Verifying the Usefulness of a Classification System of Best Practices

Meshari M. S. Alwazae, Erik Perjons and Harald Kjellin

Department of Computer and System Sciences, Stockholm University, Isafjordsgatan 39, Stockholm, Sweden

Keywords: Knowledge Management, Knowledge Transfer, Best Practice, Classification System.

Abstract: Transfer of best practices (BPs) within an organization can significantly enhance knowledge transfer. However, in order to manage a large number of BPs within an organization, there need to be some structure for how to classify the BPs. In this paper, we present a best practice (BP) system for classifying BPs and evaluate how easy the system is to use for classifying best practices. The research approach applied was design science, which is characterized by designing an artifact in this case a BP classification system, and evaluating it. The evaluation was carried out by asking Master's students to collect two BPs from organizations and subsequently having them classify the BPs according to the BP classification system. They were also asked to motivate their choices during their act of classification. The results of the evaluation are promising: the BP system could be used for classifying BPs since students utilized all possible values of the BP system during the act of classification. Also, it was easy for the students to justify their classifications, which might be interpreted as an ease of using the BP classification system.

1 INTRODUCTION

The importance of managing organizational knowledge, including the needs of knowledge transfers within an organisation, has been receiving research attention during the last two decades (Cross and Baird, 2000; Davenport et al., 1998; Desouza and Evaristo, 2003; Dinur et al., 2009; Hansen, 2002; Zack, 1999). The studies of the factors that enable transfer of best practices (BPs) within an organization can significantly enhance the perception of knowledge transfer if knowledge sharing is critical to an organization's success. Other directions of research into BPs include examining whether these practices will actually work sufficiently in the adopting organizations (Davies and Kochhar, 2002; Zairi and Ahmed, 1999).

As its heart, BP aims to reuse best ways to solve a problem or handle an issue. It is about gaining the benefits of previous experiences to define possible ways to conduct activities and solve problems (Axelsson et al., 2011). Organizations use BP to avoid making the same mistakes, while learning from others' experiences in order to produce equally superior results. BPs should also be easily copied and transferred throughout the organization. The logic behind this is that any practice that has been proven over time to be effective or valuable for one organization might bring similar successful outcomes while implemented in another (Fragidis and Tarabanis, 2006). For instance, a central committee of managers evaluated BPs at Ericsson (Watson, 2007). Those managers met quarterly to decide which of the practices were best suited to be shared throughout the organization, and, thereby, converting all departments' practices. This gave Ericsson a competitive advantage in their production processes through a high degree of standardization.

In order to manage a large number of BPs in an organization, there needs to be some structure for how to classify the BPs. Such a structure will support the users to easily find appropriate BPs as well as providing its users with an understanding of how BPs are related to other BPs. Such a structure will also provide the identified BPs with context, an important feature for successful implementation of BPs. Furthermore, such a structure will also provide an organization with an understanding about which areas within the organization have a limited number of BPs. The organization can then analyze this lack of BPs in certain areas and decide if additional BPs are needed. In this paper, such a structure is called a BP classification system.

The goal of this paper is to present a BP classification system for categorizing BPs and evaluating how easily the system can be used to

DOI: 10.5220/0004549604050412

Copyright © 2013 SCITEPRESS (Science and Technology Publications, Lda.)

M. S. Alwazae M., Perjons E. and Kjellin H..

Verifying the Usefulness of a Classification System of Best Practices.

In Proceedings of the International Conference on Knowledge Discovery and Information Retrieval and the International Conference on Knowledge Management and Information Sharing (KMIS-2013), pages 405-412 ISBN: 978-989-8565-75-4

classify BPs. The BP system was presented in Alwazae et al. (2013) but not evaluated. In this paper, the focus is on evaluating the BP system.

The structure of the paper is as follows. In section 2, we present the research approach and in section 3 we discuss the designed artifact, i.e. the BP classification system. Section 4 describes the evaluation of the system, while the analysis and discussion is described in section 5. Related research is discussed in section 6 followed by a conclusion in section 7.

2 RESEARCH APPROACH

The research approach used is design science (Hevner et al., 2004). It is characterized by the design of artifacts (e.g. constructs, models, frameworks, methods, prototypes and IT systems). According to Hevner et al. (2004), design science is originated in engineering disciplines aiming for creating innovative artifacts for solving practical problems. Therefore, design science research is an activity aimed at generating and testing hypotheses about the future, i.e. artifacts that can, when introduced, solve problems for an organization (Bider et al., 2012). Furthermore, for an artifact to count as a design science solution, it needs to be generic in nature, i.e. the artifact solution should be applicable to not only one unique situation, but to a class of similar situations, cf. Principle 1 of (Sein et al., 2011).

