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# 91F. What Is Process Standardization?

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## ***Abstract***

Standards and standardization have played an important role in the evolution of information and communication technology. In parts of the literature on standardization and especially among practitioners we see a new theme emerge: business process standards. While there seems to be a consensus on the desirability of process standards, the concept has not yet been fully developed, and there is even less of a clear definition let alone a systematic understanding of the how and why of its value impact than with data and communication standards.

In this paper, we suggest a *process standardization* construct and the associated value dimensions and report on a process standardization effort in a large multinational services firm that reveals how the theoretical considerations translate into concrete business value.

## ***Keywords***

Standard, standardization, business process standardization.

## **1. Introduction**

Much has been written on compatibility standards, and the research area seems to be maturing which shows in a dedicated Journal (International Journal of IT Standards and Standardization Research) and a recent special issue of Management Information Systems Quarterly (Lyytinen and King 2006). In that issue, it is suggested that the different communities interested in standardization seem to be moving closer together to "establish a systematic view of the domain and to incorporate diverse research strands into a common view." They identify some common themes and challenges, particularly that we need a better managerial, business-oriented understanding of costs and benefits associated with standards, thereby making standardization research relevant by helping to "apply the findings to the real world" (Weitzel et al. 2006, 492). In empirical projects and both the academic and practitioner literature we also see another motive emerging: process standards. Many companies all over the world are spending significant amounts of time and money to standardize their worldwide business processes to increase their business opportunities and their business performance. For example, a recent Computer Weekly headline (Hadfield 2007) says:

*BP Retail expects to save up to £600m over the next few years by standardizing business processes and IT systems at all of its petrol stations around the world.*

While process standards or process standardization are increasingly mentioned and unanimously seem to be associated with some sort of benefit, the concept has not yet fully been developed. There is neither a clear and unambiguous understanding of what are process standards and how/why precisely they contribute to business goals, nor how they relate and maybe drive standards. The prominent role of process standards amongst practitioners and their potential interaction with designing, justifying and dispersing (driving use of) other types of standards make them an interesting research object.

We thus suggest that a better understanding of the role of process standards might a) benefit standardization research by providing a new perspective on how and why particular standards are developed and used (e.g. Vries 1999), b) due to the business process focus be a theoretical way to link standardization to business value research (e.g. Melville et al. 2004) and c) incorporate a relevant perspective into standardization research as requested by many managers (e.g. Eckhardt et al. 2007). As a very first step, in this paper we aim at

- a) suggesting a clear concept of what are business process standards,*
- b) showing that and how process standards are valuable to a firm and,*
- c) evaluating this concept using an in-depth case study in a large multi-national services firm.*

Based on a review of the existing literature (section 2), we derive the cornerstones of a new process standardization variable and develop its dimensions (section 3) the usefulness of which is demonstrated using a case study (section 4). The results are then critically discussed and we suggest promising areas for further research (section 5).

## **2. Review of literature**

In this section, we first introduce the key terms standard and business process to then suggest a measurement concept for the value of process standardization that will be used to develop the new process standardization construct in section 3.

### **2.1 Business processes**

According to Davenport and Short, a business process, as the object to be standardized, is defined as a "set of logically related tasks performed to achieve a defined business outcome" (Davenport and Short 1990). Drawing on Wagner (Wagner 2006) Table 1 below regroups different perceptions and definitions of business processes.

The commonality here is that business processes consist of several sub-processes or activities that are (logically) ordered, having clearly identified inputs and outputs trying to achieve a defined business goal.

Following Tumay (Tumay 1996) for a given business process<sup>1</sup> four sub-dimensions can be distinguished as shown in Table 2.

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<sup>1</sup> Tumay (Tumay 1996) distinguishes "project-based", "production-based", "distribution-based" and "customer service based" processes. For our purpose we focus on production-based processes.

Reference	Key findings
(Davenport and Short 1990)	A set of logically related tasks performed to achieve a defined business outcome.
(Davenport 1993)	A business process is the specific ordering of work activities and clearly identified inputs and outputs.
(Sambamurthy and Zmud 1997)	Business processes result in products/services.
(Ray et al. 2004)	Business processes are the means by which the competitive potential of a firm's resources and capabilities are realized.
	Business processes are actions that firms engage in to accomplish some business purpose or objective.
(Lee et al. 2004)	A business process is a vehicle to build and materialize organizational capabilities.
(Tumay 1996)	Business process simulation embodies the concept that a business is a series of inter-related processes, and that these processes consist of activities that convert inputs to outputs.

