Towards a Configurative Publication Schema for Design Science Research

Research-in-Progress

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Abstract

Design science research (DSR) has matured and gained acceptance as an appropriate information systems research method. Despite the increasing number of DSR publications there is still no common sense and no comprehensive guidance how to present DSR in scientific literature. Therefore, this paper investigates the potential of a configurative DSR publication schema by means of a reference model allowing the deduction of concrete publication schemas. These schemas provide more detailed advice depending on the particular research context, such as the intended artifact type, the evaluation method, or the knowledge contribution type. By identifying configuration parameters (through an investigation of 13 DSR meta-analysis papers) and common configurations (through a meta-analysis of 52 DSR journal publications) we lay the foundations for a configurative reference model which can be adapted to provide detailed guidance in concrete DSR publication situations for both authors and reviewers. A detailed example sketches the future artifact.

Keywords: Design science, design research, meta-analysis, template, IS research

Introduction

Design science research (DSR), i.e. the construction of socio-technical artifacts intended to solve organizational problems (Gregor and Hevner 2013; Hevner et al. 2004) has gained acceptance as an appropriate information systems (IS) research method within the last years. A continuously increasing number of DSR-based articles even in high ranked journals, special issues for DSR (e.g. EJIS, JAIS, ISR, and MISQ; cf. Baskerville et al. 2011), and dedicated conferences such as DESRIST or conference tracks illustrate that DSR supplements behavioral research in a meaningful way. However, there is still a need for support in how to publish (and to review) DSR contributions (Goes 2014; Gregor and Hevner 2013) – in particular in communities having focused on behavioral research in the past.

In accordance with Gregor and Hevner (2013), Dwivedi et al. (2014), Goes (2014), and van Aken (2014) we see the potential that additional guidance in DSR publishing increases the paper quality, reduces efforts for reviewers (and supports them in assessing papers adequately), and finally leads to higher acceptance and usage of the DSR paradigm. In addition, it might improve scientific collaboration and foster the dissemination of DSR research results. Appropriate guidelines might be facilitated by the fact that DSR is rather well structured, e.g. in terms of established DSR artifacts (e.g. March and Smith 1995), processes (e.g. Peffers et al. 2007), and evaluation techniques (e.g. Siau and Rossi 2007). Such guidelines, for example in the form of a publication schema suggesting structure and content elements, are subject to a common tradeoff: Either they are rather generic and can be applied to many publication situations or they are rather detailed and can only be used in a certain context. Publication situations are characterized by the intended artifact type, the application domain, and other publication-specific parameters. In such cases an approach might help that considers common situations and provides specific, situational guidance. Situational method engineering (Brinkkemper 1996) or configurative reference modeling (Becker et al. 2007) serve as good examples for the design of such situational artifacts.

It is common practice to structure DSR publications according to DSR processes, as proposed for example by Peffers et al. (2007). The DSR processes, however, don't take situations, such as the artifact type to be designed, into account. This shortcoming motivates the paper at hand which aims at answering the following research questions: (1) Do situational factors have impact on a DSR publication schema? If yes, what are the situational factors? (2) How should an according (potentially situational) DSR publication schema be designed?

The remainder of the paper is structured as follows. We give an overview of related work providing guidelines for DSR publications. Following, we present the research methodology which is based on configurative reference modeling. The complete specification of a configurable DSR publication schema is beyond the scope of the paper. However, we identify configuration parameters and conduct an empirical analysis to derive common publication situations. Explaining the next steps and an example sketches the final artifact. We conclude the paper with a short summary and outlook.

Foundations and Related Work

After a short introduction to DSR foundations we give an overview of related work that might provide support for DSR publications. Besides contributions about DSR processes ("How to design an artifact") we focus on papers with dedicated DSR publication guidelines ("How to write and where to publish DSR papers"), and DSR meta-analysis papers ("How DSR has been published in the past").

