Bus Inf Syst Eng 57(4):261–270 (2015)
DOI 10.1007/s12599-015-0386-0

RESEARCH PAPER

Factors that Determine the Extent of Business Process Standardization and the Subsequent Effect on Business Performance

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Received: 30 October 2012 / Accepted: 29 October 2014 / Published online: 9 June 2015

Abstract Business process standardization is the activity of unifying different variants of a family of business processes. While the positive effects of business process standardization are well-described, it is often undesirable to fully unify different variants due to cultural, legal, or operational reasons. Consequently, a decision has to be made about the extent to which a family of business processes should be standardized. However, little is known about the factors that drive that decision. This paper fills that gap, by presenting factors that drive the extent to which business processes can be standardized, performance properties that are influenced by business process standardization, and relations between these concepts.

Accepted after six revisions by Prof. Dr. Winter.

Electronic supplementary material The online version of this article (doi:10.1007/s12599-015-0386-0) contains supplementary material, which is available to authorized users.

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Keywords Business processes · Standardization · Contextual factors · Literature survey

1 Introduction

Business process standardization aims to make similar business processes in an organization uniform. Intuitively, the idea of business process standardization is to ensure that if an organization performs the same activity in different places, it does so in the same way (Harmon 2010). There are many claimed benefits of business process standardization. It has been claimed to lower the cost of executing processes and improve collaboration, both between departments and between an organization and its business partners (Carmichael 1997; Hammer and Stanton 1999; Davenport 2005). Furthermore, empirical evidence exists that business process standardization decreases the throughput time of a process, reduces costs, and improves quality and control (Jayaram et al. 2000; Beimborn et al. 2009; Muenstermann et al. 2010a).

Moreover, process standardization is considered to be a critical step in ERP system implementation. It ensures the alignment of an ERP system and the business processes that support those processes (Botta-Genoulaz et al. 2005, p. 514), facilitates a more uniform implementation of the ERP system, reduces future maintenance costs, and increases agility in process changes (Richen and Steinhorst 2005, p. 3). These positive effects are easy to see. If departments doing similar work share a similar – standardized – process, it is easier to develop and maintain an ERP system to support that process than when these departments all have their own processes and need a unique ERP system implementation. Although the efficiency with which software systems can be implemented and maintained is a positive result of standardization,

software systems can also hamper standardization. If different departments have their own legacy software, it is harder to standardize their processes than when they do not. This paper considers both relations between software systems and process standardization.

While business process standardization has clear benefits, there are also good reasons to maintain some variability between business processes. Major reasons for allowing variations of a process include the advantages of being able to deal differently with different types of customers and different cultures; and those of leaving different business units with reasonable autonomy to avoid micromanagement (Hammer and Stanton 1999; Manrodt and Vitasek 2004; Tregear 2010). Also, it has been empirically shown that a certain variability cannot be avoided (Frei et al. 1999). Exactly for these reasons, business process modeling techniques have been developed that enable the major variations of a business process to be mapped out, in addition to the standard flow of the business process (Hallerbach et al. 2009; La Rosa et al. 2011).

These observations lead to the conclusion that, when standardizing processes, a balance must be defined between the benefits of making those processes uniform on the one hand and the benefits of allowing variability on the other. Tregear (2010) describes this trade-off in detail. While the benefits of process standardization have been closely studied, little is known about the factors that drive the trade-off between uniformity and variability. Therefore, the aim of this study is to identify the factors that determine the extent to which an organization's processes can be standardized and to classify the performance indicators that can be used to measure the performance benefits of process standardization. These factors are identified through an analysis of existing literature and summarized in a conceptual model.

2 Theoretical Foundation

To work towards the goal of this paper – the definition of a conceptual model – we introduce a framework for such a model, using contingency theory as a guiding theory. The framework is shown in Fig. 1.

Contingency theory suggests that successful organizations choose structures and process characteristics that "fit" the degree of uncertainty in their environment (Duncan 1972; Miller 1992). It belongs to the behavioral theories that emphasize that there is no single best way to manage an organization, and the optimal course of action is contingent upon the internal and external situation.

Using this theory, we propose that the extent to which business processes can be standardized depends on contextual factors in the organization and its environment. This study matches the assumptions of contingency theory stating that each unit of analysis is unique and has to be analyzed based on contextual factors (Zeithaml and Zeithaml 1988).