Hevner et al. (2004) emphasize the importance of evaluating a designed artifact in design science research. Evaluating an artifact means evaluating its ability to solve a practical problem. However, evaluating an artifact in design science is difficult. First, in order to evaluate an artifact in an organization it has to be applied and then evaluated to determine if the artifact has solved the problem at hand. Second, the artifact needs to solve the problem in many different organizations, since an artifact needs to be a generic solution to qualify as a design science solution.

Different strategies and approaches have been presented to manage evaluations of artifacts in design science. There are two main evaluation strategies: *ex ante* and *ex post* evaluations (Pries-Heje et al., 2008). *Ex ante* evaluation means that the artifact is evaluated without being used in an organization, while *ex post* evaluation requires the artifact to be employed in an organization. An *ex ante* evaluation often employs interviews, where users express their views on the artifact. While *ex* *ante* evaluations are often weak, *ex post* evaluations may be considerably stronger. Such evaluations require that an artifact is actually put into operation before being evaluated. Furthermore, Sein et al (2011) have points out that artifacts in the IT sector are typically developed and shaped by their interaction within an organizational context. Thus, design science research needs to interleave concurrently the activities of creating an artifact, introducing it into practice, and evaluating it.

In this paper, we have designed a KM system (in the form of a model for classifying BP), and evaluate the artifact by using an *ex ante* evaluation. The focus of the evaluation is not on the BP system's usefulness for an organisation, which will be a future evaluation. Instead, the focus is on how easy it is to classify BPs according to the system. Therefore, this preliminary evaluation should be seen as the first evaluative step. The goal of this first step is to enhance the quality of the artifact. Later steps will include evaluations which investigate if the BP system is useful for an organisation.

Peffers et al. (2007) have presented a process for design science research consisting of a number of activities as described below. We used this process to describe our work according to these activities:

- 1. Identify problems and motivation: The first activity in the design science process according to Peffers et al. (2007) is to identify a business problem that motivates why the artifact (i.e. in our case the BP classification system) needs to be designed and developed. The business problem in our research is the lack of support for managing a large number of BPs within an organization, including finding appropriate BPs, relating BPs to each other and increase the understanding of which areas of an organization that are lacking BPs.
- 2. Define objectives of a solution: The second activity defines desirable requirements on the artifact that specify how the artifact solves the problem. These requirements will guide the design and development of the artifact and will also form a basis for its evaluation. The main requirement in our research is to assess how easy it is to use the system to classify BPs.
- 3. Design and develop: The third activity describes the artifact in focus including how it was designed and developed. In our research, a BP classification system was developed based on an in-depth literature survey of existing BP frameworks. Based on this survey, presented in Alwazae et al. (2013), we identified a set of variables and values for classifying BPs.

- 4. Demonstration: The forth activity aims at showing the use of the artifact in an illustrative or real-life case, thereby proving feasibility of the artifact. In this paper, a demonstration has not been carried out since the focus is on evaluation.
- 5. Evaluation: The fifth activity determines how well the artifact solves the problem taking into consideration solution objectives (i.e. the defined requirements). In our research, the evaluation was carried out by asking 20 students to each collect two BPs from companies, asking them to classify the BPs, i.e. apply the BP framework on the collected BPs, and asking them to motivate each choice of classification.

3 THE DESIGNED ARTIFACT: THE BP SYSTEM

In this section, we describe the designed artifact, i.e. the designed BP classification system (Alwazae et al., 2013). The BP classification system consists of a set of features, called variables and possible values for each variable. The classification is based on the argument that knowledge and BP are embedded within a set of contextual dimensions that are critical for the organization's ability to organize, utilize and extract value from the knowledge. The BP classification system was designed based on a literature study in which we focused on identifying candidate papers by means of reviewing literature of BP. To be a candidate paper, it needed to present features for a BP system. They ended up with 26 candidate papers and, based on features (i.e. variables) identified in these papers, they designed a BP classification system. The variables of the BP system were 1) degree of cooperation 2) organizational level, 3) scope, 4) completeness of description, 5) degree of quantification, 6) implementation areas, 7) level of formalization. Each variable had a set of possible values that can vary depending on knowledge characteristics. Each variable and value was explicitly defined. Please see Appendix that includes a full description of each variable and values.

