

Criteria for the Evaluation and Selection of Business Processes in the Context of Business Process Standardization

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Abstract

Business process standardization in both research and practice is currently a major topic in the field of business process management. However, there is hardly any tool available that supports the evaluation of business processes for standardization in decision-making processes. On the basis of a thorough review of the literature we will provide criteria for a systematic ex-ante evaluation of standardization projects. Our results will make it possible to enhance the efficiency of decision-making processes in the context of business process standardization. The criteria identified will help to focus on suitable business processes for standardization. Overall our research will provide the necessary preconditions to allow companies to enjoy fully the benefits offered by business process standardization.

Keywords: Business Process, Decision-Making, Standardization

1. Introduction

Over the last few years, business process standardization has become one of the major topics for companies in context of business process management. Numerous projects have been realized that have benefited from business process standardization. The results vary, however, in the degree of the success of the respective project (Hall & Johnson, 2009: 60; Schaefermeier, Grgecic & Rosenkranz, 2010: 2; Manrodt & Vitasek, 2004: 7). One reason for their lack of success is insufficient knowledge of the right processes to choose for business process standardization. Considering the necessary organizational adaptation, any plan for process standardization leads to an increased risk and high investments for businesses. Managers need to be able to assess whether a process will be suitable for business process standardization before any investments are made. Therefore it is extremely important to provide the right tools to decision makers in organizations in order to support their decision-making processes in line with business process standardization projects (Hall & Johnson, 2009: 60; Rosenkranz & Schaefermeier, 2011: 2; Muenstermann, von Stetten, & Laumer, 2010: 929). A review of the literature shows that scientific publications primarily focus on the object, the effects and the possible procedures of business process standardization. However, the current discussion fails to establish a basis for the evaluation of procedures for process standardization. (Muenstermann, 2008: 5; Eckhardt, 2009: 10; Muenstermann, Joachim & Beimborn, 2008: 3).

The purpose of this paper is the identification of essential criteria as a basis for the evaluation of business processes to close the research gap described. From a managerial perspective, our aim is to provide a sound foundation for the decision-making process in the context of process standardization. Our research results can reduce the investment risks in organizations and will improve the overall effectiveness of decision-making processes. Choosing the right processes for standardization will enable companies to fully benefit from business process standardization.

Our paper is structured as follows: we first present the theoretical foundation which will be followed by a description of the methodology applied. The final two chapters contain our results and their discussion.

2. Theoretical Foundation

The literature offers multifaceted definitions of the term *business process standardization*. Depending on the researcher's domain, different aspects of the term are highlighted. In the technical field, for instance, business process standardization means "explicit or implicit agreement on common specifications for information exchange formats, data repositories, and processing tasks at the interfaces between interacting supply chain partners" (Gosain, Malhotra&El Sawy, 2005:14). In the organizational field, *business process standardization* means "defining exactly how a process will be executed regardless of who is performing the process or where it is completed" (Ross, Weill & Robertson, 2006: 27). Martinand Bellstress this point by adding that the standard process can be defined "as the currently best-known method for accomplishing the work. This assumes that it is the [...] most efficient method to do the work that meets the required level of quality" (Martin&Bell, 2011:2). Muenstermann, Moederer&Weitzel highlight a different aspect of *business process standardization* by describing it as "the activity of aligning existing variants against a standard process" (Muenstermann, Moederer&Weitzel, 2010:3).

We also consider business process standardization from an organizational point of view. For the purpose of this paper we will offer a definition of *business processes standardization* that combines elements of the definitions mentioned above: *the definition of the exact execution of business activities in order to reduce process variants. On the basis of current knowledge, the standard process derived represents a Best-Practice-Process which fulfills the customer's demand. Furthermore, standardized processes can be executed regardless of where or by whom they are performed.*

3. Methodology

Our research is based on an analysis of scientific papers originating from four reputable databases. We agree with Light &Pillemer and Cooper, who argue that synthesizing existing evidence can be a powerful tool for building knowledge (Light &Pillmer, 1984; Cooper, 1989). Most scientific organizations have reasonably strict requirements for publication and this process usually leads to better results (Light &Pillemer, 1984: 35). Finally, we follow Cooper who argues that relying on published results is appropriate when the published research consists of several dozens of relevant articles (Cooper, 1989:58). The methodology we used to identify the relevant papers was developed with reference to Reynolds, Simintiras&Vlachou (2003), David & Han (2004) andNewbert (2007). The identification of the

criteria was accomplished by the content analysis developed by Mayring, who argues that it is appropriate for the development of an inductive category (Mayring, 2000: 3). In the following section we explain the main steps of our approach.

Based on our research experience, we identified the relevant databases which contained the most relevant and most frequently cited work in our field, of which there were four: *IEEE Explore Digital Library*; *AIS Electronic Library*; *ACM Digital Library*; *Emerald*. It is our opinion that the following terms were the most suitable to identify the relevant work. This made it necessary to consider different notations, i.e. the American and the British notation. Table 1 shows the terms used for the identification of the scientific papers.

Table 1 Research Terms

American notation	British notation
“Business Process Standardization”	“Business Process Standardisation”
“Standardization of Business Processes”	“Standardisation of Business Processes”

We set no restrictions on the scope of our research. So, our research comprised “all fields” in the papers. As a period of analysis we chose 12 years. Because some papers were published in several databases, seven duplicates were eliminated. Finally we identified 103 scientific publications that were suitable for our analysis. Mayring suggests a category definition and level of abstraction for inductive category development (Mayring, 2000: 4). Our category definition contains two levels of abstraction:

1. **Explicit mention of the term:** a characteristic of a process which is mentioned in a direct matter with business process standardization.
2. **Implicit mention of the term:** circumstances or contexts are described from which a characteristic can be deduced.

