Online Appendix: Complete information about the reviewed studies

Paper #	Article title	Author(s)	Year	Source title	Project Size	Project partners
1	CyberGate: A Design Framework and System for Text Analysis of Computer-Mediated Communication	Abbasi, Ahmed; Chen, Hsinchun	2008	MISQ	Medium	No project partners are explicitly mentioned.
2	Making Sense of Technology Trends in the Information Technology Landscape: A Design Science Approach	Adomavicius, Gediminas; Bockstedt, Jesse C.; Gupta, Alok; Kauffman, Robert J.	2008	MISQ	Small	Two cases are described. Twelve semi-structured interviews with IT industry experts took place.
3	Process Gramma as a Tool for Business process Design	Lee, Jintae; Wyner, George M.; Pentland, Brian T.	2008	MISQ	Small	No project partners are explicitly mentioned.
4	The Design Theory Nexus	Pries-Heje, Jan; Baskerville, Richard	2008	MISQ	Medium to large	Seven project partners participated, hereof four larger firms in the financial services sector.
5	Using Cognitive Principles to Guide Classification in Information Systems Modeling	Parsons, Jeffrey; Wand, Yair	2008	MISQ	Small	Ten modelling and domain experts from different organisations participated in the evaluation.
6	Knowing What a User Likes: A Design Science Approach to Interfaces that Automatically Adapt to Culture	Reinecke, Katharina; Bernstein, Abraham	2013	MISQ	Medium	No project partners are explicitly mentioned. Survey participants were recruited at the University of Bangkok, the National University of Rwanda and the University of Zürich.
7	Bridging the Gap between Decision-making and Emerging Big Data Sources: An Application of a Model-based Framework to Disaster Management in Brazil	Horita, Flávio E.A.; de Albuquerque, João Porto; Marchezini, Victor; Mendiondo, Eduardo M.	2017	DSS	Medium	National Center for Disaster Risk Management in Brazil
8	Counterfeit product detection: Bridging the gap between design science and behavioural science in information systems research	Wimmer, Hayden; Yoon, Victoria Y.	2017	DSS	Medium	No project partners are explicitly mentioned. The evaluation was done relying on Amazon Mechanical Turk with 283 data observations.
9	A permissioned blockchain-based implementation of LMSR prediction markets	Carvalho, Arthur	2019	DSS	Small	No project partners are explicitly mentioned.
10	Operationalizing regulatory focus in the digital age: Evidence from an e-commerce context	Wu, Ji; Huang, Liqiang; Zhao, J. Leon	2019	MISQ	Small	An online retail store provided the data. Questionnaires were sent out to customers for evaluation purposes and econometric analysis.

Table 6 General information about reviewed papers and described DSR project characteristics

Paper #	Overall Research Questions	Research sub-question 1	Research sub-question 2	Research sub-question 3	Research sub-question 4	Primary application domain	Primary knowledge base
1	How can patterns be detected in CMC text messages?	How can CMC text analysis systems be designed which support various information types found in message text?	How and which text features should be select?	Which visualization techniques should be employed?		Computer-mediated communication systems	Communications research
2	How can information be structured for improving information technology investment decisions by using tools to aid IT decision makers in identifying, analyzing, and predicting trends in the IT landscape?	How can the IT landscape and trends in IT be formally identified?	How can information about the IT landscape and trends in IT be visualized?			Information technology management (in particular information technology investment decisions, examples refer to digital music & Wi-Fi technology)	IT Investments
3	How can process designers be supported to design process model alternatives by using process grammars?	How can process model alternatives be generated using process grammars?	How can irrelevant process model variants be filtered out?			Business process design (example refers to a sales process)	Grammar-based design
4	How can the design of problem-solving approaches be improved where several highly dissimilar competing approaches exist?	How can alternative highly dissimilar competing solutions be identified?	How can the fit of alternative approaches be determined?			Decision making processes for wicked problems (examples refer to (a) choice of alternative change management approaches and (b) user involvement approaches)	Multiple criteria decision making of wicked problems
5	How can classifications be made effectively and efficiently?	How can the choice of classes in a collection be limited to those that are useful?				System modelling and software development	Conceptual modelling
6	How can user interfaces be personalized in a comprehensive manner by considering a user's cultural backgrounds?	How can a user's cultural background be analysed by not just relying on user's location?	How can interfaces be adapted to cater for users of any national culture, as well as to users who have been influenced by several different national cultures?	How well can a culturally adaptive system such as MOCCA predict user interface preferences by knowing only a person's (extended) national culture?	Can UI preferences be clustered by culture?	Webpage design and user interfaces	Cultural classification