Some of the advantages for the BP classification system are that it can facilitate the identification of an organization's BPs to re-index their practices in order to discover which practices are difficult to classify. It helps to document the organization's practices making it easier to search and utilize BPs. Additionally, it will prevent reinventing the wheel when similar problems present themselves. Finally, it decreases repetition of BP documentation since there will be a repository of BPs to be shared within the organization (ibid.).

4 EVALUATION OF THE ARTIFACT: THE BP SYSTEM

In this section, we describe the approach used to evaluate how easily the BP system was utilized to classify BPs. In this section, we also describe the result of the evaluation. The evaluation was carried out according to the steps presented below:

Step 1: We conducted the evaluation with 20 students who were attending a Master's level Knowledge Management course at the Department of Computer and System Sciences at Stockholm University. In this first step, we asked the students to contact organizations and collect two written descriptions of BPs from the organizations. The descriptions needed to be structured according to a template distributed electronically and in-person to the students. The template highlighted important parts of BP: background, problem, goal, method and solution. The task, as well as the concept of BP, was presented to the students during a lecture.

Step 2: The next step was to ask the students to evaluate how easy it was to categorize the BP according to the system. We created a structured questionnaire, in which the students classified their collected BPs according to the values and variables as well as their motivation behind their chosen values. This was done in a two-hour seminar. Then, we examined incomplete answers or missing answers by cross-referencing their responses with their original collected BPs. In case of ambiguities in their answers, students were asked for clarification and complimentary additions.

Step 3: In this step, we compiled and analyzed the results from the evaluation. We found that the students collected BPs from twenty organizations of varying sizes and which operated in diverse domains such as IT, manufacturing, banking, governments etc.

In this evaluation study, we used a convenience sampling method, as we did not control the choice of organizations involved in our study. We allowed the students to choose any organization, whether small medium or large, and in any domain. The only requirement was that the organization studied should focus on KM.

	Туре	Number	
	IT	13	
Organization	Manufacturing	9	
	Public	4	
	etc.	8	
Size	Small	8	
	Medium	12	
	Large	14	
Interviewee	CIO	2	
	General Manager	10	
	Manager	13	
	Operational level	9	

Table 1: Organizations studied.

Table 1 presents the details of the organizations from which the BPs were collected. Due to the sensitivity of the material presented in this paper, we do not name these organizations. However, some of the organizations are major and well-known multinational organizations.

We are aware of the fact that when one involves students, the validity of the results may be strongly jeopardized. To assure the quality of the data collection, we prepared the Master's students in several consecutive steps. We first gave a lecture on the subject and later, during a seminar, presented the questionnaire and explained the motivation behind each of its questions.

5 ANALYSIS AND DISCUSSION

In this section, we present the results of the classification of BPs and our evaluation. We also compare the results from the classification carried out by students with the results from the literature study presented in Alwazae et al. (2013). Finally, we present an analysis of the evaluation.

The results of the students' classification of the BPs, according to the BP system, are presented in Table 2, under the heading "Occurrence in collected BP out of 40". The results of the students' classification of their BPs are also compared with the results from the literature study, see heading "Occurrence in literature out of 26". The literature study was carried out as part of designing the BP classification system (see Alwazae et al., 2013), which classified papers and presented the occurrence of values of each variable that signified the nature of the BP and is presented in Table 2.

During the students' classification of their BPs, they originally encountered difficulties in understanding the classification system with respect to choosing the appropriate values for the variables that suited their practice domain. However, after refining and explaining the variables and values presented in the BP system, they could easily classify their BPs.

The results show that all values of the variables were identifiable and utilized, which shows that the BP system could work as an instrument for classifying BPs. If only some values were present and recognized, the BP system would have been of limited aid in classification.

The results of the students' classification of their BPs was compared with the results from a literature study, see Table 2. The comparison showed many similarities between literary and student accounts. This might show a legitimate and sound BP system for classifying BPs. However, further investigation needs to be carried out to make more conclusive statements regarding the system's valid usability.

The comparison also showed variance regarding some values such as 'technical area', which occurred 8% in literature and 47.5% in industry. Also, 'informal' values occurred within 70% of the literature and only 30% in industry. One way to account for these variances may be that the students came from a social-technical department; a large group of students were collecting BPs from software companies, see Table 1.

The students were also asked if they considered some variables or values to be missing. In general, the students claimed the BP system was exhaustive. However, some students identified one additional value pivotal for classifying BP. This value, within the variable "Scope", was department specific (named "Departmental enterprise" in Table 2). The students classified 8 BPs according to this value. We define "Departmental enterprise" BPs as focusing on specific work related tasks within a department. However, this value does not exist within the 26 collected papers and explains why this value was not an option during classification.

