



Empirical evaluation of ICT adoption in Australian SMEs: Systemic approach

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Outline of the research

- I Step – Literature review
- II Step – Conceptual framework (Figure 1)
- III Step – Systemics tools (Tables 2 and 3)
- IV Step – Cross link analysis (Figure 4)



Figure 1. Conceptual framework

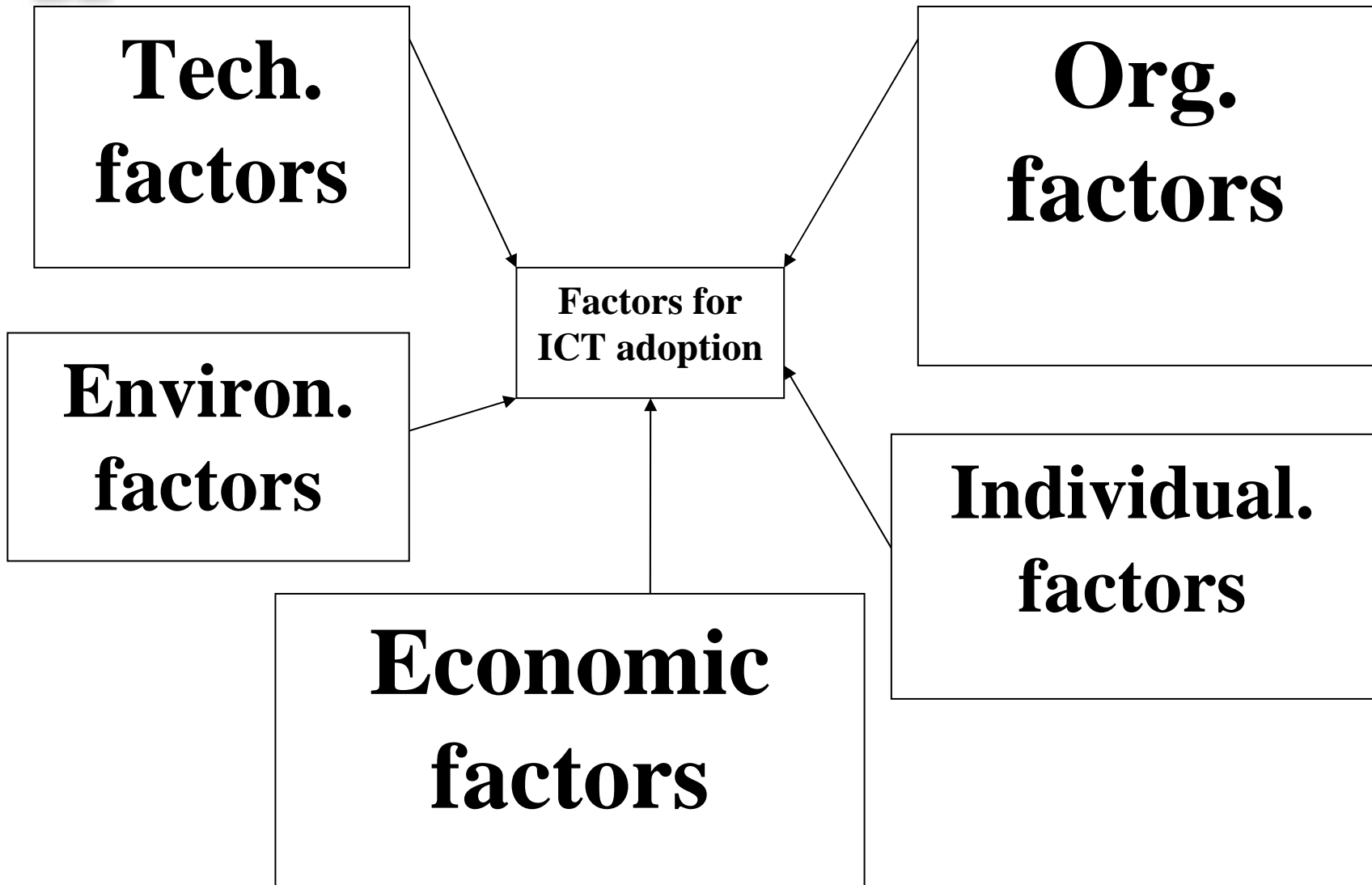


Table 1. Methods for each stage used for the five-stage systemic approach

Faculty of Commerce Methods

	Methods
Stage 1 A	Brainstorming, brain writing, method 635, rich picture, PAT-mirror, Synectic, progressive abstraction
Stage 1 B	Concentrate data to cluster and clear statements: Mindmap, set of factor, role settings, synte-gration, dialoguing
Stage 2 A	Holistic test, holistic potential test, holistic environmental turbulence score, gap-analysis
Stage 2 B	Double-cross-impact analysis, loop diagrams, family constellations
Stage 3 A	Interpretation of systems dynamic, critical systems heuristics, systemics goal definition, Presencing
Stage 3 B	10 points for viability, sensitivity analysis, risk analysis, Neuro-Linguistic programming (NLP), four drive method
Stage 4 A	Synectic, morphology, the six thinking Hats method, precise destroying, Osborn-Checklist
Stage 4 B	Simulation, scenario technique, holistic value-benefit analysis, four force field reflection
Stage 5 A	Project management, process coaching, balanced scorecard, consultancy, coaching, portfolio of activities
Stage 5 B	Micro-article, knowledge management, Network, Lessons learned, EFQM quality model, reflecting groups



TABLE 2. Tools of systemic approach

Holistic structure test

Holistic potential test – four basic drives

Holistic environmental turbulence score

Systemic gap-analysis

Double-cross-impact analysis

(adapted from [5])



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Variablen	Förder Matrix	Hemmer Matrix	Interpretations-netz
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Wirkung von Variable	Wirkungsmatrix - fördernde Wechselwirkungen																								Aktivsumme AS	Fördernd		
	Wirkung auf Variable →						Wirkung auf Variable →						Wirkung auf Variable →						Wirkung auf Variable →							Quotient Q = AS/PS	Produkt P = AS*PS	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
