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USING FACET THEORY TO REVIEW THE IS SUCCESS LITERATURE

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Research in Progress

Abstract

This literature review study aimed at examining papers covering the IS Success research dom employing Facet Theory and its mapping tools. Facet Theory uses mapping sentences composed facets that together represent all the plausible values of a universe or construct content.

Forty three papers chosen by eight researchers were analyzed for similarity based on constru included in their research models. In addition, constructs were coded for their relevance to the implementation timeline: before, during, after, and at maturity. In addition each paper was assigne code calculated as the average position of its model constructs in the IS timeline.

A simple exemplary mapping sentence was employed, based on the papers timeline index, and it w hypothesized that the IS timeline facet will demonstrate the axial topology.

The results supported the hypothesis, showing that when ordered by their position in the IS timeli papers are mapped employing an axial topology. It also showed that more papers focus on earl stages of IS implementation rather than on the more mature stages. Furthermore, the SSA m obtained by the construct similarity index S_{ab} allowed identification of primary IS Success resea areas and lacunas. Being a Research in Progress, more work is under way, yet this work in progr has already demonstrated that Facet Theory can serve as an adequate yet not commonly use literat review and literature meta-analysis tool.

Keywords: IS Success, Literature review, Meta-analysis, Facet theory

1. INTRODUCTION

An extensive body of knowledge about IS success was published since IS was installed organizations as early as the 1960s (Garrity, 1963), and a meta-analysis of these papers was publisl twenty years later by Ein-Dor and Segev (Ein-Dor & Segev, 1981), aimed at phrasing and support propositions using findings of previous research. The constructs in Ein-dor and Segev's meta-analy were classified and discussed by their topic of reference, for example MIS environment, target M etc. The insights gained from this meta-analysis paved the way to one of the most highly cited mod the IS Success Model (DeLone & McLean, 1992).

As far as we know, no additional meta-analysis has been published during the thirty years elap since, hence in the light of the many additional papers dealing with IS success, there is merit conducting an updated meta-analysis of the IS success state of research.

This research in progress draws upon the Facet Theory to analyze the IS success state of work.

2. THEORETICAL BACKGROUND

2.1. Facet Theory

Facet Theory was introduced by Luis Guttman in the second half of the 20th century (Guttman 195 Since its introduction, Facet Theory was used in various research domains such as psycholo sociology, economy (Cohen, 2004). In the IS research, however, Facet Theory has not been wid used, as only one paper (Paul & McDaniel Jr, 2004) was allocated that used facet theory.

Facet theory is a method to define contents of constructs or a universe, by representing it a collection of variables via a mapping sentence (Dancer, 1990; Borg & Shye, 1995). For example construct 'position towards IS' can be defined as in mapping sentence (1):

	A. Modality				
	{1.Cognitive	}		{very positive	}	
User (x) has	{2.Affective	}	position ranges from →	{ :	}	towards IS
	{3.Instrumental	}		{very negative	}	

Figure 1: Mapping sentence (1)

The mapping sentence is composed of three parts 1) the unit of analysis (e.g. user (x)), 2) cont facets (e.g. Modality), and 3) The range facet (e.g. very positive to very negative). Exempl constructs belonging to the Modality facet are brought in Table 1, with the actual modality va assigned to each one (cognitive, affective or instrumental).

Constructs	Content profile according to facet A	Content profile symbol
Perceived Usefulness	Cognitive	A1
Perceived Ease of use	Cognitive	A1
Trust	Affective	A2
Use	Instrumental	A3

Table 1: Examples of constructs representing Modality

The content universe and the corresponding mapping sentence can be enhanced by adding cont facets for example: "with regard to whom" as shown in mapping sentence (2):

	A. Modality		B. In regards to					
User	{1.Cognitive	}	{1.Him/herself	}		{very positive	}	
(x) has	{2.Affective	}	{2.The team	}	position ranges	{ :	}	Towards IS
	{3.Instrumental	}	{3.Organization	}		{very negative	}	

Figure 2: Mapping sentence (2)

The definition can be also enhanced by adding elements to a facet for example 'Society' as a fou element in facet B. Thus the mapping sentence describes all the possible content values of a u position towards IS. For example, perceived usefulness is a cognitive modality of a user which he she can apply to him or herself, to the team or to the organization. The number of plausible val composing the content universe of the concept 'position towards IS' is therefore a Cartes multiplication of the values in facets A and B. Each product can possess a value from 'very positive 'very negative'. For example, a user can perceive a specific IS useful to the organization hence ass the item 'perceived usefulness' X 'for the organization' the 'very positive' value. However, this sa user can perceive low usefulness of the IS to himself, thereby assign the value 'quite negative' to item 'perceived usefulness' X 'for him/herself'.

2.2. SSA

Every facet in Facet Theory has a topology (Dancer, 1990), based on the theory underlying specific topic, and many prior empirical confirmations of similar facets. The topology, often tern 'role' of the facet in Facet Theory, reflects the arrangement an SSA procedure sorts items on a pl based on their correlation. SSA calculates the distance Dij between entities i and j according to rule: For each two pairs of entities i, j and k, l; Rij > Rkl →Dij < Dkl where Rij is the correlat coefficient between entities i and j, and Dij is the distance between entities i and j on the plane. other words, the higher is the correlation between two items, the closer they are placed on the plane.

Facet A in mapping sentence (2) can be visualized as having angular characteristics, sometimes cal polar. The reason is that cognitive, affective, and instrumental behavior motivations are th distinctive motivations, therefore the correlations among variables derived from the same motivat will be high, yet low otherwise. It is hypothesized that variables representing these three behav motivations will be mapped as shown in Figure 3.