In the remainder of this section, we discuss each of the framework's elements in more detail.

2.1 Contextual Factors

In contingency theory, contextual factors are described as environmental, organizational and individual characteristics of a firm's external and internal environment. Contingency theory proposes a fit between the organization and those factors.

In the remainder of this paper, we will focus on contextual factors for which a relation to standardization has been investigated in previous work. However, we will maintain the distinction between external factors and internal factors which is often made (Gupta and Govindarajan 1984; Sila 2007), with external factors being out of the control of the organization, while internal factors are internal to the organization and can be changed.

2.2 Process Standardization

Business process standardization is "…the unification of business processes and the underlying actions within a company…" (Davenport 2005; Schäfermeyer et al. 2010). The goal of process standardization is to achieve uniformity of process activities across the value chain and across firm boundaries (Wüllenweber et al. 2008, pp. 2011–2012) "… in order to facilitate communication about how the business operates, to enable handoffs across process boundaries in terms of information, and to improve collaboration and develop comparative measures of process performance …" (Schäfermeyer et al. 2010).

While this suggests that complete uniformity is the ultimate goal of business process standardization, complete uniformity is not always achieved in practice. Therefore, some papers relate the extent to which uniformity is achieved to the success of a process standardization effort (Schäfermeyer et al. 2010; Wüllenweber et al. 2008). Other papers even state that complete uniformity should not be

Fig. 1 Relation between contextual factors, process standardization and organizational performance

strived for, but rather that a trade-off should be struck between local variability and global uniformity (Tregear 2010). The term 'harmonization' is also used to stress this trade-off (Fernandez and Bhat 2010; Girod and Bellin 2011).

In this paper, we take the perspective that complete uniformity is not always achieved and, independent of whether that determines the success of process standardization or not, the extent to which it is achieved depends on contextual factors as explained in the previous sections. We also argue that, in turn, the extent to which uniformity is achieved influences the extent to which business performance benefits associated with process standardization can be achieved.

2.3 Business Performance

Business performance is an overall concept of organizational effectiveness, which includes both indicators of operational performance (i.e., nonfinancial indicators) and indicators of financial performance (Venkatraman and Ramanujam 1986). The level of performance which a business attains is a function of the efficiency and effectiveness of the actions it undertakes (Neely et al. 2005).

Business performance can be measured using different metrics and evaluated at different levels in the organization, such as the process level and the overall organizational level. At a process level, the operational efficiency of specific business processes is evaluated using different measures, such as customer satisfaction and operational costs. Some examples of measures at the organizational overall firm level include productivity and level of responsiveness (Melville et al. 2004).

3 Methodology

The research method selected to develop a conceptual model for process standardization is a literature review. The research approach that we used followed the five stages defined by Cooper (1982). Each phase is described in detail in further subsections.

3.1 Problem Formulation

A problem formulation includes the definition of the research questions that will guide the literature review (Cooper 1988) and the set of inclusion/exclusion criteria used for the selection process. The research questions are based on the goal and focus of the review (Randolph 2009). Consequently, three research questions are formulated: According to the previous literature, what is the effect of contextual factors on the extent to which business processes are standardized, and what is the effect of the extent of standardization on business performance? What methods have been used to investigate this effect? The inclusion and exclusion criteria are provided in Appendix A (all appendices are available online via http://link.springer.com).

3.2 Data Collection

The data collection step includes a definition of the search strategy and the selection of relevant articles that are included in the review. An exhaustive search with selective citations was conducted, which consists of a *pre-search*, a *systematic search* and a *cross-reference search*. A *pre-search* was conducted using Google Scholar as a search engine, to identify how extensive the literature on this topic is and to determine the keywords to be used for the search. After carrying out the pre-search step, a *systematic search* step was conducted, using the keywords that were identified in the pre-search step and three search engines: ABI/INFORMS, EMERALD and SPRINGER. The *cross-reference search* is performed using a backward tracing technique after completing the first search cycle and selecting a set of articles using the selection criteria specified in Sect. 3.1. The criteria and search terms used in and the results of these steps are presented in Appendix A.

3.3 Data Evaluation

In this step, we describe the type of data that is extracted from each article selected during the data collection. Because the focus of this literature review is on outcome and methods, we extracted information about contextual factors, process standardization and business performance, and the methods used by authors to derive their results.