**Table 1:** Literature on business processes

Sub-dimension	Description <sup>2</sup>	Remarks
Workflow	Expressed by connectors linking activities. Entities follow the connectors as they are processed by the model (e.g. sequential or parallel flow, feedback loops).	–
Activities	Activities express the main actions constituting the process and are linked through connectors to represent the flow of entities.	–
Resources	Agents that are used for adding value to the entities (e.g. workers, consultants, equipment).	Resources need not necessarily be human beings, for example the IT-infrastructure/ architecture can be seen as resource as well.
Entities	Objects that are processed by resources (e.g. parts, orders, services).	Entities need not necessarily be touchable things, for example data (standardized or not) can be seen as entity as well.

**Table 2:** Sub-dimensions of a business process

<sup>2</sup> According to (Tumay 1996).

## 2.2 Standards and standardization

What are standards? It is said that "the good thing about standards is that there are so many to choose from" (Tanenbaum 2007). Although this saying is not free from irony, it contains some true elements: First, quite often for a given entity to be standardized different and sometimes contradicting standards are available. Second, even for the term standardization there are several contradicting definitions. De Vries (Vries 1999, 144) proposes four elements along which to define standardization:

- The *entities* standardization is concerned with,
- *Sectors* in which standardization is applied,
- *Purpose(s)* of standardization,
- The way *people/parties are involved* in standardization.

Looking at definitions in the literature, it becomes obvious that not all definitions fully answer all of the four elements suggested by De Vries: Jang and Lee, for example, define standardization "as the degree to which work rules, policies, and operating procedures are formalized and followed" (Jang and Lee 1998), obviously not answering all four elements.

The ISO/IEC guide says: "Standards are documents, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context" (ISO 1996). This definition, besides giving a basic characterization, touches upon the purpose but not on the people, the entities and the sectors involved.

Elaborating on several further attempts to define standardization, De Vries then holistically defines standardization as follows: "Standardization is the activity of establishing and recording a limited set of solutions to actual or potential matching problems directed at benefits for the party or parties involved balancing their needs and intending and expecting that these solutions will be repeatedly or continuously used during a certain period by a substantial number of parties for whom they are meant" (Vries 1999, 155).

Having defined standardization, De Vries defines a standard as an "approved specification of a limited set of solutions to actual or potential matching problems" (Vries 1999, xxi). In other words, he considers a standard to be the time-wise frozen end product of a standardization effort (Vries 1999, 143).

In addition to early contributions on the importance of standards by David (David 1985), Farrel and Saloner (Farrell and Saloner 1985) or Katz and Shapiro (Katz and Shapiro 1985), Cargill and Davenport underline the key role that standards and standardization have played in the evolution of information and communication technology (Cargill 2001, Davenport 2005). Yet, as in the early days of standardization research, the authors assert that there is not much academic and practitioner literature available on process standardization (e.g. Ungan 2006) and that the Information Systems field has not yet pursued research on it vigorously (Lyytinen

and King 2006, Wüllenweber et al. 2008, Wüllenweber and Weitzel 2007, Weitzel et al. 2006).

### 2.3 Value of process standardization

Recently, researchers and practitioners alike have shown increased interest in the potential value of business process standardization. Ramakumar, for example, shows that business process standardization proves profitable (Ramakumar and Cooper 2004), Swaminathan asserts that process standardization provides immense benefits (Swaminathan 2001), Fomin and Lyytinen provide a convincing standardization case study (Fomin and Lyytinen 2000) and Manrodt and Vitasek provide another case study to prove that global process standardization can benefit the company as well as its customers (Manrodt and Vitasek 2004). And Lee and Tang present a rare analytical model (Lee and Tang 1997) to measure the costs and benefits associated with process standardization. Focusing on service industries, De Vries identifies as the main commercial advantages of standardization: technical interchangeability, compliance with regulations and improved customer confidence (Vries 1999). Broadening the focus, Hesser et al. give an impressively substantial list of advantages of standardization to companies and customers (Hesser et al. 2006). Using empirical data, Wüllenweber et al. show that business process standardization is a success driver for business process outsourcing (Wüllenweber et al. 2008).