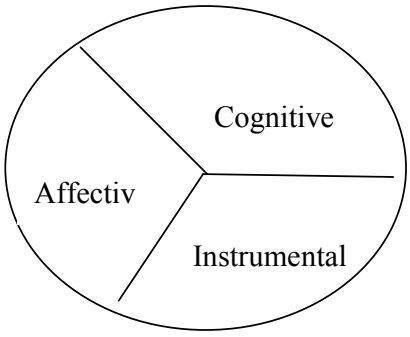

Figure 3: SSA results of an angular or polar facet

Facet B in mapping sentence (2) could be hypothesized as having a circular characteristic (sometir called modular) (Dancer, 1990). The reason is that when a participant is asked about his/her o behavior, the distinction between two variables is high because a participant is more aware of nuan

in his/her own behavior. In contrast, when a participant is asked about the organization as a whole distinction between two variables is low, since the participant is not fully aware of nuances betw variables as perceived by the organization. Therefore, it is expected that items stemming from s behavior will be less correlated, hence more sparsely spread on the map, whereas items stemm from organizational behavior will be more correlated therefore mapped closer to each other. Th distinctions should result in a SSA mapping similar to Figure 4.

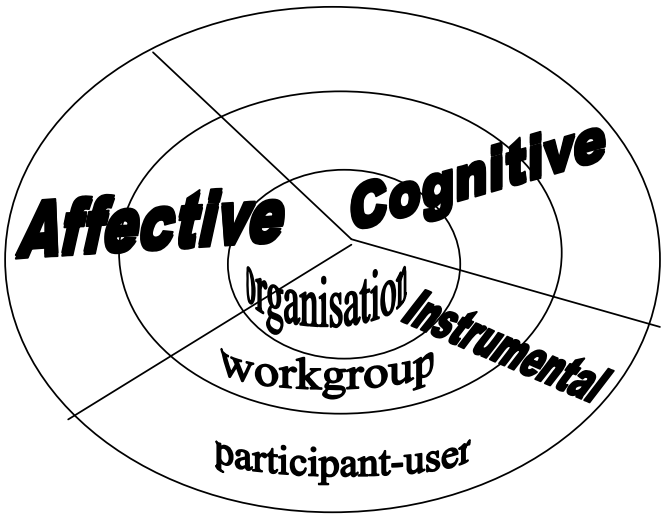

Figure 4: SSA results for a circular facet

A facet can have an axial characteristic (Dancer, 1990), when there is an order among the fac elements, for example temporal order. An axial facet will be mapped by SSA as in Figure 5.

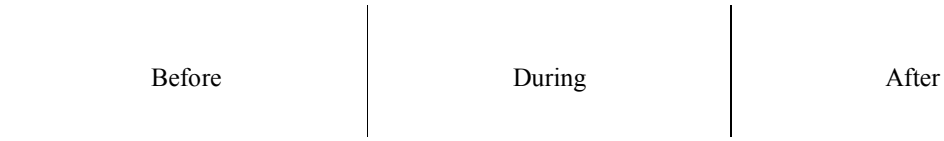

Figure 5: SSA results of an axial facet

Partition lines are drawn on a SSA map using the FSSA tool. FSSA employs a minimal loss functio procedure to draw the partition line, which attempts to minimize the distance between entities place out of their hypothesized region and the closest partition line of their hypothesized region . Thus,

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FSSA minimizes the loss function $\sum_{1}^{k} d(i, partition\_line)$, where d is the distance between entity placed outside its hypothesized region, and the partition line. The procedure then calculates a normalized partitioning index where 0 means no successful partitioning and 1 means perfect partitioning (Borg & Shye, 1995).

In this study we employ Facet Theory as the tool to analyze IS Success research published during last thirty years. It is proposed that the SSA-generated maps can highlight patterns, similarit differences, and lacunas in the extant IS Success literature.

3. RESEARCH METHOD

3.1. Selecting the papers

Papers for the meta-analysis where selected from three sources; 1) ISWorld Research pa summarizing IS Success theories (http://www.fsc.yorku.ca/york/istheory/wiki/index.php/Main_Pag All papers listed under IS Success were selected. 2) ISWorld Research page summarizing Effectiveness (http://business.clemson.edu/ISE). Papers listed under this research topic that inclu IS Success were selected, 3) Google Scholar was searched using the keywords: IS Success, IS Use, Impact, information system, OR system, OR IS .Papers appearing in multiple locations were selec only once. Only journal papers where the full text was available to the researchers were select resulting in 98 papers.

3.2. The mapping process

Eight IS researchers were asked to review the list of 98 papers and select all papers they were fami with. This procedure was employed as a preliminary step aimed at trying out the procedure o reduced, yet highly recognized set of papers. 43 papers were selected by the researchers, and usec this study (Appendix 1). Future analyses will include all the retrieved papers.

Mapping using SSA

The papers selected by the volunteer researchers were analyzed using the SSA tool. The criterion the first mapping was paper similarity based on the number of constructs they shared (see descript next). This criterion was used as a proxy for the papers' correlation matrix required by the S procedure, where the more constructs shared by two papers, the more similar they are hence the hig their similarity coefficient ('correlation').

The second paper mapping approach was based on the research model's IS timeline value. Each pa was assigned a value designating where its research model constructs belonged regarding the timeline: before implementation, during implementation, after implementation, or at its maturity. T two procedures employed for calculating the similarity coefficient used for the first mapping, and timeline index used for the second, are described hereafter.