All selected articles were classified using a theoretical model that was derived by extending the framework of Fig. 1 by the framework by Kumar (2005, p. 60). Our framework presents the different relations that we investigate, while Kumar's presents the different types of relations that may exist among variables. This results in the theoretical model depicted in Fig. 2, which shows a chain of causes and effects. Here, the 'contextual factors' in the first segment are the cause that determines the extent to which the effect of 'processes standardization' can be achieved, while 'process standardization' in the second segment is the cause that determines to which extent the effect of 'business performance' benefits can be achieved. Consequently, the theoretical model contains three concepts that are interrelated: (a) process standardization, (b) contextual factors, and (c) business performance.

For the *first* concept, contextual factors, we extracted the different factors as well as the type of relationship they

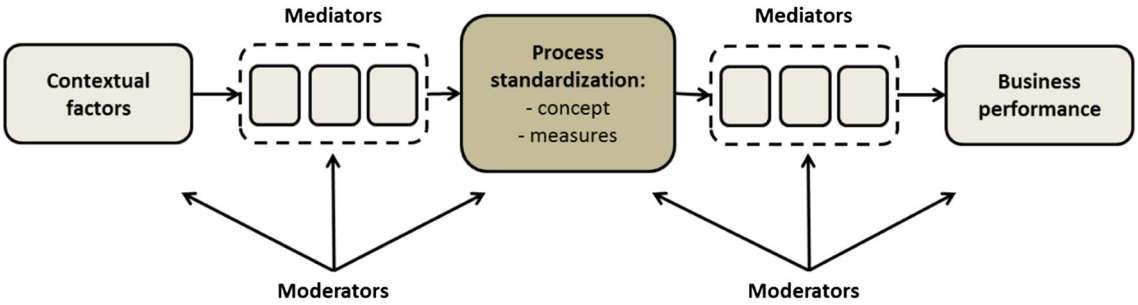

Fig. 2 A model for classifying the literature in process standardization

exert on process standardization (direct effect, moderator or mediator) and the methodology used by authors to derive these relations, such as case studies or literature review.

For the *second* concept, process standardization, we identified how different authors operationalize the concept. The operationalization includes the identification of variables or indicators that are used to measure the extent to which processes are standardized and the identification of the methods used to evaluate the validity and reliability of the variables and indicators.

The *third* concept, business performance, includes different performance indicators that are used to assess the effect of process standardization on business performance.

A coding sheet is applied to evaluate the information in the articles in a systematic manner (Stock 1994). The coding sheet is included in Appendix B. For each of the 35 papers that were the result of the data collection method described in Sect. 3.2, it provides the elements for the conceptual model that have been extracted from it. This provides complete traceability between the papers that are found in the literature review and the resulting conceptual model.

3.4 Data Analysis and Interpretation

A qualitative synthesis of the data extracted is performed. This type of analysis is appropriate in our case, because we have to combine a mixture of quantitative and qualitative results (Randolph 2009). The method used is a thematic synthesis proposed in Thomas and Harden (2008).

In particular, one of the authors went through the papers that were identified in the data collection step to identify sentences that relate to elements of the framework shown in Fig. 2. In particular, sentences were identified that contain statements about: factors that influence the extent to which processes can be standardized, means to measure the extent to which processes are standardized, or effects of process standardization on organizational performance. Subsequently, the author unified factors, measures or effects that he found similar in nature.

The results of that effort are presented in Sect. 4. In order to identify the different aspects of business process standardization operationalization, we studied the operationalizations that were found in the literature to determine what was measured. For example, Münstermann et al. (2010) measure the extent to which processes and actions are standardized, and Schäfermeyer et al. (2012) also measure the extent to which documents are standardized.

4 Results

This section summarizes the results of the study. It consists of three parts, using the model depicted in Fig. 2: (1) the effect of contextual factors on the extent to which processes are standardized, (2) operationalization of process standardization, and (3) the effect of process standardization on business performance. From the set of 35 articles selected, 10 only concern contextual factors that impact process standardization, 15 only concern the effects of process standardization on business performance, 6 deal with both contextual factors and effect, and 4 only deal with operationalization of the concept of process standardization.