Table 3 summarizes exemplary value impacts from process standardization.

Value driver	Description
Improved process performance	<ul style="list-style-type: none"> <li>• Reduced end to end time</li> <li>• Reduced process costs</li> <li>• Improved process quality</li> <li>• Increased performance measurability</li> </ul>
Enhanced readiness	<ul style="list-style-type: none"> <li>• To outsourcing business processes</li> <li>• To merge with or buy other companies</li> <li>• To react to market and external change and trends by increased process flexibility</li> </ul>
Enhanced ability to react to regulatory changes	Founded in the enhanced readiness to react to external changes companies having standardized processes can easily react to regulatory changes.
Enhanced technical interchangeability	Standardizing processes, firstly, step by step detaches the processes from supporting IT and thereby, secondly, enables the use of standard hard- and software solutions.
Improved customer confidence	The more standardized processes are, the lower the probability for process driven mistakes will be. Consequently the overall quality and thereby customer confidence improves.

**Table 3:** Value generated by process standardization

### 3. Development of a process standardization construct

A construct is an abstract representation of a phenomenon of interest to researchers (Byrd and Turner 2000, Lewis et al. 1995). Process standardization is the construct of interest in this paper. Similar to Byrd and Turner's approach, we apply a methodology that follows the recommendations for construct measurement outlined by Churchill (Churchill 1979) that has been used previously by various researchers (e.g. Lederer and Sethi 1992, Lewis et al. 1995, Sethi and King 1991). He proposes a three-staged proceeding: Stage 1 defines the domain of the process standardization construct. Stage 2 operationalizes the construct by proposing and developing a measurement instrument. Stage 3, which we propose to be a promising area of further research, has to contain the statistical analyses of data gathered from administering the proposed measurement instrument to prove its reliability and validity.

#### 3.1 Background for the process standardization construct

To our knowledge, no earlier definition of a process standardization construct exists in literature, although quite a large number of authors (e.g. Manrodt and Vitasek 2004, Nickerson and Zur Muehlen 2006, Ramakumar and Cooper 2004, Urgan 2006, Bach 1995) use or talk about something they call "process standardization" without explicitly saying what that is.

#### 3.2 Stage 1: Domain of the process standardization construct

The domain of a construct is essentially a definition of the concept. In the previous discussion (section 2), several authors' views of business processes and standards have been discussed and are now synthesized into the following definitions:

**Definition 1:** *A business process*, as the object to be standardized, is defined as a set of logically related tasks performed to achieve a defined business outcome.

**Definition 2:** An *archetype process*<sup>3</sup> A is a business process that serves as master or prototype process.<sup>4</sup>

Having defined both business processes and archetype processes we can continue by defining homogenizing two processes having the same business outcome:

**Definition 3:** Given a business process P and an archetype process A having the same business outcome we call the activity of bringing the business process P into line with the archetype process A "*to homogenize the business process P against the archetype process A*".

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<sup>3</sup> We deliberately avoid the term "reference-standard" as it usually implies to have incorporated some external best practices – which our "archetype processes" do not – we want to dissociate "archetype process" from "reference-standard".

<sup>4</sup> Later we use "archetype processes" to homogenize given business processes  $P_1, \dots, P_n$  against.

Consequently *process homogenization* denotes the activity of homogenizing a process against an archetype process whilst a *homogenized process* constitutes a process that has been homogenized against an archetype process.

The next step towards the development of the process standardization construct is the definition of a standard process and process standardization:

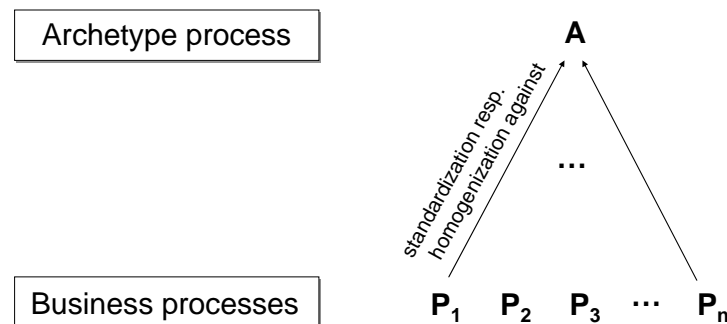
**Definition 4:** A given business process P is called *standard process* if it fulfills the criteria imposed by the measurement instrument in the sense of section 3.3<sup>5</sup>.