relative advantage in the market by adopting ICT	1	1.0	1.0		2.0	1.0	0.5	1.0	0.5	0.5	1.0				0.5	1.0	0.5									10.5	0.95	115.50
attitude toward adopting ICT	2	1.0	1.0	0.5		1.0				0.5	0.5				0.5	1.0	0.5									6.5	0.46	91.00
technological compatibility in the company	3	1.0	0.5	1.0		1.0		1.0		0.5	0.5				0.5	0.5	1.0									7.5	1.07	52.50
adoption costs	4	2.0	0.5	1.0	1.0	1.0	0.5	1.0		0.5					0.5	1.0	1.0									10.0	0.74	135.00
perception of company image	5	0.5	1.0	0.5	1.0	1.0	1.0	1.0		0.5	1.0				0.5	0.5	1.0									9.5	0.83	109.25
number of employees in the company	6		2.0		0.5		1.0			1.0	0.5															5.0	1.25	20.00
quality of IS & capabilities	7	1.0	1.0	1.0	1.0	1.0	0.5	1.0			0.5	0.5			1.0	1.0	0.5									10.0	1.05	95.00
Information intensity	8		1.0		1.0		0.5	0.5	1.0	1.0	0.5	0.5	0.5		0.5	1.0	0.5									8.5	3.40	21.25
specialisation within the company	9		0.5			0.5				1.0	0.5															2.5	0.26	23.75
top management support	10	0.5	0.5		0.5	1.0		0.5		0.5	1.0				0.5	0.5	0.5									6.0	0.63	57.00
competitive pressure from other firms	11	0.5	1.0	1.0	1.0			1.0	0.5	0.5	0.5	1.0	1.0		1.0	1.0	1.0									11.0	4.40	27.50
competitive pressure (costumer, suppliers)	12	0.5	1.0		1.0			0.5	0.5	0.5	0.5	1.0	1.0		1.0	0.5	1.0									9.0	3.00	27.00
public policy and governments roles	13	0.5	0.5		0.5					0.5		0.5		1.0	0.5	0.5	0.5									5.0	5.00	5.00
managers innovativeness	14		1.0		1.0	1.0				0.5	0.5				1.0	1.0	0.5									6.5	0.68	61.75
managers knowledge of ICT	15	0.5	0.5	1.0	1.0	1.0		1.0		0.5	0.5				0.5	1.0										7.5	0.65	86.25
Fast developing new IT solutions	16	2.0	1.0	1.0	2.0	2.0		1.0		1.0	1.0				1.0	1.0	1.0									14.0	1.47	133.00
	17																	1.0								1.0	1.00	1.00
	18																		1.0							1.0	1.00	1.00
	19																			1.0						1.0	1.00	1.00
	20																				1.0					1.0	1.00	1.00
	21																					1.0				1.0	1.00	1.00
	22																						1.0			1.0	1.00	1.00
	23																							1.0		1.0	1.00	1.00
	24																								1.0	1.0	1.00	1.00
Passivsumme PS:		11.0	14.0	7.0	13.5	11.5	4.0	9.5	2.5	9.5	9.5	2.5	3.0	1.0	9.5	11.5	9.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	137.0		