4.1 Contextual Factors and Process Standardization

The contextual factors identified in the literature include: cultural differences, different regulations, power distance, number of different locations, IT governance centralization, product type, maturity level, organizational structure, number of mergers and acquisitions, process type, level of process structuredness, and personal differences. The factors included in the list are not mutually exclusive, due to the different (overlapping) ways in which they are defined by different authors. However, they do summarize the relations that are identified and proven in the collected literature. Most of the relations found between contextual factors and process standardization are direct and do not include moderators or mediators. Appendix C provides a

complete overview of the contextual factors, which we explain below.

Ang and Massingham (2007, p. 17) analyze how the decision of standardization versus adaptation should be made, the level of differences in national culture taken into consideration. Standardization refers to a common approach to business throughout the world, while adaptation requires a different approach in each market. They suggest that the greater the *cultural differences*, the greater the difficulty in knowledge transfer across cultures.

There are mandatory and unavoidable variations that come from *differences in regulations* such as financial regulations, taxation regimes, import/export regulations, and employment practices (Tregear 2010, p. 314). Therefore, this situation definitely influences the level of standardization that can be achieved for global companies.

In inter-firm collaborations, the characteristic of the relationship among firms is an aspect of organizational differentiation that has been widely recognized for affecting the scope, structure and performance of these collaborations. It includes various factors such as power distance, partners' financial and legal independence, and operational and cultural diversity. It was observed that organizations with low *power distance* had a higher level of integration of their business practices, while those with medium and high power distance had a low level of integration (Moffat and Archer 2004, p. 263). Knowledge management is considered a mediator in the effect that power distance has on process standardization.

For globally operating companies, being distributed to *different locations* does not only affect the level of standardization because of differences in their legal requirements, but also because it influences the frequency of interaction between individuals performing different tasks. Each individual has their own way of working (personal differences) and this is shaped by their cultural background. Something that works in one location may not be feasible in another location considering that the necessary resources are not available or affordable. Also differences in local market imperatives increase process variations. It is difficult to isolate the effect of location because the effect is mixed with differences in national or regional culture, customer expectations, market maturity and local market conditions (Tregear 2010, p. 314).

The *centralization of IT governance* may lead to a higher level of standardization. IT plays a significant role in reaching business objectives. In heterogeneous IT landscapes characterized by different systems in similar functional areas, decentralized IT departments, or insufficient IT service levels, the decision to standardize definitely provides significant improvements (Buchta et al. 2009).

Mergers between companies with a different range of products or services also demand adaptations of their supporting activities such as purchasing and marketing. *Differences in products* and services may require variation in the processes that create, deliver and maintain them (Tregear 2010, p. 314).

Rosenkranz et al. (2010, p. 59) observed that organizations which perform better in their standardization initiatives have at least a moderate level of process maturity. They conclude that *maturity level* has a positive correlation with standardization potential.

Organizational structure was also identified as a contextual factor that exerts an influence in the level of standardization. Girod and Bellin (2011) describes how a hierarchical network based on both vertical and horizontal relationships facilitates the centralization of decisions by headquarters. Standardization leverages the principle of distributed leadership contained in the hierarchical network to allow managers to make joint decisions and benchmark their processes. In the study, the authors suggested that differences in company size and industry sector function as potential mediator in this relation.

Mergers and acquisitions definitely influence the level of standardization of business processes, because they increase the number of process variants that coexist. The standardization of these variants consolidates processing volumes and allows the organization to exploit economies of scale. If the firm merges several variants of the same process, it can identify the variant showing the highest performance and apply it as the new process standard (Beimborn et al. 2009, p. 8).

The level of *process structuredness* has been operationalized in different ways in different papers, considering either the level of transactionality of the process or the level of structuredness. A highly transactional process is a process that facilitates a single business transaction between a provider and a consumer. A highly routine process is a process in which most cases are handled in the same manner, as opposed to, for example, creative processes in which this is usually not the case. Both transactionality and structuredness have an impact on the standardization potential, and therefore on the success of a process standardization (Lillrank 2003; Schäfermeyer et al. 2010, pp. 6–9). "Nonroutine processes are less applicable to standardization than routine processes …" (Rosenkranz et al. 2010, p. 62). The underlying reason is that different parts of a process need to be open for creative decision making. There are also unstructured, unmeasured, and unrepeatable processes that can lead to a low level of standardization. For instance, "Knowledge work is often said to be impossible to document and model as a process …" (Tregear 2010, p. 314).