Consequently *to standardize a process* means to homogenize it against a standard process. *Process standardization* analogously denotes the activity of standardizing a process.

To homogenize or standardize several (i.e. more than two) processes the described proceeding has to be repeated iteratively.

Let us apply our terminology to two examples:

1. A company that produces a single product or service at different locations, operating distinct production processes along the locations, wants to homogenize its business processes. In our terminology, the company, first, has to either choose an archetype process among its distinct production processes along its different locations or to design a new archetype process. Second, the company has to homogenize its distinct processes against the chosen archetype process.
2. If in 1. the archetype process is chosen to be a standard process the example changes to an example for process standardization.



**Figure 1:** Standardization resp. homogenization against an archetype process

In summary, we can say that our understanding of process homogenization and process standardization constitutes a two step approach: First, processes can be homogenized against an archetype process. Then, to standardize processes, either an archetype process has to be

<sup>5</sup> In section 3.3 (Stage 2: Proposal of operationalization of the process standardization construct) we will develop the dimensions describing process standardization (Table 4).



enhanced to a standard process internally or a standard process has to be chosen externally to satisfy the criteria given in section 3.3. Homogenization against this standard process then standardizes the processes in focus. This distinction will also become clear in the case study below.

### 3.3 Stage 2: Proposal of operationalization of the process standardization construct

The objective of dimension creation as well as future item creation is to ensure content validity. Content validity is the representativeness or sampling adequacy of the construct domain (Lewis et al. 1995). To generate a representative sample of domains and items and achieve content validity, the proposed dimensions have been selected on a content analysis of the literature and the authors' experience.

The selected literature spanned both academic and professional journals and relevant books in IS as well as other disciplines. The literature was prescreened to determine the pieces that directly addressed the topic of process standardization. Articles and books were chosen for review if the terms "process standard" or "process standardization" were in the title or key word list.

The list, as given in Table 4, shows the dimensions, which, from the authors' perspective, describe process standardization.

Dimension	Description	Reference
Document process	Degree to which the business process in question is modeled and documented in written form.	(Ungan 2006)
Modularize process	Modularity in product and process plays an important role in determining the effectiveness of standardization.	(Swaminathan 2001)
	Modularization means the activity of subdividing a process into meaningful and suggestive sub-processes and steps. What is meaningful and suggestive depends on the respective domain (company, industry etc.).	Authors
Isolate specificities	Concentrate/fence specificities which only reveal a low probability of being reused, i.e. of being applicable to a lot of process instances, to the lowest number of process activities possible.	Ideas out of (Lee and Tang 1997), authors
Ensure process excellence	If available incorporate knowledge and experience supposed to be "best practice" or "best in class" into the process in focus.	(Ungan 2006), ideas out of (Vries 2006), authors

**Table 4:** Dimensions describing process standardization

The dimensions (as proposed in Table 4) prospectively have to be operationalized by a set of item measures. The measurement instrument to be realized in form of a questionnaire then employs each dimension operationalized by the respective item measures as response items. The dimensions as well as the initial item measures have to be seen as first proposals of how to operationalize the indicators. Please refer to section 5.2 for the next research steps to enhance the measurement instrument and finalize the construct.

## **4. Case study: Global process standardization**

To clarify our discussion and as a first step to evaluate the process standardization construct and its hypothesized value impact we use an in-depth case study (Manrodt and Vitasek 2004). According to Yin (Yin 2002), a case study is an effective strategy for exploring 'how' or 'why' questions. It allows direct observations of a phenomenon in its natural setting, thus promoting a profound, realistic understanding (Babbie 1983). While other methods would have compiled broad conceptual overviews or isolated quantitative facts, field research produced rich explanations and illustrative examples that generated great insight (Babbie 1983).

### **4.1 Case study basics and case interviews**

The company selected for the case study is a Europe-based multinational services firm that will be called "*Dream*" for reasons of anonymity. One of the authors was involved in Dream's global process standardization activities which started in 2004 and are still ongoing. Consequently the case study at hand is based on a large number of workshops and interviews over a considerable amount of time conducted with a broad level of individuals at Dream ranging from senior management to line managers and experts.

### **4.2 Company background**

Dream's conventional business model is to combine basic services to a package of services. These service packages are sold with one common price, i.e. the customer is not able to see the value/price of the packages' constituent services.

