Appendix A

Appendix A should be considered as one table. However, due to limit space the table is broken down into three separate tables. The “Paper #”column binds the data points to the given paper. Further, above each of the table are few abbreviations explained to read the table.

Not available = N/A

No direct information. Assumed the authors = N/I

Paper #	Article title	Author(s)	Year	Source title	Category	Research group size	Project partners	Duration	Budget	Funding	Output	Application domain	Primary Knowledge Base
1	CyberGate: A Design Framework and System for Text Analysis of Computer-Mediated Communication	Abbasi, Ahmed; Chen, Hsinchun	2008	MISQ	Medium	N/I	no project partners mentioned neither for analysis nor for evaluation	N/A	N/A	N/A	5 artifacts (including software prototype)	Computer-mediated communication systems	Communications research
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	N/I	Two case studies (but without project partners) plus semi-structured interview with 12 IT industry experts	N/A	N/A	N/A	4 artifacts (no software prototype)	Information technology management (in particular information technology investment decisions) (Examples: Digital music & Wi-Fi Technology)	IT Investment
3	Process Gramma as a Tool for Business process Design	Lee, Jintae; Wyner, George M.;Pentland, Brian T.	2008	MISQ	Small	N/I	no project partners mentioned neither for analysis nor for evaluation	N/A	N/A	N/A	4 artifacts (including software prototype)	Business process design (example: sales process)	Grammar-based design
4	The Design Theory Nexus	Pries-Heje, Jan; Richard Baskerville	2008	MISQ	Medium to large	N/I	Several, the number of companies is rather unclear. At one point the text says four larger organizations in the financial sector, then it talks of three additional companies	3 years	USD 5 mil.	Clients and university	4 artifacts (no software prototype just spreadsheet tool)	Decision making processes for wicked problems (examples: - choice of alternative change management approaches - user involvement approaches)	Multiple criteria decision making of wicked problems
5			2008	MISQ	Small	N/I		N/A	N/A	N/A			Conceptual modelling

	Using cognitive principles to guide classification in information systems modelling	Parsons, Jeffrey ;Wand, Yair					No information, evaluation took place with 10 modelling and domain experts from different organisations				3 artifacts (no software prototype)	Systems modelling / Software engineering (Model for characterizing what may be considered useful classes in a given context based on the inferences that can be drawn from membership in a class. e.g. for requirement specifications for IT systems.)	
6	Knowing What a User Likes: A Design Science Approach to Interfaces that Automatically Adapt to Culture	Reinecke, Katharina; Bernstein, Abraham	2013	MISQ	Medium	N/I	No partners mentioned. However, survey participants are recruited at University of Bangkok, National University of Rwanda and University of Zürich.	N/A	N/A	N/A	7 (5) artifacts (including software prototype)	Webpage design and user interfaces (example: to-do list web application)	Cultural classification
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	N/I	National Center for Disaster Risk Management in Brazil	Data collection in Jan and Feb 2016	N/A	N/A	4 artifacts (no software prototype)	Natural Disaster Management in Brazil	Business Process Management
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	N/I	No information; evaluation through Amazon M Turk, 283 data observations. Don't know if data obs. equals number of participants	N/A	N/A	N/A	7 artifacts (including software prototype)	E-commerce platforms (example: Amazon)	Online product authentication

9	A permissioned blockchain-based implementation of LMSR prediction markets	Carvalho, Arthur	2019	DSS	Small	N/I	No information, evaluation just covered the technical functionality but not usefulness	N/A	N/A	N/A	2 main artifacts with several subcomponents (including software prototype)	Prediction markets	Blockchain Technology

10	Operationalizing regulatory focus in the digital age: Evidence from an e-commerce context	Wu, Ji; Huang, Liqiang; Zhao, J. Leon	2019	MISQ	Small	N/I	Online retail store that provided the data, evaluation via questionnaires sent out to customers econometric analysis	N/A	N/A	Partially supported by research grants from National Natural Science Foundation of China, Research Grants Council of Hong Kong, m City University of Hong Kong	Just one artifact, the text mentions also an IT artifact, but this is not further explained	E-commerce platforms (example: Asia proprietary e-commerce platform and forum)	Regulatory focus theory (RFT) Econometrics

I=Infrastructure-level, S=System-level, U=Usage-level, AD=Application domain, KB=Knowledge base