7	How can the decision-makers' tasks be connected to emerging big data sources?	How can data sources be integrated into modelling notations?	How can information be obtained about conceptual elements from decision-makers of the application context?	How can guidance be provided for the modelling of business decisions or the relationship between decisions and data sources?		Natural Disaster Management in Brazil	Business Process Management
8	How can the consumer's decision-making process be improved by identifying counterfeit goods based on consumer product reviews?	How can CDS be designed for online marketplaces?	How can CDS be integrated into consumer's decision-making process?	Does a CDS improve a consumer's decision making?		E-commerce platforms (example refers to Amazon)	Online product authentication
9	How can the availability, security, and privacy problems in LMSR be overcome?	Why and how can be a prediction market model be implemented using permissioned blockchains?	How can DSR be used to develop blockchain models?	How can modern tools to model and evaluate permissioned blockchains be used?		Prediction markets	Blockchain Technology
10	Is the effect of participation in a customer brand community on purchase behavior contingent on the customer's regulatory focus?	Which online brand community participation has a positive impact on the purchase frequency of promotion-focused customers but a negative impact on the purchase frequency of prevention-focused customers?				E-commerce platforms (example refers to an Asian proprietary e-commerce platform and forum)	Regulatory focus theory and econometrics

Table 7 Identified overall and sub-research questions, primary application domains and knowledge bases

Paper #	Artifact #	Artifact description	Artifact type	Application domain (1,y,z)			Knowledge base (2,y,z)				Research question (x,y,Z)		
				I (1,1,z)	S (1,2,z)	U (1,3,z)	I (2,1,z)	S (2,2,z)	U (2,3,z)	RQ 1 (x,y,1)	RQ 2 (x,y,2)	RQ 3 (x,y,3)	RQ 4 (x,y,4)
1	1	Design framework for CMC text analysis systems (Fig. 1.)	Model	0	0	0	0	1	0	1	1	0	
	2	CyberGate system software prototype	Instantiation	0	0	1	0	0	0	1	0	0	
	3	Visualizations for write prints, parallel coordinates, radar charts, and MDS plots	Instantiation	0	0	1	0	0	0	0	0	1	
	4	Write prints process (Fig. 6.)	Method	0	0	0	0	1	0	0	0	1	
	5	Ink blots process (Fig. 7.)	Method	0	0	0	0	1	0	0	0	1	
2	1	Model for representing relationships between IT components, products, and infrastructure (Tab. 1., Fig. 1. & 2.)	Model	0	0	0	0	1	0	0	1		
	2	Method for identifying and representing patterns of technology evolution (Tab. 3.)	Method	0	0	0	0	1	1	1	0		
	3	Patterns of digital music technology evolution (Fig. 3.) and digital music technology graph-based state diagram (Fig. 4.)	Instantiation	0	1	0	0	0	0	1	1		
	4	State diagram for 802.11b and 802.11g generations and WPA1 and WPA2 generations (Fig. 9 and 10.)	Instantiation	0	1	0	0	0	0	1	1		
3	1	Method for building a process grammar	Method	0	0	0	0	1	0	1	0		
	2	Method for using and exploring a process grammar for process design	Method	0	0	0	0	1	0	0	1		
	3	Gramma editor (Fig. 1. and 2.)	Instantiation	0	0	1	0	0	0	1	0		
	4	Process explorer	Instantiation	0	0	1	0	0	0	0	1		
4	1	General method for constructing a design theory nexus	Method	0	0	0	0	1	1	1	1		
	2	General design theory nexus (Fig. 2.) including goals, environment, alternative design theories, and design solutions	Model	0	0	0	0	1	1	1	0		
	3	Design theory nexus instantiation and spreadsheet tool	Instantiation	1	1	1	0	0	0	1	0		
	4	Instantiation of nexus design theory for strategic change (Fig. 4.)	Instantiation	0	1	0	0	0	0	1	1		
5	1	Model of good classification structures	Model	1	1	0	1	1	0	1			
	2	Classification principles to develop and formalize a model and rules for constructing good classes (method for constructing structures)	Method	1	1	0	1	1	0	1			
	3	Partial conceptual schema following classification rules (Fig. 2)	Instantiation	1	0	0	0	0	0	1			