Dream's production, i.e. buying, packaging, pricing and distribution of services is located in different business units and even at different locations. Dream delivers three fundamentally different types of services to its customers, each of which is produced both in several business units and at different locations.

Before the global process standardization took place, Dream produced its service packages twice a year and kept them in stock until being sold.

In 2004 both Dream's production processes and supporting IT-systems are supposed to be outmoded and rather inflexible to market changes, since they have been incrementally enlarged and updated without substantial elaborated architectural redesign.

### **4.3 Building the case for change**

In 2004 Dream's conventional business model was severely at risk from a redefinition of the conventional warehousing production logic towards a flexible and dynamic production logic. Instead of only packaging services twice a year and stock-keeping them, competitors started to package and price services real-time on customers' demands.

Furthermore, at this point in time Dream had to face a significant price and margin pressure, since some competitors had much better cost positions due to leaner processes and the use of standard IT solutions.

In this situation the management of Dream decided to launch a companywide process standardization program. The program, firstly, aimed at internally decreasing the production cost of the conventional service packages by process homogenization and standardization to face the cost and margin pressure. Secondly, it aimed at orienting Dream towards a more flexible and dynamic production logic by designing new flexible production processes and homogenizing them with the conventional processes.

#### **4.4 Improving process performance by process standardization**

The goal of this first part of the global process standardization program was to decrease production cost in the area of conventional services. Thereby Dream intended to remain competitive in its core area of conventional service packages and to establish a stable starting position to deal with the flexible and dynamic market trends.

Instead of talking about all the production processes<sup>6</sup> in the following we concentrate on one production process P representatively (out of the set of production processes). The production process we focus on is performed slightly different along Dream's business units, locations and three service types. Hence, the production process existed in different variants, which we call  $P_1, \dots, P_n$ .

Since Dream's goal was not to only homogenize its production process P but to even standardize it, the first step was to come up with a suitable standard process S (compare Definition 4) against which to homogenize the variants  $P_1, \dots, P_n$  (compare Definition 3). To compile the needed standard process S Dream applied the following four-step-approach (compare Figure 2 below):

1. Document the production process P's variants  $P_1, \dots, P_n$ .
2. Synthesis of the documented process variants  $P_1, \dots, P_n$  defining an archetype process A.
3. Enhancing the archetype process A to a standard process S along the dimensions given in section 3.3 (Table 4).
4. Homogenize the variants  $P_1, \dots, P_n$  against the standard process S.

**Ad 1:** In the first step Dream meticulously documented the production process variants  $P_1, \dots, P_n$  at hand along the business process dimensions given in section 2.1 (Table 2). A professional business process modeling tool<sup>7</sup> was used to consistently link entities to resources to activities to workflows.

**Ad 2:** In the second step Dream accurately analyzed the documented variants and synthesized the slightly different workflows and activities into one consolidated archetype process A. The

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<sup>6</sup> Dream structured its production along 10 production processes.

<sup>7</sup> ARIS business process modelling software developed by IDS Scheer. For the underlying logic compare the article (Scheer 1996).

synthesis into the archetype process A was done such that content wise each variant  $P_1, \dots, P_n$  could be regained out of A, i.e. the archetype process A could be seen as the lowest common denominator of the process variants.

**Ad 3:** Now that the archetype process A was available, the goal of the third step was to enhance the archetype process A to a standard process S along the dimensions given in section 3.3 (Table 4):

The first activity necessary to enhance the process A to a standard process S had already been done in step one of Dream's approach, where Dream concisely *documented* all variants of the production process in focus. Only the precise documentation of the processes and the linkages between workflows, activities, resources and entities allowed the systematic overview and in-depth understanding of Dream's conventional process and its variants which – from the authors' perspective – is an indispensable prerequisite to realize the following dimensions given in section 3.3 (Table 4).

The second activity necessary to standardize a process is to meaningfully and suggestively subdivide respectively *modularize* the process. In Dream's situation it turned out that the process had not been modularized in accordance with Dream's business logic. For example, thinking of the production process in focus to be the pricing process, Dream was used to price its service packages after the actual packaging of services. Several employees reported how difficult it is to price the service packages after having packaged them and how easy it would be to price each service before being packaged and then obtain the service package price as the sum of the prices of the constituting services. Consequently Dream modularized its pricing process along the constituting services. Several similar examples were found and let Dream modularize many processes according to their business logic.

