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# THE INFORMATION SYSTEMS ACADEMIC DISCIPLINE IN PACIFIC ASIA 2006: A CONTEXTUAL ANALYSIS

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## ABSTRACT

This paper serves as an introduction to, and contextual analysis for, the overarching study titled “The Information Systems Academic Discipline in Pacific Asia 2006” reported in this special edition of the *Communications of the AIS*. This paper describes the genesis of the study; reflects on prior literature on the state of IS; discusses the theory underpinning the individual case studies; and outlines the overall multi-method approach, particularly the case study method used for the state<sup>1</sup> reports. The process of multiple-peer review of the individual state reports is also described. Importantly, this paper summarizes and interrelates each of the component studies reported in the special edition. An outline is also provided of in-progress studies that complement the efforts reported in this special edition.

**Keywords:** Information Systems discipline, IS in Pacific Asia, discipline development

## I. INTRODUCTION

This paper introduces a special issue of *Communications of the AIS (CAIS)* on “The Information Systems Academic Discipline in Pacific Asia 2006.” A main aim

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<sup>1</sup> The term “state” is used to refer to each of the national entities studied.

of the study is to promote related discussion among IS academics and researchers.

## **THE STUDY DESIGN**

Figure 1 depicts the main components of the IS in Pacific Asia study. The study is motivated from a recognition that Information Systems (IS) as an academic discipline has evolved differentially around the world (e.g., there is regional variation in the strength of its presence as an academic discipline; it may take on identifiably different local forms e.g. from a soft systems emphasis to a more technical focus; there may be regional differences in topics taught and researched (as was observed by Avgerou et al. [1999] across Europe). The genesis of the study was a panel of the 6th Pacific Asia Conference on Information Systems (PACIS'02), Tokyo, Japan, 2-4 September 2002, ultimately resulting in formal project commencement in late 2004 with AIS endorsement and seed funding.<sup>2</sup>

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<sup>2</sup> The panel, titled "Integrating the Global IS Academic Community: The Asia-Pacific Connection," included Phillip Ein-Dor (then President AIS), KK Wei (then President-Elect AIS), Ryutaro Manabe (PACIS 2002 Conference Chair) and others. During that discussion, Gable recorded thoughts on a possible multiple case study of the AIS Region3 - Pacific Asia Region, with the suggestion that AIS might be a sponsor. Early ideas were encouraged by Phillip Ein-Dor and KK Wei, who suggested submission of a formal proposal for consideration by the AIS Council at ICIS 2002 in Barcelona (Gable 2002). The then proposed study of "The State of IS as an Academic Discipline in Pacific Asia" was endorsed by the AIS Executive in Barcelona and formally approved by AIS council mid-2003 to proceed on a smaller scale with seed funding from AIS. That funding was received late 2003 and the project was formally commenced in 2004. The study received subsequent strong endorsement from Rick Watson and Michael Myers (Presidents AIS 2005 and 2006 respectively).

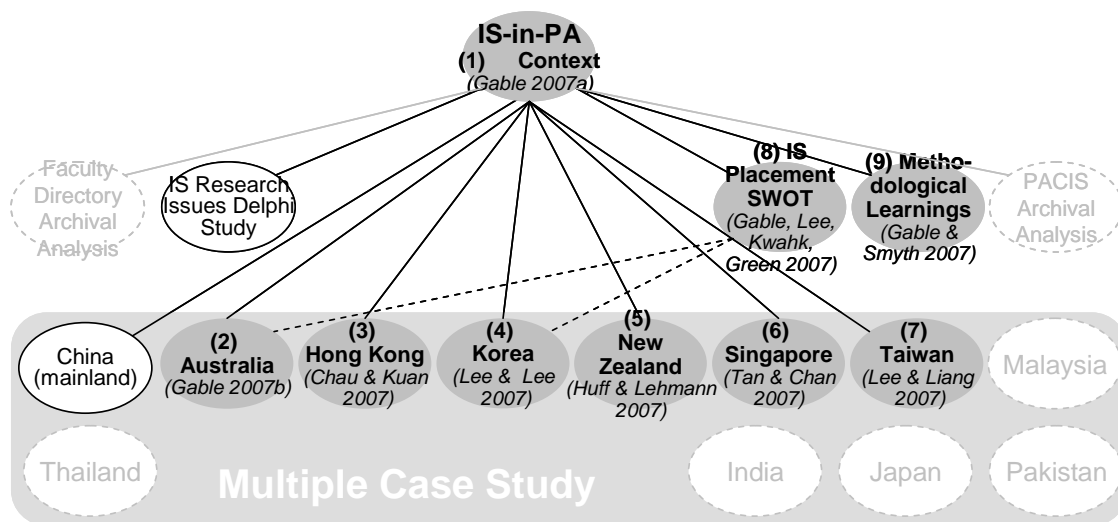


Figure 1. The IS in Pacific Asia Region Study (IS-in-PA)

Both the IS in Pacific Asia study and a prior, pilot study of the IS academic discipline in Australia, have, from the outset, been designed and executed with the expectation that they will be extended and repeated over time. Shaded ovals in Figure 1 represent those components that have been completed in the first execution. Un-shaded ovals represent components that are in progress (i.e. Mainland China Case Study, IS Research Issues Delphi Study) and dashed ovals represent planned components soon to commence (note that further study components may evolve).