The potential of a process to be successfully standardized also depends on *personal differences* that are introduced into the process by employees. These have also been operationalized in different manners. Processes in need of employees with medium to high work experience or tacit knowledge have less potential to be successfully standardized (Schäfermeyer et al. 2010, p. 5). Also, a strong difference in personal preference, in particular with managers, hampers standardization (Tregear 2010, p. 314).

4.2 Operationalizations of Business Process Standardization

The literature found on business process standardization can be classified into three groups based on the type of operationalization it provides. These groups are presented in detail in Appendix D.

The first type of articles only describes the concept of standardization without providing a way to measure the extent to which processes are standardized. For instance, Lillrank (2003) suggests that a process can be standard, routine or nonroutine, depending on how it is structured in relation to its environment and resources, but does not provide a means to measure structuredness.

The second type of articles uses *attributes* which are characteristic of an organization that has achieved standardization to a certain extent. Ross et al. (2006, p. 29) present two levels of standardization, *low* and *high*. One of the attributes of the low level is that IT application decisions are made in business units. Tregear (2010) introduces three levels which describe a trajectory for reengineering processes towards a global standard. He neither presents a detailed distinction between the three different levels of standardization, nor specific criteria to indicate when a shift from one level to another occurs.

The third type of articles uses a numerical scale to measure the extent of standardization. Articles in this category define process standardization as a construct that was measured using indicators (Beimborn et al. 2009; Münstermann et al. 2009; Muenstermann et al. 2010a; Schäfermeyer et al. 2012; Wüllenweber et al. 2008).

Five of the articles reviewed define indicators for process standardization, and all of them use multiple reflective indicators. The list of indicators identified is depicted in detail in Appendix E. Literature reveals that the extent to which processes are standardized is associated with the standardization of their data content, activities, control-flow, information technology, resources and management. There is little commonality among authors with respect to the indicators used, except that they all use a seven point Likert scale. The five articles validate the indicators in various ways. Based on the evaluation of the different indicators, we conclude that the set of six indicators derived by Münstermann et al. (2009) performs the best.

4.3 Effect of Process Standardization on Business Performance

The effect of process standardization is well acknowledged in the literature. Process standardization is recognized in literature as a driver of performance improvements in terms of cost, time, efficiency, effectiveness, quality and responsiveness. The effects are summarized in Appendix F.

The effect which standardization initiatives have on financial performance is the one that attracted the most attention, both at firm (Kobayashi et al. 2002; Moffat and Archer 2004; Mortensen and Lemoine 2008) and at operational level (Perego and Salgaro 2010; Quintens et al. 2005; Wüllenweber et al. 2008). This is followed by the effect on operational performance, including time, quality, efficiency and effectiveness (Muenstermann et al. 2010a; Zhao 2004). Finally, a few studies explore the impact of process standardization on strategic performance, such as growth rate or the success of a managerial strategy.

The effect of process standardization on business performance is not always direct. For instance, Wüllenweber et al. (2008) describe the case in which the effect is mediated by relational governance (specifically communication, coordination and consensus) and contractual governance. They argue that: "Using process standards allows for a better understanding about how the business operates and can be improved. This facilitates communication and coordination between exchange partners and allows realigning disparate goals and actions to solve day-to-day problems. These findings show that process standardization increases the effectiveness of relational governance" (Wüllenweber et al. 2008, p. 218). This applies to a context with a high business and technological uncertainty where contractual provisions can hardly be designed. The second indirect effect is mediated by contractual governance. Process standardization provides transparency with better documentation of processes. That leads to a higher measurability of process output and control throughout the process. Under these conditions, more specific and complete contracts can be designed and negotiated between parties involved, positively affecting the outsourcing success.

Another case in which the effect of process standardization is not direct, was described by Beimborn et al. (2009). In this paper, the effect of process standardization on performance is mediated by process control and moderated by IT intensity. The mediation effect through process control is significant only on efficiency, while the effect of IT intensity is direct and also moderates the effect of process standardization.