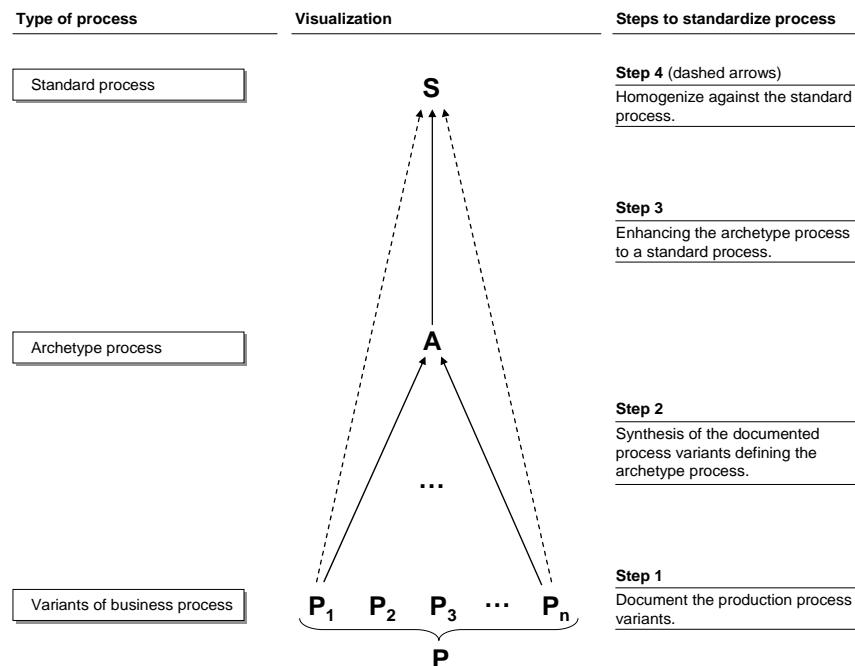
The next activity Dream undertook to further enhance the process A towards a standard process S was the *isolation of production process specificities*, i.e. to dramatically decrease the number of steps which presumably cannot be directly taken over by process variants  $P_1, \dots, P_n$  while being homogenized against A respectively S. This strategy called for redesigning the process such that the stages of the process A in which a common and shareable process was used were prolonged. Again, thinking of the process in focus to be the pricing process, this meant, for example, to isolate pricing specificities founded by Dream's three service types, in as few activities as possible, instead of having them distributed all over the process.

In the fourth activity towards process standardization Dream then incorporated externally available *business process excellence* into the archetype process A. Firstly, a wholly-owned subsidiary of Dream was selling similar products (service packages) but in a lower-budget area. This subsidiary was known industry wide for its lean and effective production processes. Hence, Dream could comfortably learn from its subsidiary's process advantages and incorporate them into its own process. Secondly, in the middle of 2004, Dream started cooperating with a standard software provider to support its production processes. Besides Dream a considerably large number of both competitors and suppliers already used the same standard software. Thus, the processes implemented in the standard software – at least to some extent – proved "excellent" with regard to the large user group and, for example, promised to improve Dream's core activities as well as the collaboration between Dream and its suppliers.

In summary – along these four activities – Dream enhanced the archetype process A to a standard process S implementing the dimensions given in section 3.3 (Table 4).

**Ad 4:** Finally, in the fourth step of its four-step-approach given above, Dream could then homogenize the variants  $P_1, \dots, P_n$  against the standard process S and thereby standardize the processes  $P_1, \dots, P_n$ .

If Dream had skipped the third step (enhancement to a standard process) and had directly performed step four after step two, Dream would only have homogenized but not standardized its production process. As a result Dream would in fact have reduced the number of process variants but not have benefited from the achievable process excellence.



**Figure 2:** Approach to standardize production process

The described four-step-approach allowed Dream to standardize its production process. Table 5 summarizes the main improvements achieved by this standardization effort.

#### 4.5 Orienting Dream towards a more flexible and dynamic production logic

Drawing on the stabilized and now in its production costs improved production processes, the goal of this part of the standardization program was to prepare Dream to successfully act in the more flexible and dynamic market. Therefore a new production logic had to be designed and to be aligned with the conventional production logic.