3.3. Calculating papers' similarity ('correlation')

For each two papers a and b, a 'similarity coefficient' S_{ab} has been computed, using formula (3):

$$Sab = \frac{n1 + n2}{2} \qquad (3)$$

where n1 is the number of identical constructs used in both papers a and b, divided by all constru used in paper a, and n2 is the number of identical constructs used in both papers a and b divided by constructs used in paper b.

Properties of S_{ab}:

1) $0<S_{ab}<1$ 2) $S_{ab}=1$ when all the constructs in paper a are in paper b and vice versa,

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3) $S_{aa}=1$ $\forall a$, 4) $S_{ab}=S_{ba}$ $\forall a,b$.

Hence S_{ab} is an adequate proxy for the correlation between two papers because its properties resem those of a positive correlation coefficient.

3.4. Calculating a paper's position on the IS timeline

Constructs found in the 43 selected papers were classified by the phase in the IS timeline tl belonged to: before implementation (1), during implementation (2), after implementation (3), anc maturity (4). Appendix 2 lists the constructs found in the mapped papers and the phase they belong in the IS timeline.

The value assigned to each research model in the chosen papers was calculated as the average of values of its constructs. For example, TAM, comprised of Perceived usefulness, Perceived Ease Use, Intention to Use, and Use, would be assigned the value (1+1+1+2)/4= 1.25. Papers were then coded into four groups (1, 2, 3, 4) employing distribution optimization method aimed at creat groups that are similar in size while maintaining the timeline value logic. Thus, papers assigned value 1 were re-coded 1, 1-1.5 →2, 1.5-2→3, 2-4→4. Appendix 2 lists the constructs found in the papers and their IS timeline classification (before, during, after, and at maturity of implementation). Appendix 1 presents the list of papers, their constructs, their positioning in the timeline, and their recoded index (1 to 4). Appendix 3 lists the constructs' frequency in the 43 papers

3.5. Mapping sentence and hypotheses

The following mapping sentence (4) was used for the papers mapped according to the timel position criterion:

	A. IS timeline			
Paper (x) is	{ 1.Before implementation	}		
positioned in	{ 2.During implementation	}	the variance explained in the dependent	{very high
the IS timeline	{ 3.After implementation	}	variable ranges from	{ :
	{ 4.At maturity	}	→	{very low

Figure 6: Mapping sentence (4)

The following hypothesis pertains to the characteristics of mapping sentence (4):

H1: Facet A is axial therefore the SSA map of sentence (4) will look like Figure 7:

Time line	Before implementation (1)	During implementation (2)	After implementation (3)	At maturity (4)
Papers	Papers assigned the value 1	Papers assigned the value 2	Papers assigned the value 3	Papers assigned the value 4

Figure 7: Hypothesized SSA map of mapping sentence (4)

4. RESULTS

4.1. Description of the mapped papers

43 papers have been chosen by the eight participants (Appendix 2).The distribution of the papers their positions in the IS timeline is presented in Figure 8.

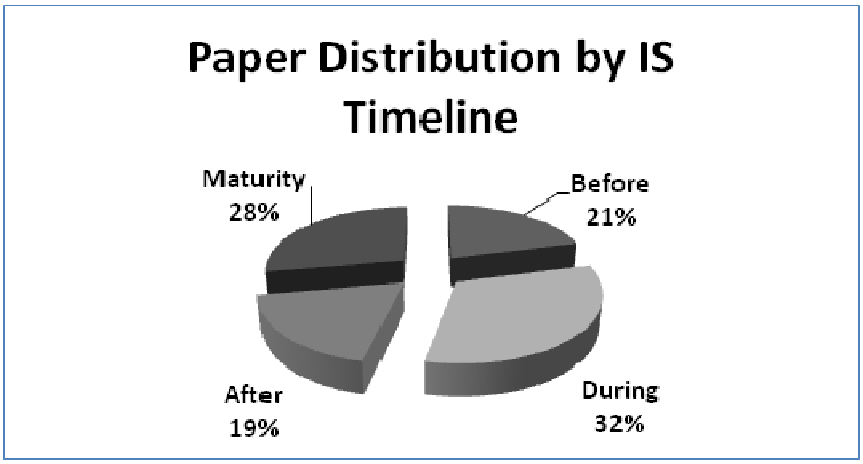

Figure 8: Paper distribution by IS timeline

4.2. SSA maps

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Two SSA maps are presented in appendix 4. The first (Map1) is a SSA map derived from the matrix. The scattered figures in Map 1 represent each paper's serial number as listed in Appendix 1, do the values on the axes of both maps. The second (Map 2) is the SSA map which partition lines w drawn by the FSSA procedure after replacing the labels of the points on Map 1 by the values of th position in the IS timeline.

Two distinctive larger clusters are evidenced in Map 1: the first includes papers 14, 5, 39, 34, 38, and the second includes papers 29, 31, 8, 37, 18, 42, 23. From Appendix 1 we conclude that the f cluster represent papers drawing upon TAM, whereas papers in the second cluster focus on DeLone and McLean IS Success model. Smaller clusters include papers 17, 15, 16, which focus adoption of web applications by individuals, 6, 10, 25 which deal with user involvement, and 3, which deal with information quality. Quite interesting are papers 2 and 4 which form a small cluste the leftmost end of the map, indicating that although they are similar to each other, both are the m remote from all other 41 papers. A closer look at these two papers (Appendix 1) shows that b investigate diffusion among communities, hence it can be concluded that, at least among the pap mapped here, this topic is under-covered. Finally, it is interesting to find out why papers 40, 7, and stand out as separate points, quite remote from most other papers. Indeed, these three pap investigate organizational innovation, state and workgroup IS impact, and task-technology fit (T respectively, three topics that are less prevalent in the current sample of papers. Further investigat is required to determine whether these topics are indeed under-researched.