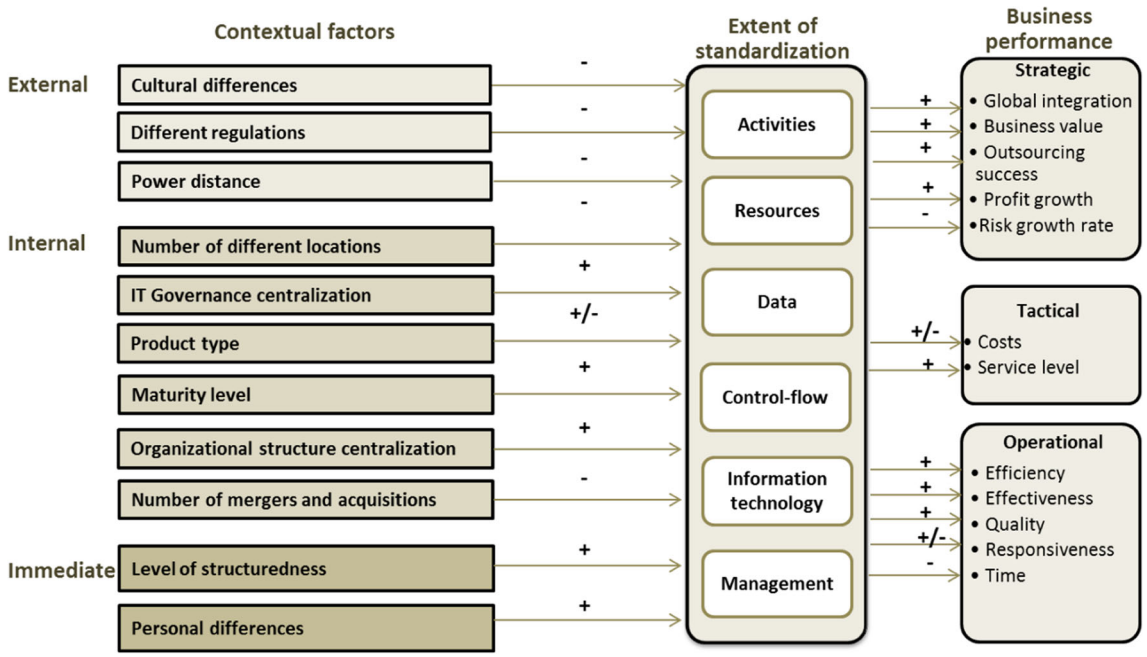

Fig. 3 A conceptual model explaining the drivers and effects of process standardization

Another interesting finding was presented Dai et al. (2011, p. 162). In this paper, process standardization is described as the mediator in the effect of market volatility on business performance. When market volatility rises, firm performance increases also as a result of primary business process standardization. In this case the type of business process (primary or secondary) serves as a moderator. "Standardizing primary business processes exerts a direct impact on how the firm delivers value activities. Standardizing support business processes will have a less direct impact, and should result in leverage for tactical improvements, not strategic ones".

Most of the relations observed between process standardization and business performances were validated using empirical research, including case studies and surveys. The majority of these studies was exploratory and provided descriptive interpretations of their results without using quantitative methods to guide them.

5 Conceptual Model

This section presents a conceptual model that integrates the literature in process standardization, based on the literature survey described in the previous sections. This can be used as a meta-model for classifying the exiting literature and for examining the different factors that influence the extent to which a process can be standardized and the subsequent effect on business performance.

The model consists of three parts as shown in Fig. 3. In the first part we classify the contextual factors identified in Sect. 4.1 into three categories (external, internal and immediate), depending on the level of the organization that they characterize. The second part indicates different aspects of process standardization that can be affected by contextual factors in an organization. The third part concerns the type of business performance effect that can be expected with improvements to the extent of standardization of an organization. The arrows linking the three parts articulate the interdependencies among them (i.e., between a contextual factor and extent of standardization, or extent of standardization and business performance), and the signs indicate the type of relationship (positive, i.e., an increase in the source implies an increase in the target; or negative, i.e., an increase in the source implies a decrease in the target). For purposes of readability, moderators and mediators are not shown in the figure, they are however included in Appendix C and Appendix F.

The first part of the model distinguishes three different levels in the organizational context. The *immediate level* includes factors that are internal and directly related to the process under study, such as the level of structuredness of a process and personal differences in terms of knowledge and experience. The *internal level* considers factors that are part of the internal environment of an organization, i.e., organizational structure and number of different locations. The *external level* considers factors that characterize the business network and the macro-economic context in which the organization operates and that are beyond the

control of an individual organization, such as legal requirements for specific industries. The eleven contextual factors identified divide into two immediate, six internal and three external factors, as depicted in Fig. 3.