Key of this part of the program was the design of new production processes for the flexible and dynamic business – in contrast to the former conventional business logic. The fact that the

processes for the conventional business model have already been standardized before, simplified the design of the new production processes tremendously. Dream was able to use to a large extent pieces of the conventional production processes to design the new flexible production processes. If the conventional production processes had not been standardized before, particularly if they had not been specifically modularized, had not incorporated externally available excellence and had not been precisely documented, then Dream would not have been able to extensively draw on the conventional production processes to design the new production processes.

Improvement area	Result
Reduced time	Production processes were faster after standardization, e.g. the processing time of services and the time to market of new services and service packages dramatically decreased.
Reduced costs	Production process standardization allowed production cost reduction of around 20%.
Improved quality	Having standardized processes along formerly differently producing business units, locations and service types improved the overall service package quality. The number of production mistakes could be reduced significantly.
Improved customer satisfaction	Standardization of e.g. pricing processes introduced formerly missing price consistency for comparable service packages. After standardization customers could rely on finding comparable prices for comparable service packages, what was not the case beforehand.

**Table 5:** Improvements resulting from the process standardization effort

To sum it up, as shown in Table 6, the standardization of its conventional production processes allowed Dream to quickly and flexibly react to changing markets and trends opposed by competitors' behavior.

Improvement area	Result
Increased flexibility	Modularization of conventional business processes allowed to easily and quickly design a new flexible production model (by just picking process parts necessary for a flexible model). The ability to react to market changes and trends opposed by competitors' behavior enhanced significantly.

**Table 6:** Additional improvements resulting from the process standardization effort

#### 4.6 Case summary and outlook

With the help of the described process standardization effort, Dream achieved two very important goals: Firstly, Dream successfully decreased its production cost and time while

increasing quality of service packages and customer satisfaction in the conventional business model. Secondly, having standardized the production processes in the conventional business model, Dream was able to quickly and flexibly react to changing markets and trends opposed by competitors' behavior by mainly recombining the conventional production processes. Theoretically speaking, one can say that – according to the logic proposed in section 3.2 – Dream has, firstly, synthesized an archetype process out of the process variants available, to then, secondly, enhance this archetype process to a standard process.

Comparing the actual results Dream achieved with its process standardization effort to the value propositions suggested in section 2.3 (Table 3), one finds that this case covers quite a broad range of standardization effects and indicates that the qualification of the dimensions given in section 3.3 (Table 4) above might indeed be sufficiently relevant to pursue further research.

## **5. Conclusions**

### **5.1 Summary**

This paper has taken a first step towards a systematic understanding of the role and value impact of business process standardization consisting of the dimensions summarized in Table 4 and challenged by using a case study.

The review of literature as well as the definitions given propose a coherent, theoretical foundation for further research on the role of process standardization for both, business value and other types of standards.

### **5.2 Limitations and Further Research**

As argued by Byrd and Turner (Byrd and Turner 2000), a single study in any area is only one piece of a puzzle to unlock the knowledge contained in that area. The construct proposed here can only be seen as a possible building block in the process to develop and deploy a measure of business process standardization. We thus plan to conduct some more case studies to then do a quantitative survey on business process standardization. First results from another survey by one of the authors suggest an interesting interplay between data standards, process standards, and process performance that needs to be scrutinized using a better measurement concept for process standardization. Therefore, we see a need to critically test the meaningfulness and the completeness of the dimensions proposed in section 3.3 and, based on this, do pilot surveys prior to the actual survey. Performing the procedure developed by Lawshe (Lawshe 1975) and enhanced by Lewis et al. (Lewis et al. 1995) can then give a preliminary proof of the construct validity. As part of this, multiple studies, especially aimed at further assuring the validity and reliability of the instrument, will lead to refinements and increased generalizability. In this process, specific industries could be targeted for in-depth analysis of the instrument.

In addition, the measurement instrument should be used in a longitudinal study to determine how the degree of process standardization changes over time. Hence, we will revisit the case study company to continue the observation of the ongoing business process standardization

effort, which will allow an ex-ante and ex-post comparison. Also, extending the analysis of the impact of process standardization on outsourcing success by Wüllenweber et al. (Wüllenweber et al. 2008), the authors plan to revisit Dream as the firm has recently decided to sell its internal IT-provider to an Indian IT-solution provider. In the long run, we hope to link business process standardization research to IT business value research.

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