Popular references (e.g. Hevner and Chatterjee 2010; Hevner et al. 2004; March and Smith 1995; Vaishnavi and Kuechler 2008) present detailed elaborations about DSR and its various topics such as artifact types and methodology. In addition, several papers introduce DSR processes, i.e. give advice on how to conduct the design and evaluation steps. Well-known references are (Hevner et al. 2004), (Peffers et al. 2007), and (Vaishnavi and Kuechler 2008). All of them describe rather generic DSR processes than providing detailed guidance for specific artifacts or design situations (Gregor and Hevner 2013). Many DSR publications refer to these DSR processes and conduct design research by following a methodology using more or less the same steps on a high level (develop/build – justify/evaluate (Hevner et al. 2004)). Not surprisingly, established DSR processes also serve in numerous articles as guidance on how to structure the paper (i.e. serve as a publication schema). Further advice for DSR processes can be found in references for certain artifact types or evaluation methods (such as (Sein et al. 2011)). However, to the best of our knowledge the majority of publications in this category focus on the research methodology and/or how to present the artifact (e.g. by providing a meta-model), but again do not cover in detail the presentation of the whole research process.

Contributions like (VanderMeer and Tremblay 2013), (Chen 2011), and (Baskerville et al. 2011) list potential publication outlets for DSR. However, little work is available that focuses on guidance on how to present DSR, e.g. in terms of a publication schema. At least, the recent publication of Gregor and Hevner (2013) aims at providing support for presenting DSR. By means of a DSR knowledge contribution framework the authors identify four types of contributions. Depending on the maturity of the problem context and the maturity of already existing artifacts that can serve as starting points, the types '*invention*' (low application domain maturity/low solution maturity), '*improvement*' (high/low), '*exaptation*' (low/high), and '*routine design*' (high/high) occur. Gregor and Hevner also present a publication pattern for DSR contributions with the following sections: introduction, literature review, method, artifact description, evaluation, discussion, and conclusions. As already admitted by the authors themselves, this publication schema is high-level and generic and needs further refinement (Gregor and Hevner 2013).

In IS literature a few meta-analyses regarding DSR publication practices can be found. Table 1 gives a detailed overview of the results of a comprehensive literature review and provides additional information, such as the analysis subject and the sample basis. The papers investigate various DSR topics and their representation in publications. In most cases, the analysis results aim at providing insights on how to conduct DSR research rather than guiding DSR publications (apart from (Offermann et al. 2011)). Nevertheless, previous meta-analysis on DSR can help answering our research questions, as we examine in a later step if the analysis subjects might serve as configuration parameters for a DSR publication schema.

Table 1. DSR meta-analysis contributions in the IS domain

	Outlet	*Analysis Subject*	*Sample Basis*	*Timeframe*	*Net Sample Size*
(Offermann et al. 2010)	DESRIST'2010	Artifact type	DESRIST proc., MISQ special issue	2006–2009	62
(Piirainen et al. 2010)	DESRIST'2010	Citation analysis	ISI Web of Science search	Until 2008	45
(Samuel-Ojo et al. 2010)	DESRIST'2010	Trends, outcomes & impact	DESRIST proc.	2006–2009	92
(Offermann et al. 2011)	DESRIST'2011	Standardized abstract templates	DESRIST proc.	2006–2010	70
(Park et al. 2011)	DESRIST'2011	Design categories	MISQ, ISR	1970–2007	162
(Ayanso et al. 2011)	DESRIST'2011	DSR in database research	ISR, JMIS, MISQ	Until 2007	76
(Becker et al. 2011)	DESRIST'2011	Artifact types in service science, mgt. and engineering	Database search	Until 2010	78
(Gaß et al. 2012)	DESRIST'2012	Anatomy of input knowledge bases	7 IS & 10 CS journals, 3 IS & 5 CS conference proc.	1980–2011	53
(Dwivedi et al. 2014)	DESRIST'2014	Knowledge contribution type	DESRIST proc.	2011–2013	56
(Drechsler and Dörr 2014)	DESRIST'2014	Artifact type	MISQ	Until 2014	4
(Leukel et al. 2014)	ICIS'2014	Artifact type, foundations & evaluation method	BISE, WI proc.	2009–2013	145
(Arnott and Pervan 2012)	JAIS, 2012, 13(11)	Hevner et al., 2004 DSR guidelines	14 IS & decision support journals	1990–2005	362
(Gregor and Hevner 2013)	MISQ, 2013, 37(2)	Knowledge contribution type	MISQ	2006–2011	13

Overall, previous DSR literature offers only very limited advice for DSR publication schemas. These shortcomings motivate our research objective which can be formulated as follows: We seek for a publication schema that is (a) detailed, (b) comprehensive (i.e. covers all aspects/sections), and (c) configurative (i.e. supports various publication situations). The need for (c) will be examined below.