As hypothesized in H1, Map 2 reveals an axial pattern, with separation index 0.915, indicating a gc partitioning. Papers assigned the values 1 and 4 are more clearly positioned at the right and left si of the map respectively as expected in an axial facet, whereas papers possessing the values 2 and 3 the IS timeline reside in the middle, with papers assigned the value 2 generally more to the right s than those assigned the value 3. In spite of the clear pattern, some papers however fall outside th expected area. These should be further examined in a continued analysis.

5. DISCUSSION AND CONCLUSIONS

This work demonstrates that Facet Theory can be used as a literature review and meta-analysis t since it adequately identifies primary topics dealt with in the IS Success research domain. Moreov

the visual mapping can clearly highlight papers focusing on similar research areas. The substantiat
H1 shows that IS-related constructs can be grouped into facets that maintain their hypothesi
topologies. While this RIP paper only used an axial facet as an example, other facets can be emplo
in more elaborate mapping sentences in future research.

The empty area in Map 1 between the main cluster of papers and papers 2 and 4, indicates lack
coverage of topics, which exact identification requires more research. Likewise, from examination
the papers' position on the IS timeline it is evident that most research, at least in this paper samp
tend to employ constructs related to earlier stages of the IS implementation (average of the pap
timeline index is 1.68). This is an interesting finding if indeed corroborated by further research, si
IS Success research should clearly cover the full IS life cycle rather than only its infancy.

Future work should analyze all 98 retrieved papers on more facets in order to gain broader and dee
insights about the current state of the IS Success research. Elicitation of under-researched constru
timeline, and topics will significantly contribute to putting forward future research agenda in t
important area that, in spite of decades of research is still relevant and important in light of high fail
rates of IS implementation and diffusion.

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APPENDIX 1: MAPPED PAPERS AND THEIR CONSTRUCTS

#	Paper title	Constructs	Average position in the IS timeline	Recoded
1	Alternative measures of system effectiveness: Associations and Implications (Srinivasan, 1985)	System quality, Use, Perceived ease of use, Information quality	1.25	2
2	Competitor and vendor influence on the adoption of innovative applications in electronic commerce (Dos Santos & Peffers, 1998)	Adoption / Diffusion, Communication among community	4	4
3	Critical review of end-user information system satisfaction Research and a new research framework (Au, Ngai, & Cheng, 2002)	Service quality, User satisfaction, System quality, System quality expectation	1.5	3
4	Determinants of intranet diffusion and infusion (Eder & Igbaria, 2001)	Adoption / Diffusion	4	4
5	Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model (Venkatesh, 2000)	Perceived usefulness, Intend to use, Perceived ease of use, Intrinsic motivation, Emotion, Integrating control	1	1
6	Determinations of success for computer usage in small business (DeLone, 1988)	Organization impact, Use	2.5	4
7	Dimensions of information systems success (Seddon, Staples, Patnayakuni, & Bowtell, 1999)	Individual impact, Organization impact, State impact, Workgroup impact	3.5	4
8	E-Commerce systems success: An attempt to extend and respecify the DeLone and MacLean model of IS success (Molla & Licker, 2001)	Use, Trust, Service quality, User satisfaction, System quality	1.6	3
9	Empirical evidence for a descriptive model of implementation (Lucas Jr, 1978)	Management support / involvement, User personal attitude, Use, System quality	1.25	2
10	Empirical study of the impact of user involvement on system usage and information satisfaction (Baroudi, Olson, & Ives, 1986)	Use, A priory user involvement, User satisfaction	1.67	3
11	Empirical test of the DeLone-McLean model of information system success (Iivari, 2005)	System quality, Use, Information quality, Individual impact, User satisfaction	1.8	3
12	Evaluating management information systems (King & Rodriguez, 1978)	Benefit expectation, Use, Management support / involvement	1.33	2

#	Paper title	Constructs	Average position in the IS timeline	Recoded
13	Extending the technology acceptance model and the task-technology fit model to consumer E-commerce. Information Technology, Learning, and Performance (Klopping & McKinney, 2004)	Perceived ease of use, Perceived usefulness, Intend to use, Use	1.25	2
14	Extension of the technology acceptance model in an ERP implementation environment. Information & Management, 41(6), 731-745 (Amoako-Gyampah & Salam, 2004)	Perceived usefulness, Intend to use, Perceived ease of use	1	1
15	Factors influencing corporate web site adoption: A time-based assessment (Beatty, Shim, & Jones, 2001)	Management support / involvement, Use, Perceived ease of use, Benefit	1.75	3
16	Factors influencing the adoption of internet banking (Tan & Teo, 2000)	Use, Intend to use	1.5	3
17	Gender differences in the perception and use of E-mail: An extension to the technology acceptance model (Gefen & Straub, 1997)	Use, Perceived usefulness, Perceived ease of use	1.33	2
18	Information systems success: the quest for the dependent variable (DeLone & McLean,)	User satisfaction, Organization impact, Individual impact, System quality, Use, Information quality	2	4
19	Knowledge management success model: An extension of DeLone and McLean's is success model {Jennex, 2003 #19}	Organization impact, System quality, Information quality, Workgroup impact, Individual impact, Service quality	2.33	4
20	Linking theory and practice: Performing a reality check on a model of Is success (performing & model)	Use, Intend to use, Information quality, System quality, Service quality, User satisfaction, Benefit	1.71	3
21	longitudinal model of continued IS use: An integrative view of four mechanisms underlying postadoption phenomena (Kim & Malhotra,)	Use, Intend to use, Perceived usefulness, Perceived ease of use	1.25	2
22	Management information systems: Appreciation and involvement (Swanson, 1974)	Perceived benefit, A priory user involvement, Use	1.33	2
23	Measuring E-Commerce success: Applying the DeLone & McLean information systems success model (Delone & Mclean, 2004)	Benefit, Service quality, System quality, Information quality, Use, User satisfaction	1.83	3
24	Model of the antecedents of perceived ease of use: Development and test (Venkatesh & Davis, 1996)	A priory user involvement, System quality, User skills, Perceived ease of use	1	1