We found that when examining organizational BPs, an unforeseen value was documented, as was seen with the value "Departmental enterprise." Although the students were able to identify a new value, the identification of a new variable did not occur. The reason for this could be that the values of the variables may depend on the context of the practice and may become more evident in future, more comprehensive, studies.

Variable	Value	Literature occurrence out of 26		Industry occurrence in collected BP out of 40	
Degree of	Competitive	19	73%	24	60%
cooperation	8		27%	16	40%
	Operational	17	65%	25	62.5%
Organisational	Tactical	6	24%	5	12.5%
level	Strategy	3	11%	10	25%
Scope	Departmental enterprise	0	0	8	20%
	Local Enterprises	17	65%	22	55%
	Global enterprises	9	35%	10	25%
Completeness of	Complete with context	4	15%	12	30%
description	Basic parts	22	85%	28	70%
Decree	Qualitative measures	19	73%	19	47.5%
Degree of Quantification	Quantitative measures	5	20%	14	35%
Quantification	Mixed measures	2	8%	7	17.5%
Implementation areas	Technical area	2	8%	19	47.5%
	Business area	18	70%	15	37.5%
	Management area	6	23%	6	15%
Level of formalization	Informal	18	70%	12	30%
	Semi-formal	5	19%	16	40%
Iomialization	Formal	3	11%		30%

Table 2: Result of the classification from literature (Adapted from Alwazae et al., 2013) and from industry.

The students were also asked to explain the motivation behind their choice of values. The students justified all the chosen values with some exceptions (only 15 values out of 280 were not clearly justified). In a majority of the cases (265 out of 280), we interpreted student motivations as convincing. For example for the choice of value "Operational" (for the variable "Organisational level") a typical motivation was "the BP is focusing on an operational routine", and for the value "Management" (for the variable "Implementation area") a typical motivation was "the BP is supporting decision making for upper management". From these results we conclude that it was easy for students to choose a certain value.

6 RELATED RESEARCH

In literature, there are different BP systems for different domains. For instance, in the enterprise architecture domain, The Open Group Architecture Framework (The Open Group, 2011) and Zachman model (Zachman, 2008) are well known systems, while in the quality management domain the popular systems are ISO 9000 (Peach, 2003) and Six Sigma (Pyzdek and Keller, 2009). For the IT enterprise management and IT governance domains, the Control Objectives for Information and Related Technology (COBIT) framework is more suitable (ISACA, 2012). Also, the Information Technology Infrastructure Library (ITIL) is a popular framework for IT services (Hendriks and Carr, 2002). The Balance scorecard is a popular framework measuring the performance of an organization (Martinsons et al., 1999). Common among these frameworks is their summarization of many experiences describing how work should be organized between people within a particular context (Graupner et al., 2009). Although these frameworks do not directly address how BP is organized, classified and performed, they can, however, offer some guidance.

The literature about BP is mainly descriptive. Some papers describe the BPs that an organization has in place. Others are limited to describing the dissemination of BP without discussing in detail the necessary context related to the practices (Davies and Kochhar, 2002). The description of necessary background components (i.e. context) of BP would help organizations determine whether a BP is appropriate for their business or not. For instance, within the ITIL framework, there is a lifecycle phase with each phase including a number of specific processes such as incident management and supplier management (Nezhad et al., 2010). The descriptions of these processes are directed to employees and to be followed in their respective work domains. Such a context, in this case the phases of the life cycle, will support the classification of the processes, and

could be used for classifying other BPs.

7 CONCLUSIONS

In this paper, a BP system for classifying BPs has been evaluated. The evaluation shows promising results. First, all values of the variables were used by students when classifying BPs, which shows that the BP system supports the classification scheme. Second, the students could justify their choice of values, which suggests the BP system is easy to use for classification. Third, the comparison to the classification of research papers in the BP area shows similar classification results. This indicates comprehensiveness when classifying BPs. Fourth; the students claimed that the BP system was exhaustive.

Our next step of further refining and evaluating the BP system will be carried out according to the design science strategy presented by Sein et al. (2011). This artifact will be further developed in an iterative evaluation process with feedback from BP experts to provide an integrative perspective of quality measures or checklist for the usefulness of BP implementation. Therefore, to introduce this BP system into practice and evaluating it is a necessary step for its success.