Research Method

We regard the DSR paradigm as appropriate for answering our research questions, as we target at creating a solution (artifact) to a specific problem of practical relevance. Since we also utilize empirical methods (cf. below), our multi-method approach aims at enhancing research validity and reliability (Scandura and Williams 2000). The target solution, a so-called publication schema, is according to our understanding a detailed paper structure in terms of sections (and subsections, etc.), with a well-defined order, and meaningful headings of these sections. In addition, content within sections is described by so-called 'information objects'. We have chosen the reference modeling approach to represent such a publication schema. According to Becker et al. (2007, p. 27) reference models are "information models that are developed with the goal of being reused for different, but similar purposes". In the light of the benefits of reference models in the context of IS design, we expect the following advantages by using this artifact type: accelerating the development of DSR publications, helping to communicate best practices, and reducing the risk of failure (Ahlemann and Riempp 2008). Configurative reference models overcome the trade-off between generality (a quality criterion of DSR artifacts according to (Winter 2011)) and utility by comprising rules which allow automatic modifications of the original reference model depending on the specific context (Becker et al. 2007). Becker et al. (2007) present a framework for configurative reference modeling which we can use to describe our final artifact: The publication schema can be assigned to the 'model layer' and the main configuration mechanism applied to it is the 'element selection'. The notation of the reference model is flexible. However, it has to present the aforementioned elements (section composition/order/headings, and information objects).

Configurative reference modeling requires in our context two steps: identification of configuration parameters and identification of configurations for which models (i.e. publication schemas) can be derived from the reference model. Both steps will be described in the following section. Our approach corresponds to the methodology for situational artifact construction as proposed by Winter (2011).

Design of the Configurative DSR Publication Schema

In the following, we identify configuration parameters which have an impact on the publication schema of a DSR contribution and subsequently show that (a) different and (b) more or less common DSR configurations exist. Finally, we take advantage of these insights by illustrating how a configurative DSR publication schema could be designed and sketch a detailed example of the future artifact.

Identification of Configuration Parameters

We consider two sources as relevant for identifying the configuration parameters: DSR specifics (as they constitute the differences to generic (IS) research papers) and parameters that have already been identified by previous literature. There is consensus in the DSR community that Hevner et al.'s (2004) so-called 7 guidelines (GL) explicate DSR specifics precisely. Our literature review and comprehensive examination of previous meta-analysis papers and their analysis subjects (cf. Table 1) lead to two additional potential configuration parameters: the knowledge contribution type (Gregor and Hevner 2013), and the scope which has been introduced in a similar manner in (Offermann et al. 2011) and which characterizes in our understanding if the designed artifact is rather generic or domain-specific. In order to determine if these nine potential configuration parameters have indeed impact on a publication schema (i.e. will result in different concrete schemas), we investigate in Table 2 if a potential parameter (in rows) affects sections of the high-level publication schema as introduced by Gregor and Hevner (2013) (in columns). We indicate our findings, resulting from intensive discussion among experienced design science researchers, by crosses in the table cells. For example, the artifact type (GL 1) has impact on Section 4 'Artifact Description'. Further examples will be presented in the remainder of the paper.

Table 2: Impact of potential configuration parameters on a generic DSR publication schema

	1. Introduction	*2. Literature Review*	*3. Method*	*4. Artifact Description*	*5. Evaluation*	*6. Discussion*	*7. Conclusions*
GL 1: Design as an Artifact			X	X	X		
GL 2: Problem Relevance							
GL 3: Design Evaluation			X		X		
GL 4: Research Contributions							
GL 5: Research Rigor							
GL 6: Design as a Search Process							
GL 7: Communication of Research							
Knowledge Contribution Type		X	X	X	X	X	
Scope		X		X	X	X	

Apparently, not all guidelines directly affect sections of a DSR publication. For example, problem relevance (GL 2) has no impact on any specific section since it is included as an inherent part in each scientific publication in order to motivate the research topic. Based on the insights of Table 2, we consider the following configuration parameters as relevant and discuss potential values for each parameter:

Artifact Type (GL 1): There is meanwhile a certain consensus about the major DSR artifacts designed by a DSR process. While Hevner et al. (2004), March and Smith (1995) and many other authors regard *constructs*, *models*, *methods*, and *instantiations* as the DSR artifact types, the recent publication of Gregor and Hevner (2013) assigns *design theories* as an additional artifact type to prescriptive knowledge.