#	Paper title	Constructs	Average position in the IS timeline	Recoded
25	Participative design of strategic Decision Support Systems (King & Rodriguez, 1981)	Use, A priory user involvement, Organization impact	2	4
26	Perceived usefulness, ease of use, and usage of information: A replication (Adams, Nelson, & Todd, 1992)	Perceived ease of use, Use, Perceived usefulness	1.33	2
27	Perceived usefulness, perceived ease of use, and user acceptance of information technology (Davis, 1989)	Technology acceptance, Perceived usefulness, Perceived ease of use	1	1
28	Perceptions of the value of a management information system (Gallagher, 1974)	Individual impact, System quality	2	4
29	Performance and the use of information systems (Lucas Jr, 1975)	Individual impact, System quality, Use	2	4
30	Predicting consumer intentions to use on-line shopping: The case for an augmented technology acceptance model (Vijayasarathy, 2004)	Perceived ease of use, Perceived usefulness, Intend to use, User personal attitude	1	1
31	Respecification and extension of the DeLone and McLean model of is success (Seddon, 1997)	Individual impact, System quality, User satisfaction, Perceived ease of use, Information quality, Society impact, Benefit expectation, Use, Organization impact	2	4
32	Service quality: A measure of information systems effectiveness (Pitt, Watson, & Kavan, 1995)	Service quality	2	4
33	Successful strategies for user participation in systems development (McKeen & Guimaraes, 1997)	User satisfaction, A priory user involvement	1.5	3
34	TAM or just plain habit: A look at experienced online shoppers {Gefen, 2003 #15}	User personal attitude, Perceived ease of use, Intend to use, Perceived usefulness	1	1
35	Task-Technology fit and individual performance (Goodhue & Thompson, 1995)	TTF, Task characteristics, Utilization, Technology characteristics, Individual impact	2.4	4
36	Technology acceptance model for empirically testing new end-user information systems: Theory and results (Davis, 1986)	Intend to use, User personal attitude, Perceived ease of use, Use	1.25	2
37	The DeLone and McLean model of information systems success: A ten-year update (Delone & McLean, 2003)	Information quality, Intend to use, Service quality, System quality, User satisfaction, Use, Benefit	1.71	3

#	Paper title	Constructs	Average position in the IS timeline	Recoded
38	The impact of developer responsiveness on perceptions of usefulness and ease of use: an extension of the Technology Acceptance Model (Gefen & Keil, 1998)	Perceived usefulness, Perceived ease of use, Use, Perceived developer responsiveness	1.25	2
39	The relative importance of perceived ease of use in IS adoption: A study of e-commerce adoption (Gefen & Straub, 2000)	Intend to use, Perceived ease of use, Perceived usefulness	1	1
40	The role of aggregation in the measurement of IT-related organizational innovation (Fichman, 2001)	Adoption / Diffusion, Organization impact	3.5	4
41	The technology acceptance model: A meta-analysis of empirical findings (Ma & Liu, 2004)	Intend to use, Perceived ease of use, User personal attitude, Technology acceptance, Perceived usefulness	1	1
42	Theoretical integration of user satisfaction and technology acceptance (Wixom & Todd, 2005)	System quality, Information quality, Use, Intend to use, User satisfaction, User personal attitude	1.33	2
43	User-developed applications and information systems success: A test of DeLone and McLean 's model (McGill, Hobbs, & Klobas, 2003)	Perceived system quality, User satisfaction, Perceived Information quality, Perceived individual impact, System quality, Organization impact, Intend to use	1.43	2