Paper #	Artifact #	Artifact name/description	Artifact type	Level1	Level2	Level3	I	S	U	AD	KB
1	1	Design framework for CMC text analysis systems (Fig. 1. CyberGate System Design)	Model		1			1			1
	2	CyberGate System (software prototype)	Instantiation	1					1	1	
	3	Visualizations (write prints (a), parallel coordinates (b), radar charts(c) MDS plots (d))	Instantiation	1					1	1	
	4	Write prints Process (Fig. 6.)	Method		1			1			1
	5	Ink Blots process (Fig. 7.)	Method		1			1			1
2	1	Model for representing relationships between IT components, products, and infrastructure (Tab. 1., Fig. 1. & 2.)	Model		1			1			1
	2	Method for identifying and representing patterns of technology evolution (Tab. 3.)	Method		1			1	1		1
	3	Patterns of digital music technology evolution (Fig. 3.) and Digital music technology graph-based state diagram (Fig. 4.)	Instantiation	1				1		1	
	4	State Diagram for 802.11b and 802.11g generations and WPA1 and WPA2 generations (Fig. 9 & 10:)	Instantiation	1				1		1	
3	1	Method 1: Building a Process Grammar	Method		1			1			1
	2	Method 2: Using / exploring a Process Grammar for Process Design	Method		1			1			1
	3	Gramma editor (Fig. 1. and 2.)	Instantiation	1					1	1	
	4	Process explorer	Instantiation	1					1	1	
4	1	General method for constructing a design theory nexus	Method		1			1	1		1
	2	General design theory nexus (Fig. 2.) (including goals, environment, alternative design theories, design solutions)	Model		1			1	1		1
	3	Design theory nexus instantiation / tool (spreadsheet)	Instantiation	1			1	1	1	1	
	4	Figure 4. The Strategic Change Nexus Design Theory	Instantiation	1				1		1	
5	1	Model of good classification structures	Model		1		1	1		1	1
	2	Classification principles to develop and formalize a model and rules for constructing good classes (method for constructing structures)	Method		1		1	1		1	1
	3	Partial Conceptual Schema following Classification Rules (Fig. 2)	Instantiation	1			1			1	
6	1	Cultural user model ontology (Fig. 2) (artifact 1)	Model		1			1	1		1
	2	Algorithm to approximate a person's cultural background (Eq. 1 -2) (artifact 2)	Method		1			1			1
	3	User interface adaptation rules (artifact 3)	Method		1			1		1	1

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

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

		Application domain (1,y,z)			**Knowledge base (2,y,z)**			**Research question (x,y,Z)**				**Research questions**				
Pa-per #	Arti-fact #	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)	General RQ	RQ 1	RQ 2	RQ 3	RQ 4

1	1	0	0	0	0	1	0	1	1	0		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?	
	2	0	0	1	0	0	0	1	0	0						
	3	0	0	1	0	0	0	0	0	1						
	4	0	0	0	0	1	0	0	0	1						
	5	0	0	0	0	1	0	0	0	1						
2	1	0	0	0	0	1	0	0	1			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?		
	2	0	0	0	0	1	1	1	0							
	3	0	1	0	0	0	0	1	1							
	4	0	1	0	0	0	0	1	1							
3	1	0	0	0	0	1	0	1	0			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?		
	2	0	0	0	0	1	0	0	1							
	3	0	0	1	0	0	0	1	0							
	4	0	0	1	0	0	0	0	1							
4	1	0	0	0	0	1	1	1	1			How can the design of problem-solving approaches be improved where a number of highly-dissimilar competing approaches exist?	How can alternative highly-dissimilar competing solutions be identified?	How can the fit of alternative approaches be determined?		
	2	0	0	0	0	1	1	1	0							
	3	1	1	1	0	0	0	1	0							
	4	0	1	0	0	0	0	1	1							
5	1	1	1	0	1	1	0	1				How can classifications be made effectively and efficiently?	How can the choice of classes in a collection be limited to those that are useful?			
	2	1	1	0	1	1	0	1								
	3	1	0	0	0	0	0	1								
6	1	0	0	0	0	1	1	1	0	0	0	How can user interfaces be personalized in a comprehensive manner by taking into account a user's cultural backgrounds?	How can a user's cultural background be analyzed 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	How well can a culturally adaptive system such as MOCCA	Can UI preferences be clustered by culture?
	2	0	0	0	0	1	0	1	0	0	0					
	3	0	1	0	0	1	0	0	1	1	0					
	4	0	1	0	0	0	0	0	1	1	0					
	5	0	0	0	0	1	0	0	1	1	0					
	6	0	0	1	0	0	0	0	1	1	1					

	7	1	0	0	0	0	0	0	0	1	1			have been influenced by several different national cultures?	predict user interface preferences by knowing only a person's (extended) national culture?	
7	1	0	0	0	0	1	0	1	0	0		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 modeling of business decisions or the relationship between decisions and data sources?	
	2	0	1	0	0	1	0	0	0	1						
	3	0	1	0	0	0	0	0	1	1						
	4	0	1	0	0	0	0	0	1	1						
8	1	0	1	0	0	0	0	1	0	0		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 market places?	How can CDS be integrated into consumer's decision making process?	Does a CDS improve a consumers decision making?	
	2	0	0	0	0	0	1	0	0	1						
	3	0	1	0	0	0	0	1	0	0						
	4	0	0	0	0	1	0	1	0	0						
	5	0	0	1	0	0	0	1	0	0						
	6	0	0	1	0	0	0	0	1	0						
9	1	0	1	0	0	0	0	0	0	1		How can the availability, security and privacy problems in LMSR be overcome?	Why and how can be a prediction market	How can DSR be used to develop	How can modern tools to model	
	1a	1	0	0	0	0	0	1	0	0						
	1b	1	0	0	0	0	0	1	0	0						

	1c	0	1	0	0	0	0	1	0	0			model be implemented using permissioned blockchains?	blockchain models?	and evaluate permissioned blockchains be used?	
	2a	0	0	1	0	0	0	1	0	1						
	2b	1	1	0	0	0	0	0	0	1						
	2c	1	0	0	0	0	0	0	0	1						
10	1	0	1	1	0	0	1	1				What is the effect of participation in a customer brand community on purchase behavior is 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?			
	2	0	1	0	0	1	0	1								