Evaluation Method (GL 3): Regarding the appropriate evaluation methods a more diverse understanding can be found in literature (e.g. Hevner et al. 2004; March and Smith 1995; Siau and Rossi 2007). For a detailed overview and discussion we refer to (Cleven et al. 2009). After consolidating the references and considering the meta-analysis conducted in (Arnott and Pervan 2012) which shows that not all potential design evaluation methods are used in practice, we have chosen these parameter values: *action research*, *case study*, *controlled experiment*, *expert interview*, *field experiment*, *focus group*, *formal proof*, *informed argument*, *scenario*, *simulation*, and *survey*.

Knowledge Contribution Type: We use the knowledge contribution type values introduced by Gregor and Hevner (2013) for this parameter, i.e. *exaptation, improvement, invention*, and *routine design*.

Scope: We differentiate between artifacts for *generic* vs. *domain-specific* solutions. Examples are a conceptual model for project management (generic) and a method for business process modeling in healthcare (domain-specific).

Intentionally, we have decided to not add the design method as a further configuration parameter. The observation that few authors present their design method in detail is also reflected by the fact that none of the meta-analysis papers (cf. Table 1) investigates this subject. However, we still see some value in considering the design method as well in a publication schema, but leave it currently to future work. In such a case the overview of design methods in (Werner et al. 2014) might serve as a starting point.

Table 3 summarizes the configuration parameters and their values by means of a morphological box.

Table 3. Morphological box of the configuration parameters for a DSR publication schema

Artifact Type	Construct	Design Theory	Instantiation	Method	Model						
Evaluation Method	Action Research	Case Study	Controlled Experiment	Expert Interview	Field Experiment	Focus Group	Formal Proof	Informed Argument	Scenario	Simulation	Survey
Knowledge Contr. Type	Exaptation	Improvement	Invention	Routine Design							
Scope	Generic	Domain-Specific									

The large number of parameter value combinations results in 440 unique schema configurations. To avoid the modelling of uncommon or even in real world non-existing configurations, this large number of potential configurations suggests to analyze if and which configurations are more common than others. Such configurations should be prioritized when designing a configurative publication schema. Consequently, our next step is as follows: We conduct a literature review and subsequent empirical analysis aiming at receiving insights which configurations (typically) occur in DSR publications.

Identification of Configurations

We followed the literature review methodology by Webster and Watson (2002) by performing the following steps: (1) identification of relevant disciplines, (2) selection of adequate journals, (3) search process, (4) content structuring, and (5) content analysis. Steps 1 to 4 are summarized in the subsection 'Preparation Phase' below.

Preparation Phase

Since we focus on scientific publications of DSR knowledge in the IS field, we limited the relevant disciplines to IS only and excluded practitioner-oriented IS contributions. Further, we selected only DSR-receptive IS journals as identified by VanderMeer and Tremblay (2013). We chose the two scientific databases Web of Science and Scopus which cover all articles published within our 13 selected journals and restricted the search to contributions which include the keywords 'Design Science', 'Design Research' or 'DSR' at least within title, abstract, or keyword section, resulting in sum in 124 articles. We removed all obvious duplicates, editorials, interviews, and others notes (resulting in 89 articles).

In order to structure the content we read each article and classified it according to the configuration parameters (cf. Table 3). As the set of 89 articles still included a mix of DSR articles which actually design a DSR artifact ('design research') and articles about the DSR paradigm itself ('design science'; cf. differentiation by (Winter 2008)), the classification step was also used to identify and eliminate the latter ones. The set was divided into two parts and analyzed by two coders independently. Clear assignments were performed independently by each coder. Non-obvious assignments were resolved by discussion. Table 4 gives an overview of the resulting set of 52 papers. Surprisingly, we were not able to find DSR articles in some of the journals which are identified in (VanderMeer and Tremblay 2013) as DSR-receptive, namely in ACM Transactions on Database Systems, ACM Transactions on Information Systems, Communications of the ACM, IEEE Transactions on Computers, and IEEE Transactions on Knowledge and Data Engineering. Hence, our review results do not confirm the assessment of journals as DSR-receptive as presented by VanderMeer and Tremblay (2013) to its full extent. We could not find utilizable records before 2007, but since then the annual amount of DSR articles has increased over time (cf. Table 4).