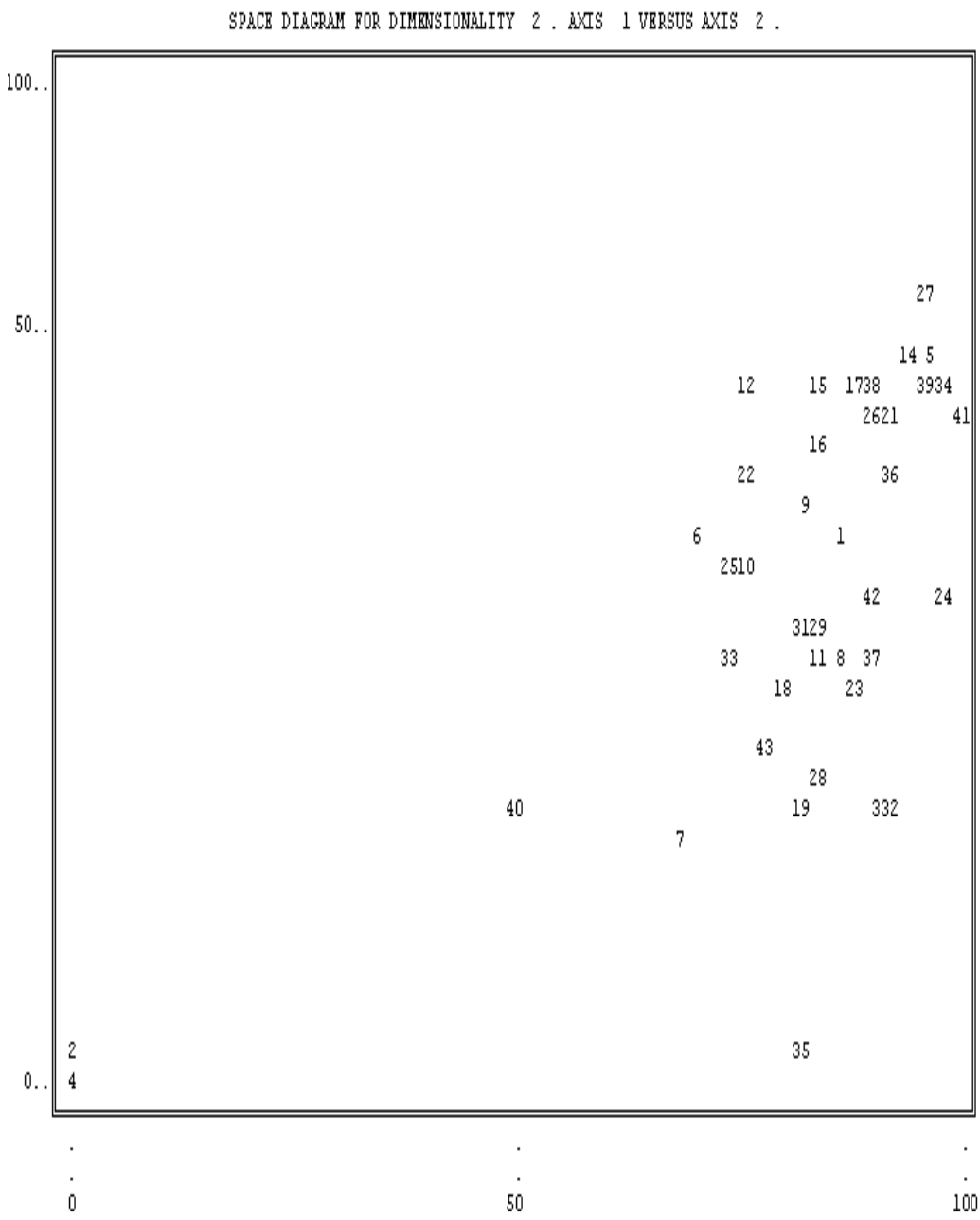
APPENDIX 2: CONSTRUCTS USED IN THE 43 MAPPED PAPERS AND THEIR POSITION ON THE IS TIMELINE

construct	Position in the IS timeline
A priory user involvement	1
Benefit expectation	1
Information quality	1
Intend to use	1
Management support / involvement	1
Organization characteristics	1
Perceived benefit	1
Perceived developer responsiveness	1
Perceived ease of use	1
Perceived individual impact	1
Perceived Information quality	1
Perceived system quality	1
Perceived usefulness	1
System quality	1
System quality expectation	1
Technology acceptance	1
Technology characteristics	1
Trust	1
User involvement	1
User personal attitude	1
User skills	1
Service quality	2
Task characteristics	2
Use	2
User satisfaction	2
Benefit	3
Individual impact	3
Organization impact	3
TTF	3
Utilization	3
Adoption / Diffusion	4
Communication among community	4
Society impact	4
State impact	4
Workgroup impact	4