REFERENCES

- Alwazae, M., Kjellin, H., Perjons, E., 2013. A synthesized classification system for best practices, VINE The Journal of Information and Knowledge Management Systems, Emerald Group Publishing Limited (submitted).
- Asrofah, T., Zailani, S., Fernando, Y., 2010. Best practices for the effectiveness of benchmarking in the Indonesian manufacturing companies, *Emerald Group Publishing Limited, Benchmarking: An International Journal*, Vol. 17 No. 1, pp. 115-143.
- Axelsson K., Melin U., Söderström F., 2011. Analyzing best practice and critical success factors in a health information system case – Are there any shortcuts to successful IT implementation?, 19th European Conference on Information Systems, Tuunainen V, Nandhakumar J, Rossi M, Soliman W (Eds.) Helsinki, Finland, pp. 2157-2168.
- Bider, I., Johannesson, P., Perjons, E., 2012. Design science research as movement between individual and generic situation-problem-solution spaces, In Baskerville R., De Marco, M., Spagnoletti, P. (eds.) Organizational Systems. An Interdisciplinary Discourse, Springer.
- Cross, R., Baird, L., 2000. Technology is not Enough:

Improving Performance by Building Organizational Memory, *Sloan Management Review*, pp. 69–78.

- Davenport, T.H., De Long, D.W., Beers, M.C., 1998. Successful knowledge management projects. *Sloan Management Review* pp. 43–57 Winter.
- Davies, A. J., Kochhar, A. K., 2002. Manufacturing best practice and performance studies: a critique, *International Journal of Operations & Production Management, MCB University Press*, Vol. 22 No. 3, pp. 289-305.
- Desouza, K., Evaristo, R., 2003. Global knowledge management strategies. European Management Journal 21, No. 1, pp. 62–67.
- Dinur, A., Hamilton, R., Inkpen, A., 2009. Critical context and international intrafirm best-practice transfers, *Elsevier Inc, Journal of International Management*, Vol. 15, pp. 432-446.
- Fragidis, G., Tarabanis, K., 2006. From Repositories of Best Practices to Networks of Best Practices, International Conference on Management of Innovation and Technology, IEEE, pp. 370-374.
- Graupner, S., Motahari-Nezhad, H. R., Singhal, S., Basu, S., 2009. Making processes from best practice frameworks actionable, *Enterprise Distributed Object Computing Conference Workshops*, 13th IEEE, ISBN: 978-1-4244-5563-8, 1-4 September 2009, pp. 25-34.
- Hansen, M. T., 2002. Knowledge networks: explaining effective knowledge sharing in multiunit companies. *Organization Science Vol. 13*, pp. 232–248.
- Hendriks, L., Carr, M., 2002. ITIL: Best Practice in IT Service Management, in: Van Bon, J. (Hrsg.): *The Guide to IT Service Management*, Band 1, London u. a. 2002, pp. 131-150.
- Hevner, A. R., March, S. T., Park, J., 2004. Design Science in Information Systems Research, *MIS Quarterly*, Vol. 28, Iss. 1, pp. 75–105.
- ISACA., 2012. The Control Objectives for Information and related Technology COBIT. (Online) 2012. (Cited: March 10, 2013.) http://www.isaca.org/ COBIT/Pages/default.aspx.
- Martinsons, M., Davison, R., Tse, D., 1999. The balanced scorecard: a foundation for the strategic management of information systems, *Decision Support Systems*, Vol. 25. No.1, pp. 71-88.
- Netland, T., Alfnes, E., 2011. Proposing a quick best practice maturity test for supply chain operations, *Measuring Business Excellence*, Vol.15 No.1,pp.66-76.
- Reddy, W., McCarthy, S., 2006. Sharing best practice, International Journal of Health Care Quality Assurance, Vol. 19 No. 7, pp. 594-598.
- Nezhad, H. R. M., Graupner, V., Bartolini, C., 2010. A Framework for Modeling and Enabling Reuse of Best Practice IT Processes, *Business Process Management Workshops* pp. 226-231
- Peach, R. W., 2003. The ISO 9000 handbook, McGraw-Hill, 2003.
- Peffers, K., Tuunanen, T., Rothenberger, M., Chatterjee, S., 2007. A Design Science Research Methodology for Information Systems Research, *Journal of Mana*gement Information Systems, Vol. 24, Iss. 3, pp. 45-77.