Table 4. Overview of DSR articles per journal (net sample size = 52)

Journal	*DSR Article*	*Count*
ACM TMIS	(Chau 2011), (Lau et al. 2011), (Marx et al. 2011), (Schmidt-Rauch and Schwabe 2011), (Nussbaumer, Matter, and Schwabe 2012), (Choi et al. 2013), (Gill and Hevner 2013), (Valecha et al. 2013)	8
BISE	(Becker et al. 2009), (Österle and Otto 2010), (Dyckhoff et al. 2011), (Nussbaumer, Matter, Reto à Porta, et al. 2012), (Flath et al. 2012), (Marx et al. 2012), (Urbach and Würz 2012), (Overhage et al. 2012), (Dünnebeil et al. 2013), (Elsner and Krämer 2013), (Hilpert et al. 2013)	11
DKE	(Loutas et al. 2011)	1
DSS	(Lin and Liang 2008), (Mandviwalla et al. 2008), (Xu et al. 2008), (Holton 2009), (Muntermann 2009), (Wu et al. 2010), (Dang et al. 2011), (Maass and Varshney 2012), (Ngai et al. 2012), (Barjis et al. 2013), (Bélanger et al. 2013), (Demirkan and Delen 2013), (Fabian et al. 2013), (Laurier and Poels 2013), (Dang et al. 2014), (Geerts and O'Leary 2014), (Lau et al. 2014), (Schrödl and Turowski 2014), (Shao et al. 2014)	19
IEEE TSE	(Sen et al. 2012)	1
IEEE TSMCA	(Sitte and Winzer 2011), (Choi et al. 2012)	2
JAIS	(Xu et al. 2007), (D'Aubeterre et al. 2008), (Roussinov and Chau 2008), (Druckenmiller and Acar 2009), (Arazy et al. 2010), (Kuechler and Vaishnavi 2012), (Schmeil et al. 2012), (Parsons and Ralph 2014)	8
JDM	(Rosenkranz and Holten 2013), (Chee et al. 2014)	2

Content Analysis

Since all configuration parameters exhibit nominal scales, we were limited to descriptive statistics in the following. Table 5 visualizes the distribution of the gathered data among the 440 possible schema configurations. Since we were unable to identify any DSR invention knowledge contribution or a design theory in all 13 journals, these values are excluded from Table 5.

The fact of missing DSR invention corresponds to Gregor and Hevner (2013) who have shown that even MIS Quarterly has not published a DSR invention in 2005–2011. In contrast to Gregor and Hevner (2013) we were able identify three routine design articles due to the broader range of examined journals. This type of papers primarily summarizes previously published work (e.g. Nussbaumer, Matter, Reto à Porta, et al. 2012) or demonstrates its feasibility (e.g. Dang et al. 2011). Improvements represent with 42 out of 52 records (80.8%) the largest share of knowledge contribution types, followed by 'exaptation' (7 records; 13.5%).

The number of generic and domain-specific contributions is well-balanced across the different knowledge contribution and artifact types, with similar patterns for all journals.

With 27 records (51.9%) models are the most popular DSR artifact type, followed by instantiations (13 records; 25.0%), methods (11 records; 21.2%), and constructs (1 record; 1.9%). Design theories have not been published within our dataset.

Also, the evaluation methods exhibit frequent representatives with 'controlled experiment' (14 records; 26.9%) and 'field experiment' (11 records; 21.2%). All other evaluation methods – except for 'action research', 'formal proof', and 'survey' (0 record each) – are moderately used, regardless of the artifact type. However, it is notable that seven articles applied multiple evaluation methods (13.5%) and that the largest variety of evaluation methods was applied to the artifact type 'model' (7 methods out of the 11 defined).