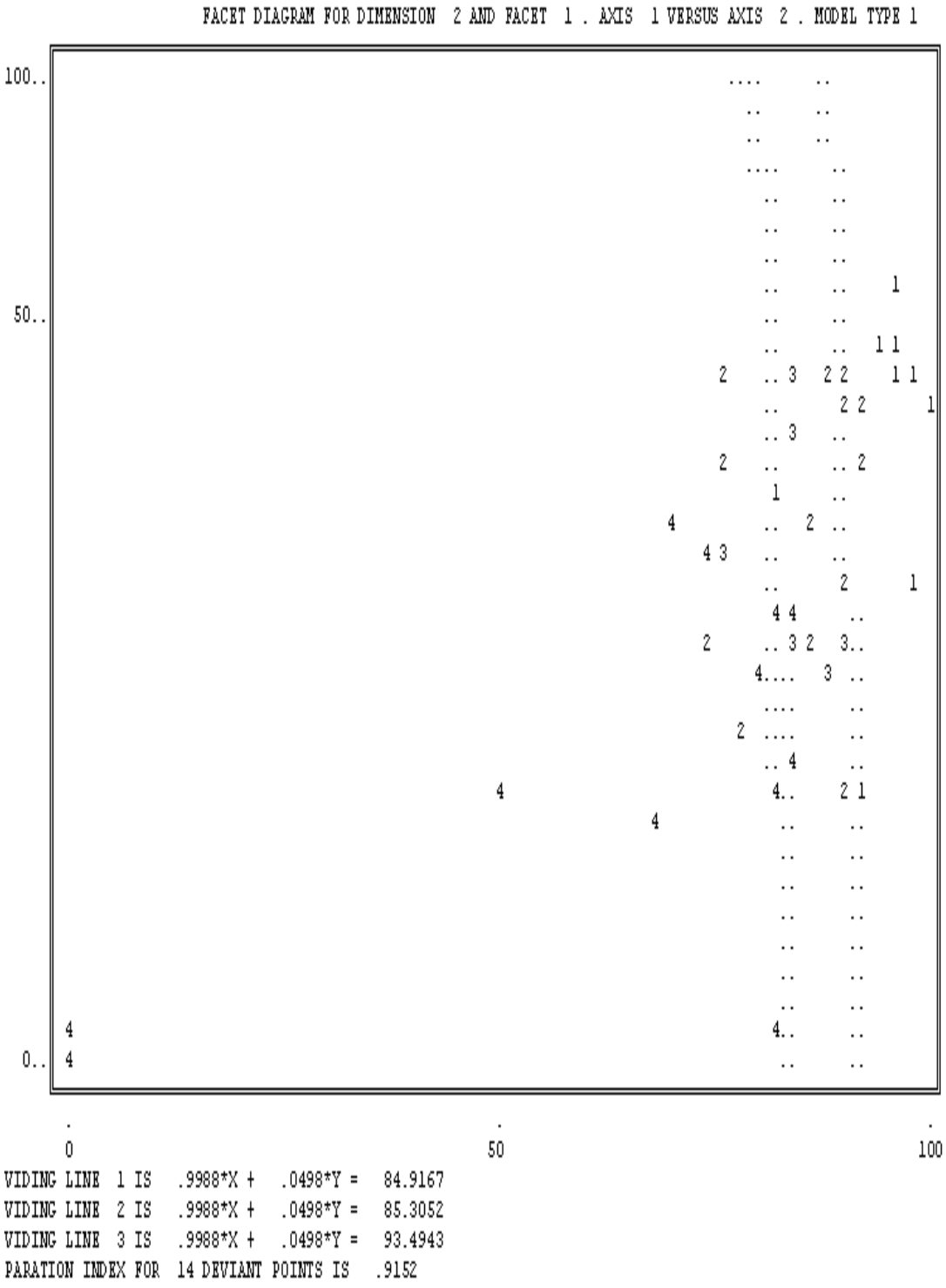
APPENDIX 3: CONSTRUCTS INCLUDED IN THE MAPPED PAPERS

construct	Position in the IS timeline	instances	Percentage of total constructs in all papers	Cumulative percentage
Use	2	25	13.37%	13.37%
Perceived ease of use	1	19	10.16%	23.53%
System quality	1	18	9.63%	33.16%
Intend to use	1	16	8.56%	41.71%
Perceived usefulness	1	14	7.49%	49.20%
User satisfaction	2	14	7.49%	56.68%
Information quality	1	10	5.35%	62.03%
Individual impact	3	10	5.35%	67.38%
Organization impact	3	9	4.81%	72.19%
Service quality	2	8	4.28%	76.47%
A priory user involvement	1	6	3.21%	79.68%
User personal attitude	1	6	3.21%	82.89%
Benefit	3	4	2.14%	85.03%
Adoption / Diffusion	4	3	1.60%	86.63%
Management support / involvement	2	3	1.60%	88.24%
Benefit expectation	1	2	1.07%	89.30%
Workgroup impact	3	2	1.07%	90.37%
Technology acceptance	3	2	1.07%	91.44%
TTF	3	1	0.53%	91.98%
Communication among community	4	1	0.53%	92.51%
Utilization	3	1	0.53%	93.05%
User skills	1	1	0.53%	93.58%
User involvement	1	1	0.53%	94.12%
Perceived system quality	1	1	0.53%	94.65%
Perceived developer responsiveness	1	1	0.53%	95.19%
Perceived individual impact	1	1	0.53%	95.72%
Perceived Information quality	1	1	0.53%	96.26%
Trust	1	1	0.53%	96.79%
Society impact	4	1	0.53%	97.33%
State impact	4	1	0.53%	97.86%
Technology characteristics	1	1	0.53%	98.40%
System quality expectation	1	1	0.53%	98.93%
Task characteristics	1	1	0.53%	99.47%
Perceived benefit	1	1	0.53%	100.00%

APPENDIX 4: MAP 1 - SSA MAP, SPACE DIAGRAM FOR DIMENSIONALITY 2. AXIS 1 VERSUS AXIS 2



Map 2 – SSA map with partitioning



References

Adams, D. A., Nelson, R. R., & Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS Quarterly, 16*(2), 227-247.

Amoako-Gyampah, K., & Salam, A. (2004). An extension of the technology acceptance model in an ERP implementation environment. *Information & Management, 41*(6), 731-745.

Au, N., Ngai, E. W. T., & Cheng, T. (2002). A critical review of end-user information system satisfaction research and a new research framework. *Omega, 30*(6), 451-478.

Baroudi, J. J., Olson, M. H., & Ives, B. (1986). An empirical study of the impact of user involvemer on system usage and information satisfaction. *Communications of the ACM, 29*(3), 238.

Beatty, R. C., Shim, J., & Jones, M. C. (2001). Factors influencing corporate web site adoption: A time-based assessment. *Information & Management, 38*(6), 337-354.

Borg, I., & Shye, S. (1995). Facet theory: Form and content, Sage Publications Thousand Oaks.

Cohen, E. H. (2004). Facet theory bibliography. Facet Theory Association, Ljubljana–Jerusalem. Available Online at: www.Psy.Mq.Edu.au/FTA.

Dancer, L. S. (1990). Introduction to facet theory and its applications. Applied Psychology, 39(4), 365-377.

Davis, F. D. (1986). A technology acceptance model for empirically testing new end-user informatic systems: Theory and results. (Doctoral dissertation, Sloan School of Management, Massachusett Institute of Technology).