Table 2 Examples of Inductive Category Development

Identified part	Level of abstraction	Identified/Derived Criteria
“The full benefits of standardization [...] if the processes are repetitive [...]” (Seethamraju, 2009: 6)	Explicit mention	Transaction frequency
“In a volume business , if you have standard business [...] this can only lead to efficiency.” (Grisdale & Seymour, 2011: 112)	Implicit mention	Transaction frequency

Table 2 shows two examples of inductive category development.

Overall we identified 34 criteria for the evaluation of business processes in the context of business process standardization. Table 2 shows identical contexts described differently in the literature. As a next step, we consolidated the criteria. For this purpose, we grouped the criteria semantically and deployed a common denotation. In a next step, we ensured that the consolidated criteria were independent of each other.

4. Results

4.1 Identified criteria for process standardization

The procedure described led to a reduction of the criteria initially identified. Finally eight distinct criteria remained. We then operationalized the criteria and identified their impacts in the context of process standardization, as described in the literature and shown in Table 3.

Table 3 Identified and Operationalized Criteria

Identified Criteria	
Degree of predictability	The degree of predictability represents the possibility to observe a process in that way that the necessary actions of the process can be determined ex ante (Lillrank & Matti, 2004: 43). The more predictable a process, the better it can be standardized (Martin & Bell, 2011: 7).
Degree of tacit knowledge	Tacit knowledge is that kind of knowledge which can hardly be articulated (Krogh, Ichijo & Nonaka 2000: 6). The lower the degree of tacit knowledge of a process, the better it can be standardized (Schaefermeier, Grgecic & Rosenkranz, 2010: 5).
Number of process participants involved	A process participant is a subject who carries out a process (Kellner, Becker-Kornstaedt, Riddle, Tomal & Verlage, 1998: 1). The higher the amount of process participants, the more effort is needed to standardize a process (Kien & Lian, 2009: 6).
Degree of complexity	Process complexity is a function of the number and variety of all activities forming the business process, their interrelation and dynamics (Rosenkranz & Schaefermeier, 2011: 6). The higher the procedural complexity, the more effort is needed to standardize a process (Rosenkranz & Schaefermeier, 2011: 4).
Degree of environmental dynamism	The degree to which forces in the specific and general environments change over time (Jones, 2004: 67). The more unstable the environment of a company, the more effort is needed to keep the standard up to date (Neirotti, Paolucci & Ragueso, 2011: 232).
Strategic significance of business process	The strategic significance means the amount of ability of a process to execute the company's strategy in order to realize competitive advantages (Jones, 2004: 227). The higher the significance of the business process, the bigger the benefit of business process standardization (Davenport, 1993: 32).
Degree of inefficient process variety	Variety represents different ways to fulfill the same need (Lillrank, 2003: 221). We define inefficient process variety as the amount of the different, inefficient ways to

	perform a process. The higher the variation of a process, the bigger the benefit of business process standardization (Ross, Weill & Robertson. 2006: 38).
Transaction frequency	Transaction frequency refers to the rate of occurrence of a transaction (process) (Duan, 2007: 631). The higher the transaction frequency, the bigger the benefit of business process standardization (Schaefer-meier, Grgecic&Rosenkranz, 2010: 4).

4.2 Grouped criteria as a basis for evaluation of business processes

Finally we grouped the criteria according to their impact on process standardization. Table 4 shows the categories developed together with their respective distinctive criteria. The category *Standardizability* provides two criteria. On this basis it is possible to decide whether a process contains characteristics that allow standardization.

Table 4 Criteria for the Evaluation of Processes

Standardizability	Potential Effort	Potential Benefit
Degree of predictability	Number of involved process participants	Degree of inefficient process variety
Degree of tacit knowledge	Degree of complexity	Strategic significance of business process
	Degree of environmental dynamism	Transaction frequency

The category *Potential Effort* provides three criteria which indicate the potential effort required to standardize a process. The category *Potential Benefit* contains three criteria which indicate the potential benefit of a standardized process.

5. Conclusion and Discussion

In this paper we developed a basis for the evaluation of processes with the aim of process standardization. The criteria were derived on the basis of a detailed literature search. To the best of our knowledge, this is the first article to enable a systematic ex-ante evaluation of processes in regard to process standardization. Our work has also some significant practical implications. From a managerial perspective, our results will enhance the efficiency of decision-making processes in companies in terms of process standardization. Our results will also help to focus on suitable processes for process standardization, which will lead to minimized investment risks of standardization projects. Furthermore, choosing the right processes will help companies to fully benefit from business process standardization.

Nevertheless, there are some limitations to our research. First of all, we used a qualitative approach which was bound to limit somewhat the validity of our results. Although validity in quality research can be strengthened through methodological rigor, the results often depend on the researcher's judgments or interpretation. In this regard, the identification of the criteria, especially

the implicit criteria mentioned, may be affected by our experience or expectations. In addition, the established criteria have to be developed further. Hence, the next step is to identify the corresponding indicators, which will support the assessment of the relevant criteria. Finally, our results will have to be put to the test in practice to ensure validity.

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Appendix

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