Concluding, out of the four configuration parameters only 'scope' seems to be equally distributed. All other parameters seem to exhibit unequal distributions of their values. We were able to identify 25 unique configurations (out of 440 possible ones) within the 52 analyzed articles with one evaluation technique and 7 configurations with multiple or no evaluation. Since multi-evaluation can be considered in the publication schema context as a composition of the single evaluation techniques, we do not further consider these configurations. The most frequent configuration based on our analysis is: Generic | Model | Improvement | Field Experiment (4 records; 8.7%).

Table 5. DSR article frequency by DSR publication schema configurations (n = 52)

Key: ◔ = 1 record ◑ = 2 records ◕ = 3 records ● = 4 records ▭ = no record in row/column

			Action Research	*Case Study*	*Controlled Exp.*	*Expert Interview*	*Field Experiment*	*Focus Group*	*Formal Proof*	*Informed Arg.*	*Scenario*	*Simulation*	*Survey*	*Multi*	*None*
Generic	Construct	*Routine Design*													
		Exaptation								◔					
		Improvement													
	Model	*Routine Design*													
		Exaptation									◔			◔	◔
		Improvement			◕		●	◑				◔		◕	◔
	Method	*Routine Design*													
		Exaptation													
		Improvement		◕	◑		◑								◔
	Instant.	*Routine Design*					◔								
		Exaptation													
		Improvement			◔		◔					◔			
Domain-specific	Construct	*Routine Design*													
		Exaptation													
		Improvement													
	Model	*Routine Design*													
		Exaptation			◑										
		Improvement		◑		◑					◔	◔		◑	
	Method	*Routine Design*			◔										
		Exaptation													
		Improvement			◑										
	Instant.	*Routine Design*									◔				
		Exaptation					◔								
		Improvement			◕		◑					◔		◔	

Our analysis does not claim to deliver a complete and final list of the most common configurations; further analysis is needed for this purpose. However it clearly exhibits evidence that some configurations are more common than others and suggests that a considerable amount of configurations does not appear in DSR publications at all (and therefore has not to be covered by a publication schema).

Framework and Example for a Configurative DSR Publication Schema

The detailed construction of the configurative reference model for DSR publications is subject to future work. However, we illustrate the final artifact by describing the remaining design steps and by an example. The next step is the construction of the overall ("total") reference model including all potential elements. Gregor and Hevner's (2013) publication schema will serve as the starting point and each section will be stepwise refined. Such a comprehensive reference model does not support authors in certain publication situations and has to be adapted according to concrete configurations. Before the concrete adaptation operations can be defined, insight is needed if the configuration parameters have mutually independent impact on the reference model, e.g. if the adaptation operations for a certain artifact type and for a certain evaluation method can be conducted independently and in arbitrary order. In such a case the operations can also be specified for each value of each configuration parameter independently.

To answer this question additional empirical analysis should be conducted. A considerably larger set of DSR publications for finding the underlying configurations and potential dependencies between parameters could be analyzed by means of text mining and pre-defined word lists. The results would allow insights which elements of the total reference model a paper contains and in which order. As a side effect the analysis results can be used to verify the conclusions we made in Table 2. Besides these findings about common practices it will become obvious if and between which configuration parameters dependencies exist and which configurations are most common. Both results guide the subsequent design steps. Simply said, the higher and the more frequent the dependencies are the more you have to follow a "bottom up" approach by specifying the adaptation operations for (in an extreme case each single) potential configuration. In these cases the knowledge about frequencies of configurations helps to concentrate on the more common ones. If the dependency degree is zero only specifications of adaptation operations for each configuration parameter value are needed. The likely case of a mid-range dependency degree will probably result in a combined approach.

The following example (Table 6) illustrates two sample configurations: the first (left) one with the parameter values "Generic | Model | Improvement | Field Experiment" representing a very common configuration (cf. Table 5) and a second configuration (right) which exhibits different parameter values (Domain-specific | Method | Exaptation | Case Study). For better readability we have chosen a representation similar to tables of contents.