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of informatior technology. *MIS Quarterly*,(13:3), 319-340.

DeLone, W. H. (1988). Determinants of success for computer usage in small business. *MIS Quarter 12*(1), 51-61.

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research, 3*(1), 60-95.

Delone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9-30.

Delone, W. H., & Mclean, E. R. (2004). Measuring e-commerce success: Applying the DeLone & McLean information systems success model. *International Journal of Electronic Commerce, 9*(1 31-47.

Dos Santos, B. L., & Peffers, K. (1998). Competitor and vendor influence on the adoption of innovative applications in electronic commerce. *Information & Management, 34*(3), 175-184.

Eder, L. B., & Igbaria, M. (2001). Determinants of intranet diffusion and infusion. *Omega, 29*(3), 23 242.

Ein-Dor, P., & Segev, E. (1981). A paradigm for management information systems. Praeger, New York, NY.

Fichman, R. G. (2001). The role of aggregation in the measurement of IT-related organizational innovation. *MIS Quarterly(25:4),* 427-455.

Gallagher, C. A. (1974). Perceptions of the value of a management information system. *Academy of Management Journal, 17*(1), 46-55.

Garrity, J. T. (1963). Top management and computer profits. Harvard Business Review, 41(4), 6-12

Gefen, D., & Keil, M. (1998). The impact of developer responsiveness on perceptions of usefulness and ease of use: An extension of the technology acceptance model. *ACM SIGMIS Database, 29*(2 35-49.

Gefen, D., & Straub, D. (2000). The relative importance of perceived ease of use in IS adoption: A study of e-commerce adoption. *Journal of the Association for Information Systems, 1*(8), 1-28.

Gefen, D., & Straub, D. W. (1997). Gender differences in the perception and use of e-mail: An extension to the technology acceptance model. *MIS Quarterly, 21*(4), 389-400.

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS Quarterly, 19*(2), 213-236.

Iivari, J. (2005). An empirical test of the DeLone-McLean model of information system success. *AC SIGMIS Database, 36*(2), 8-27.

Kim, S. S., & Malhotra, N. K. (2005). A longitudinal model of continued IS use: An integrativeview four mechanisms underlying postadoption phenomena. *Management Science, 51*(5), 741-755

King, W. R., & Rodriguez, J. I. (1978). Evaluating management information systems. *MIS Quarterl 2*(3), 43-51.

King, W. R., & Rodriguez, J. I. (1981). Participative design of strategic decision support systems: A empirical assessment. *Management Science, 27*(6), 717-726.

Klopping, I. M. & McKinney, E. (2004). Extending the technology acceptance model and the task a the task-technology fit model to technology fit model to consumer E consumer E-commerce. *Information Technology, Learning, and Performance Journal, 22*(1), 35.

Lucas Jr, H. C. (1975). Performance and the use of an information system. *Management Science,* , 908-919.

Lucas Jr, H. C. (1978). Empirical evidence for a descriptive model of implementation. *MIS Quarter 2*(2), 27-41.

Ma, Q., & Liu, L. (2004). The technology acceptance model: A meta-analysis of empirical findings. *Journal of Organizational and End User Computing, 16*(1), 59-72.

McGill, T., Hobbs, V., & Klobas, J. (2003). User developed applications and information systems success: A test of DeLone and McLean's model. *Information Resources Management Journal, 16*(1), 24-45.

McKeen, J. D., & Guimaraes, T. (1997). Successful strategies for user participation in systems development. *Journal of Management Information Systems, 14*(2), 150.

Molla, A., & Licker, P. S. (2001). E-commerce systems success: An attempt to extend and respecify the delone and maclean model of IS success. *J.Electron.Commerce Res., 2*(4), 131-141.

Paul, D. L., & McDaniel Jr, R. R. (2004). A field study of the effect of interpersonal trust on virtual collaborative relationship performance. Mis Quarterly, , 183-227.

Pitt, L. F., Watson, R. T., & Kavan, C. B. (1995). Service quality: A measure of information system effectiveness. *MIS Quarterly, 19*(2), 173-187.

Rosemann, M., & Vessey, I. (2005). Linking theory and practice: Performing a reality check on a model of IS success. Paper presented at the *Proceedings of the 13th European Conference on Information Systems (ECIS 2005), Regensburg, Germany,*

Seddon, P. B. (1997). A respecification and extension of the DeLone and McLean model of IS success. *Information Systems Research, 8*(3), 240-253.

Seddon (1999) : *Communications of the Association for Information Systems (CAIS)*, 2(Article 20)

Srinivasan, A. (1985). Alternative measures of system effectiveness: Associations and implications. *MIS Quarterly, 9*(3), 243-253.

Swanson, E. B. (1974). Management information systems: Appreciation and involvement. Management Science, 21(2), 178-188.

Tan, M. and Teo, T.S.H. (2000), "Factors influencing the adoption of Internet banking", Journal of the Association for Information Systems, 1(5), 1-42.

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivatic and emotion into the technology acceptance model. *Information Systems Research, 11*(4), 342-3(

Venkatesh, V., & Davis, F. D. (1996). A model of the antecedents of perceived ease of use: Development and test. *Decision Sciences, 27*(3), 451-481.

Vijayasarathy, L. R. (2004). Predicting consumer intentions to use on-line shopping: The case for ar augmented technology acceptance model. *Information & Management, 41*(6), 747-762.

Wixom, B. H., & Todd, P. A. (2005). A theoretical integration of user satisfaction and technology acceptance. *Information Systems Research, 16*(1), 85-102.