The second part of the conceptual model shows six aspects that can be differentiated when evaluating the extent of standardization of business processes. These aspects were derived from the set of indicators described in the literature to measure the level of standardization, as discussed in Sect. 4.2. They include: data, activities, control-flow, resources, information technology and management. The conceptual model does not define how the contextual factors affect each aspect separately, because such relations were not identified in the literature. However, it suggests that when analyzing the effect of contextual factors, we should not only think about standardization of a process as a whole, but also about standardization of each individual aspect of a process.

The third part of the model shows twelve elements of business performance that are affected by changes in the level of process standardization. The performance measures identified in the literature were further classified into three groups: strategic, tactical and operational. They should be evaluated in a particular organizational unit in which standardization takes place.

The last element of the model is represented by the arrows and their signs, which indicate the type of relations between different parts of the model. For instance, an arrow with a positive sign between "level of standardization" and "efficiency", which is an operational measure of business performance, shows that an increase in the level of standardization will increase the level of efficiency at an operational level. In some cases we indicate two signs; they refer to cases in which we found opposite relations suggested by different authors. For example, this is the case for costs. It is expected that the level of standardization will reduce costs at the operational level for the economies of scale that can be achieved; however, there are also significant costs involved in the implementation of standardization initiatives. Therefore it is not straightforward that a higher level of standardization will always produce a reduction in costs.

6 Conclusions

This paper presents a conceptual model that operationalizes process standardization, contextual factors that drive the extent to which processes can be standardized, performance benefits that can be gained through standardization, and relations between these concepts. The model builds on existing theory about process standardization and is developed by means of a literature survey.

By doing so, the paper contributes to the current literature in that it provides an overview of existing factors that influence, or are influenced by, process standardization. In addition, it summarizes the hypotheses that have been specified in literature with respect to these factors. In particular, the literature survey provides ample evidence that the level of standardization that organizations strive for depends on certain contextual factors. We found eleven contextual factors, which we classified in three groups (external, internal and immediate) based on the level of the organization that they characterize. In addition, the literature survey outlines the hypothesized and proven effects of process standardization on business performance, as found in literature. The paper combines all these relations in a conceptual model.

At this stage, the conceptual model remains to be proven empirically. In future work, we aim to perform that task in two steps, focusing on the relation between contextual factors and standardization, because this relation has so far been studied in less detail than the relation between standardization and its effects. As a first step, we aim to define a constructive operationalization of process standardization. While all current operationalizations are descriptive, the benefit of having a constructive operationalization is that it also provides the aspects that can be changed to render processes more standardized. We aim to develop our operationalization, by taking the measures from this literature review and validating and expanding on them in structured interviews with practitioners. This should lead to a complete constructive operationalization of process standardization. We then aim to validate that operationalization by performing a quantitative survey, in which we compare the constructive operationalization of the process standardization construct with known descriptive operationalizations. As a second step, we aim to validate the relations between the contextual factors identified in this paper and process standardization. To this end, we aim to do comparative case studies, in which we investigate the contextual factors that are present in these organizations and the level of standardization that these organizations have. The benefit of using a case study approach is that it helps to develop a deeper understanding of the relationships under study, which makes it the most suitable approach to answer the question *how* contextual factors influence process standardization.

In addition to the limitation mentioned above – that the result of this study remains to be empirically proven – there are methodological limitations as well. First, it is difficult to compare the results obtained from different studies, considering that the majority of them discuss their relations in a descriptive way without conducting any quantitative analysis. Therefore, in our model we cannot define which of the identified relations are more significant in terms of

providing means for control than others. In order to study this, a uniform study is necessary that analyzes the different relations in a uniform, comparable, manner. Second, due to the fact that the conceptual model was developed from different literature sources that used different operationalizations of the various contextual factors, it is possible that there is overlap between contextual factors. It is also clear already from the conceptual model that some papers identify a direct relation between a contextual factor and process standardization, while other papers identify a mediating or moderating relation. Third, the search and selection of relevant literature was done by a single researcher. This can cause bias in the selection process. We reduced the risk of such bias by presenting clearly verifiable inclusion and exclusion criteria. Despite these limitations, this study represents an original effort to deepen our understanding of the factors that play a role in the success of process standardization initiatives in an organization.

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