Table 6. Comparison of two exemplary DSR publication schemas (incl. information objects marked by '*')

<table>
<tr><th></th><th>Sample Configuration 1:
Generic | Model | Improvement | Field Experiment</th><th>Sample Configuration 2:
Domain-specific | Method | Exaptation | Case Study</th></tr>
<tr><td>1.</td><td>1. Introduction (cf. Minto 2009; Vaishnavi & Kuechler 2008)
* Situation & Problem Description
* Motivation/Relevance
* Research Goal & Questions
* Paper Structure</td><td>1. Introduction (cf. Minto 2009; Vaishnavi & Kuechler 2008)
* Situation & Problem Description
* Motivation/Relevance
* Research Goal & Questions
* Paper Structure</td></tr>
<tr><td>2.</td><td>2. Literature Review (cf. Huff, 2009)
* Overview about State of the Art
* References Used
* Findings & Implications</td><td>2. Literature Review (cf. Huff, 2009)
2.1. Domain-Specific Overview about State of the Art
* References Used
2.2. Overview about State of the Art of Generic Discipline
* References Used
2.3. Existing Artifact (used for exaptation)
* References Used
2.4. Findings & Implications</td></tr>
<tr><td>3.</td><td>3. Method (cf. Gregor and Hevner 2013)
3.1. Justification of DSR usage
3.2. Method for Model Design
3.3. Field Experiment Planned</td><td>3. Method (cf. Gregor and Hevner 2013)
3.1. Justification of DSR usage
3.2. Method for Method Design
3.3. Case Study Planned</td></tr>
<tr><td>4.</td><td>4. Artifact Description (Model) (cf. Fettke 2009)
* Notation (Constructs) used for Description
* Description of Model</td><td>4. Artifact Description (Method) (cf. Bucher & Dinter, 2012)
4.1. Results/Deliverables
4.2. Activities
4.3. Techniques
4.4. Roles</td></tr>
<tr><td>5.</td><td>5. Evaluation (Field Experiment) (cf. Mettler et al. 2014; Siau and Rossi 2007)
5.1. Description of the Setting
5.2. Independent & Dependent Variables
5.3. Observations
5.4. Conclusion & Implications</td><td>5. Evaluation (Case Study) (cf. Yin, 2009)
5.1. Issue or Problem Studied
5.2. Used Methods for Data Collection
5.3. Findings from the Data Collected and Analyzed
5.4. Conclusion & Implications</td></tr>
<tr><td>6.</td><td>6. Discussion (cf. Gregor and Hevner 2013)
* Why is the Designed Model an Improvement?
* Limitations of Work</td><td>6. Discussion (cf. Gregor and Hevner 2013)
* Domain-specific Method Elements
* Why is the Designed Method an Improvement?
* Limitations of Work</td></tr>
<tr><td>7.</td><td>7. Conclusion (cf. Gregor and Hevner 2013)
* Summarized Findings
* Further Work</td><td>7. Conclusion (cf. Gregor and Hevner 2013)
* Summarized Findings
* Further Work</td></tr>
</table>

The publication schema in (Gregor and Hevner 2013) has served as the starting point and each section has been stepwise refined. Comparing both publication schemas exhibits differences in the inclusion of subsections, in the headings, the order, and the information objects. Furthermore, the example illustrates how existing specific literature for certain parameter values (e.g. for the artifact type 'method' or for the evaluation method 'case study') can help to define the adaptation operations. The subsections and the information objects (marked by '*') can be stepwise specified and refined by several options, such as a continuous and joint effort by the research community in a Wiki-like approach, by consolidating best practices in previous DSR publications, and/or by integrating dedicated methodologies from IS research (e.g. for certain evaluation techniques).

Conclusion, Limitations, and Further Work

Motivated by the need for situational guidance for DSR publishing the paper at hand presents an approach how to construct such a configurative publication schema. The identification of configuration parameters and of (common) configurations helps to frame the final artifact. Besides the aforementioned next steps future major tasks will be the selection of an appropriate notation for the reference model and for the adaptation operations. To find the best way how to handle potential dependencies of configuration parameters efficiently, will also be challenging. However, in accordance with Gregor and Hevner (2013), Dwivedi et al. (2014), Goes (2014), and van Aken (2014) we are confident that the resulting configurative DSR publication schema constitutes true value for the DSR community. Nevertheless, since DSR is all about innovation and creativity, such a publication schema should always be considered and used as guidance and not as prescription.

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