GY PUBLIC

ATIONS

- Pries-Heje, J., Baskerville, R., Venable, J., 2008. Strategies for Design Science Research Evaluation. *ECIS 2008 Proceedings*.
- Pyzdek, T., Keller, P., 2009. The Six Sigma Handbook: A complete guide for green belts, black belts, and managers at all levels, McGraw-Hill Professional, 3nd edition.
- Ringsted, C., Hodges, B., Scherpier, A., 2011. The research compass: an introduction to research in medical education: AMEE guide No. 56. *Medical Teacher* Vol. 33, pp. 695-709.
- Sein, M. K., Henfridsson, O., Purao, S., Rossi, M., Lindgren, R., 2011. Action Design Research, *MIS Quarterly*, Vol. 35, Iss.1, pp. 37–56.
- The Open Group, 2011. The Open Group Architecture Framework (TOGAF). [Online] 9.1, 2011. [Cited: March 15, 2013.] http://www.opengroup.org/togaf/.
- Watson, G. H., 2007. Strategic benchmarking reloaded with six sigma: improving your company's performance using global best practice, John Wiley & Sons, Inc. New York, NY, USA ISBN:0470069082.
- Xu, Y., Yeh, C., 2010. An Optimal Best Practice Selection Approach Computational Science and Optimization (CSO), 2010 Third International Joint Conference on Computational Science and Optimization, No. 2, 28-31 May 2010, pp. 242-246.
- Zachman, J. A., 2008. The Zachman International Enterprise Architecture. [Online] 2008. [Cited: March 10, 2013.] http://www.zachman.com/about-thezachman-framework.
- Zack, M. H., 1999. Managing Codified Knowledge. Sloan Management Review 45–58 Summer.
- Zairi, M., Ahmed, P., 1999. Benchmarking maturity as we approach the millennium?, *Total Quality Management*, Taylor & Francis Ltd, Vol. 10 No. 4-5, pp.810-816.

APPENDIX

Variable and values definition (Adapted from Alwazae et al., 2013).

Variable	Definition	Value	Definition	
Degree of cooperation Degree of cooperation Degree of cooperation means the practice is focusing on increasing competitive edge or increasing collaboration	0 / 1	Competitive	<i>Competitive</i> means that best practice is focus on making a, practice, a product, or a service more competitive.	
	e e	Collaborative	Collaborative means that best practices is focusing on collaborative knowledge sharing for creativity and ingenuity/innovativeness	
- · · · ·	Organisational level means	Operational	Operational means that the best practice focuses on a particular operational routine or business process	
	the level in an organization that the best practice	Tactical	<i>Tactical</i> means that the best practice focuses on tactical short-term goals	
	focuses on	Strategy	Strategy means that the best practice focuses on more overarching strategic long-term goals	
Scope extensi	C	Local	Local Enterprises means that the best practice focusing on one	
	<i>Scope</i> means the area or extension that the best practices focusing on	Enterprises	single organization	
		Global	Global enterprises means that the practice is focusing on a	
		enterprises	multinational organization	

Variable	Definition	Value	Definition
Completeness of Completeness of description means if the description contains a necessary context for using the practice or just basic parts	Complete with context	Complete with context means that the practice can be used without the user being familiar with the context because it contain the context (that is, when to apply, where to apply, who applies it, why to apply, and how to apply)	
	Basic parts	Basic parts means that the user of the practice must be familiar with the context in order to know how to use the practice, that is, it mainly includes how to apply it	
Degree of quantification Degree of means the type of valid Quantification measures assigned to the best practices	Degree of quantification	Qualitative measures	Qualitative measures means that interpretive, soft, measures are assigned to practices
	Quantitative measures	Quantitative measures means that numerical, hard, values are assigned to practices	
	Mixed measures	Mixed measures means that both soft and hard measures are assigned to practices	
Implementation area areas Implementation area means the area that a best practices is aimed to be applied in	Technical area	<i>Technical area</i> means that the area of application of the best practices is technical	
	Business area	Business area means that the area of application of the best practices is including some kind of business processes	
	Management area	Management area means that the area of application of the best practices is geared to upper-management and organizational leadership and governance	
SCIENCE AND Level of formalization	Informal	Informal means that the best practices have the form of soft, informal suggestions	
Level of formalization	means the level of formalization of the best practices	Semi-formal	Semi-formal means that best practices have the form of directing functional considerations, i.e. business rules, via established organizational procedures
	-	Formal	<i>Formal</i> means that best practices have the form of formalized procedure with official adaptation and often embedded in IT implementation of best practices, such as ERP or BPM systems

Variable and values definition (Adapted from Alwazae et al., 2013) (Cont.).