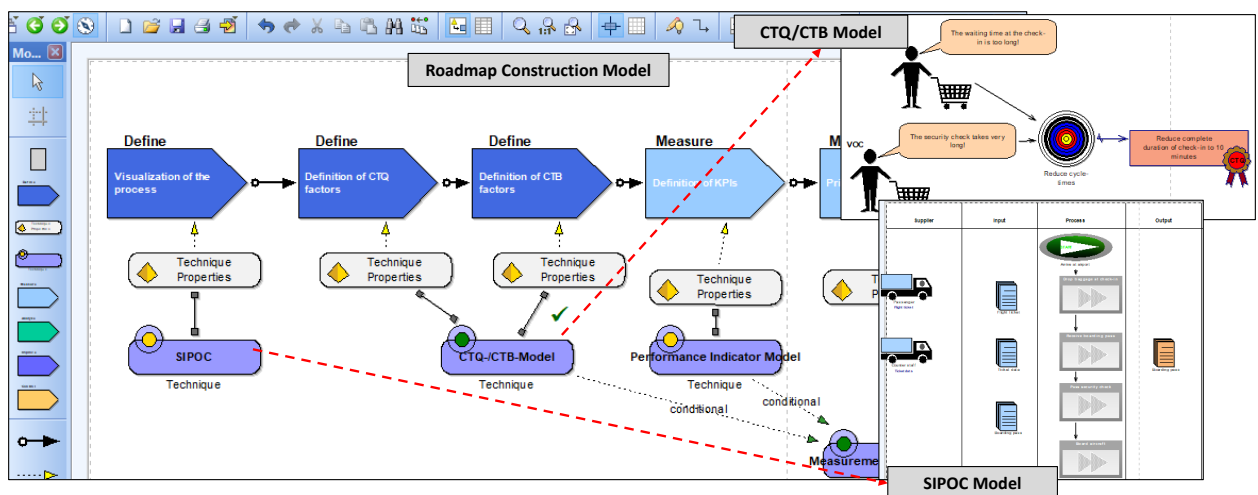

Figure 4. Screenshots from the implementation.

Figure 4 shows a screenshot from the prototype, in this case an instance of a "Roadmap Construction Model". This instance of the "Roadmap Construction Model" visualizes a sequence of five activities (e.g., visualization of the process, etc.) along with the assigned "technique property constructs". The model constructs and their relationships are defined in the corresponding metamodel (see Fig. 3). More information is provided in the supplementary material *(https://tinyurl.com/yhw5zts6)*. Furthermore, the model types (BPI techniques) assigned to these technique properties and the corresponding activities are outlined. The techniques were automatically selected based on the attribute values as defined by the user (e.g., ease-of-learning, etc.) and automatically inserted into the model. The same holds true for the functional interdependencies between the techniques, e.g., "CTQ/CTB Model" and "Measurement Matrix Model". By clicking a corresponding "instantiation button", the BPI model types (and hence the whole BPI roadmap) can be instantiated and used for projects straight away, which is exemplarily sketched out for the "SIPOC Model" and "CTQ/CTB Model". The prototype is available at: *https://tinyurl.com/3uven65r*

7 Planned Evaluation & Implications of the Research

Concerning the prototype, all requirements as shown in Table 1 were realized by help of the previous design works (see Section 5). In a next step, a demonstration of the prototype at a partner company is planned to prove its applicability in a practical setting and get feedback (e.g., Sonnenberg and Brocke, 2012). After that, a more comprising evaluation (cf. Peffers et al., 2007) at companies from different branches will be performed to further analyze the prototype's performance, usability, and reliability amongst others (cf. Hevner et al., 2004). Besides, separate usability studies (e.g., Bevan, 1995) with a larger group of students will be performed, which is helpful to receive supplementary feedback about the artifact from people with variable domain knowledge and varying skills in conceptual modeling (cf. Gemino and Wand, 2004). The insights from the evaluation will trigger a second iteration of the DS cycle (Fig. 2). The study has implications and benefits for research and practice alike. First, regarding research, the paper demonstrates that ideas from Situational Method Engineering in IS development (cf. Mirbel and Ralyté, 2006, Ralyté et al., 2003) can be purposefully transferred to the domain of BPI to enable the situational construction of BPI roadmaps. This contributes to the discussion as to what degree Method Engineering can be beneficially applied in BPI to establish instruments for process improvement. Second, the approach introduced here for tool-based situational BPI roadmap development contributes to research on Agile Modeling Method Engineering (AMME) (Karagiannis, 2018) by showing how adapted and model-based roadmaps for BPI can be established with the help of the metamodeling platform ADOxx. In this context, the need to quickly adapt modeling methods to codify project knowledge becomes ever more important due to the dynamically changing market needs that must be addressed by "agile enterprises" these days (Karagiannis, 2018). The research at hand presents a possible tool-based operationalization of AMME for the BPI field. Third, the study complements BPI research about the selection of BPI techniques by means of evaluation criteria (e.g., Hagemeyer et al., 2006) and synergies (e.g., Bruhn, 2019). Generally, there still exists a lack of software solutions which support users in the choice of adequate BPI techniques to tackle certain project situations. The prototype introduced here contributes to the closing of this gap by combining established evaluation criteria with knowledge about functional interdependencies within a single tool-based approach. Fourth, practitioners – even those with little knowledge in the field of BPI – are provided a first prototypical solution to create BPI roadmaps adapted to their particular needs. This is especially relevant because the improper selection of BPI techniques as well as an inappropriate order of use are major reasons for project failures in practice (Antony and Gupta, 2019). With our solution, these pitfalls can be mitigated. Fifth, the design of BPI techniques in the form of conceptual model types helps to purposefully codify project results and communicate them afterwards. This aspect has been identified as an important success factor to coordinate BPI efforts that run in parallel (cf. Breyfogle, 2010).

8 Summary & Outlook

In this running work, a design proposition and prototypical implementation of an approach for tool-based situational BPI roadmap development was introduced. The study addresses practitioners' needs to construct situational BPI roadmaps as a means to develop process improvement suggestions. It is argued that practitioners are increasingly shifting away from the use of holistic BPI approaches (e.g., Six Sigma or TQM) and prefer the application of few selected BPI techniques (BPI roadmaps) to tackle process weaknesses. However, there are limitations to this research-in-progress study. At first, the prototype's "repository of BPI techniques" subsumes a limited set of 14 techniques previously developed. Although these are frequently used in BPI projects, further techniques are to be included in future. Moreover, the approach was realized via the ADOxx platform and hence platform-specific peculiarities imprint the technical implementation (e.g., ADOxx meta2model). Since the research currently goes through a first iteration of the DS cycle, there has neither been an evaluation in practice nor a revision of the prototype based on corresponding feedback yet. Accordingly, in upcoming steps, a comprising evaluation of the prototype will be performed, and revisions made. In future, the prototype is planned to be "freely" offered and spread within the community.

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