6	1	Cultural user model ontology (Fig. 2)	Model	0	0	0	0	1	1	1	0	0	0
	2	Algorithm to approximate a person's cultural background (Eq. 1 -2)	Method	0	0	0	0	1	0	1	0	0	0
	3	User interface adaptation rules	Method	0	1	0	0	1	0	0	1	1	0
	4	MOCCA's adaptation possibilities (Tab. 3.)	Instantiation	0	1	0	0	0	0	0	1	1	0
	5	User interface adaptation ontology (Fig. A1.)	Model	0	0	0	0	1	0	0	1	1	0
	6	Web application prototype for a culturally adaptive system	Instantiation	0	0	1	0	0	0	0	1	1	1
	7	Technical Implementation of MOCCA (Fig. B1.)	Model	1	0	0	0	0	0	0	0	1	1
7	1	Extended model and notation (oDMN+ metamodel) (Fig. 2.)	Model	0	0	0	0	1	0	1	0	0	
	2	Modelling process (Fig.3)	Method	0	1	0	0	1	0	0	0	1	
	3	Instantiation for a procurement process (Fig. 1.)	Instantiation	0	1	0	0	0	0	0	1	1	
	4	Instantiation for a disaster management (Fig. 5. - 6.)	Instantiation	0	1	0	0	0	0	0	1	1	
8	1	Online counterfeit detection score (OnCDS) consisting of five components	Instantiation	0	1	0	0	0	0	1	0	0	
	2	Behavioral research model / PLS-SEM (Fig. 1. & 5.)	Model	0	0	0	0	0	1	0	0	1	
	3	OnCDS system architecture (Fig. 2.)	Model	0	1	0	0	0	0	1	0	0	
	4	Conceptualization of counterfeit score (Eq. 1 -4)	Construct	0	0	0	0	1	0	1	0	0	
	5	Browser add-on	Instantiation	0	0	1	0	0	0	1	0	0	
	6	Conceptualization of counterfeit score display (Fig. 4.)	Model	0	0	1	0	0	0	0	1	0	
9	1	Prediction Market Model	Model	0	1	0	0	0	0	0	0	1	
	2	Business network model for LMSR (Fig. 2.)	Construct	1	0	0	0	0	0	1	0	0	
	3	Permission rules (Fig. 3.-5.)	Construct	1	0	0	0	0	0	1	0	0	
	4	Java script code for the transactions (Appendix)	Method	0	1	0	0	0	0	1	0	0	
	5	Hyperledger Composer playground (Fig. 6. & 13.- 14.)	Instantiation	0	0	1	0	0	0	1	0	1	
	6	BNA files	Instantiation	1	1	0	0	0	0	0	0	1	
	7	JSON data files (Fig. 7-12.)	Instantiation	1	0	0	0	0	0	0	0	1	
10	1	Regulatory Focus Discovery (Fig. 1.)	Method	0	1	1	0	0	1	1			
	2	Review intensity variable	Construct	0	1	0	0	1	0	1			

Table 8 Description of identified artifacts, artifact types, and coding to related research segments[1,2]

[1] Table 8 illustrates how the different artifacts identified in a specific study relate to the different segments that are part of the instantiated segmentation framework for each study. It was necessary to transform the three-dimensional structure of the framework into a two-dimensional table for making the relationships printable. The table has ten rows that are used for mapping. The values in the fields of these rows signify whether an artifact relates to a segment (1) or not (0). The first three mapping rows represent the application domain segments; the next three rows represent the knowledgebase segments. Each of the three individual rows for the application domain, and the knowledge base segment respectively, represent the infrastructure, system, and user level segments. The last for rows indicate to which research question segments an artifact relates to. The first artifact identified in paper #1, for example, relates to the segments (2,2,1) and (2,2,2). Figure 5 provides a three-dimensional graphical visualization for paper #6 for the two-dimensional mapping shown in Table 8.

[2] I=Infrastructure-level, S=System-level, U=Usage-level, RQ=Research question