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Wirkung von Variable		Wirkungsmatrix - hemmende Wechselwirkungen																								Aktivsumme AS	Hemmend		
		Wirkung auf Variable →						Wirkung auf Variable →						Wirkung auf Variable →						Wirkung auf Variable →							Quotient Q = AS/PS	Produkt P = AS*PS	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
relative advantage in the market by adopting ICT	1	1.0						0.5		0.5		0.5	1.0													3.5	1.75	7.00	
attitude toward adopting ICT	2		1.0										0.5	0.5												2.0	0.50	8.00	
technological compatibility in the company	3			0.5	1.0			0.5	0.5				0.5	0.5			0.5	0.5	0.5							5.0	1.67	15.00	
adoption costs	4				0.5	1.0	1.0	0.5	0.5								0.5	0.5								8.5	2.83	25.50	
perception of company image	5					0.5	1.0	1.0									0.5	0.5								5.0	1.67	15.00	
number of employees in the company	6																									2.5	1.67	3.75	
quality of IS & capabilities	7																									5.5	2.20	13.75	
Information intensity	8																									1.5	0.27	8.25	
specialisation within the company	9																									3.5	2.33	5.25	
top management support	10																									1.5	0.60	3.75	
competitive pressure from other firms	11																									1.5	0.21	10.50	
competitive pressure (costumer, suppliers)	12																									1.5	0.18	12.75	
public policy and governments roles	13																									5.0	5.00	5.00	
managers innovativeness	14																									3.0	0.75	12.00	
managers knowledge of ICT	15																									1.5	0.43	5.25	
Fast developing new IT solutions	16																									4.0	1.60	10.00	
	17																									1.0	1.00	1.00	
	18																									1.0	1.00	1.00	
	19																									1.0	1.00	1.00	
	20																									1.0	1.00	1.00	
	21																									1.0	1.00	1.00	
	22																									1.0	1.00	1.00	
	23																									1.0	1.00	1.00	
	24																									1.0	1.00	1.00	
Passivsumme PS:		2.0	4.0	3.0	3.0	3.0	1.5	2.5	5.5	1.5	2.5	7.0	8.5	1.0	4.0	3.5	2.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	63.0		



Table 3. Quadrants of the map of interaction

Passive and highly interactive factors

These factors are influenced by and interact with the rest of the system

Active and highly interactive factors

These factors influence and interact with the rest of the system

Passive and less interactive factors

These factors are influenced by and are less interactive with the rest of the system

Active and less interactive factors

These factors influence but less interact with the rest of the system

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