The IS in Pacific Asia study includes nine main study components (see Figure 1), the principal of which is a multiple-case study across several (initially six) states of the Pacific Asia Region.<sup>3</sup> It was decided early on to restrict the first iteration of the IS in Pacific Asia study to those areas in the region where IS is relatively more visible internationally – Australia, Hong Kong (China), Korea, New Zealand,

<sup>3</sup> Note that Association for Information Systems (AIS), the main international association of Information Systems academics, organizes its activities around three world regions: (1) the Americas, (2) Europe, Africa and the Middle East, and (3) Pacific Asia.

Singapore and Taiwan – the intent being in future to incrementally extend the study to other parts of the region.<sup>4</sup> Table 1 lists the main IS in Pacific Asia study leaders.

Table 1. The IS in Pacific Asia Study Team Leaders

State	Study Leader
Australia	Professor Guy G Gable, Queensland University of Technology
Hong Kong (China)	Professor Patrick Chau, The University of Hong Kong
Korea	Professor Jae-Nam Lee, Korea University
New Zealand	Professor Sid Huff, The University of Wellington
Singapore	Professor Bernard Tan, The National University of Singapore
Taiwan	Professor TP Liang, National Sun Yat-Sen University

### **BROAD AIMS OF THE PACIFIC ASIA STUDY**

The IS in Pacific Asia study has, from the outset, been intended as a service to the IS Academic Profession. The study sought to establish the beginnings of a cumulative and ongoing effort to track and report on, and reflect upon the evolution and state of the IS academic discipline in Pacific Asia (and ultimately other world regions). Broadly, the aim was to promote discussion among IS academics across the region on the state of the discipline. Note that the study was never intended to be an exploration of the “core of the IS discipline,”<sup>5</sup> though it is anticipated that the IS in Pacific Asia results (and those from any subsequent replication) will contribute to that discussion.

This IS in Pacific Asia study seeks to draw upon and complement other recent or planned studies of the state of the IS discipline, notably those of Avgerou et al. [1999] in Europe, and Pervan and Shanks [2004] in Australia. Data gathering and

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4 The study is currently being extended to Mainland China (in progress), Japan, India, Malaysia, Pakistan, and Thailand, for which tentative study team leaders have been identified.

5 ... as debated extensively in CAIS and elsewhere in 2003 and subsequently. This was considered beyond the study scope.

analysis for IS in Pacific Asia was guided by a research framework [Ridley 2006] developed initially for the “pilot” study of the IS academic discipline in Australia. This framework is outlined in detail in the Methodological Learnings paper elsewhere in this CAIS special edition.

The nine papers in this special issue of CAIS correspond to the nine shaded ovals in Figure 1. These papers include this contextual analysis, six state case studies, a SWOT analysis of the placement of IS within two Australian and two Korean universities, and a summary of methodological learnings from across both the IS in Pacific Asia study and the “pilot” study in Australia.

A key study aim of the IS in Pacific Asia study was to evolve and apply (and “test”) a process of evidence collection and review, for future extension and possible replication within the region and across the other world regions. This was, to some extent, a response to concerns expressed (e.g. by Phillip Ein-dor [in Gable 2002]) about the lack of a methodology and indicators for tracking diffusion of the IS discipline. It was posited that the establishment of measures and indicators of the state of IS, and a baseline snapshot of its current state, would facilitate tracking of the state and monitoring of the effect of initiatives to promote IS as a discipline. While emphasis here is on Pacific Asia, many of the ideas, mechanisms and aims are generalizable to all AIS regions. Thus, one overarching aim of the study is to contribute to a general methodology with which to describe and monitor the evolving state of the IS discipline in any region or country. Other more specific study aims include:

- to begin documenting characteristics of IS programs across universities in Pacific Asia;
- to begin documenting characteristics of IS research across universities in Pacific Asia;
- to begin assessing the strength of the IS presence in Pacific Asia universities;
- to evaluate the maturity of IS as an academic discipline in Pacific Asia;

- to identify emerging trends in IS in Pacific Asia universities; and
- to identify main influences on IS in Pacific Asia universities.

The state case studies vary in their level of detail, to some extent due to the relative size of IS academe across the states. Also, state study leaders had latitude to be as detailed or general as they preferred or were able. Some delivered simpler, broader descriptions early; the objective being to put in place the beginnings of an ongoing, longitudinal effort, with the expectation that others will in future take up the baton and extend this pilot effort. In the other extreme, the Australian initiative grew into a full-blown multiple Australian-state case study with other related sub-studies (see Figure 2). The individual Australian studies were reported in a special issue of the *Australasian Journal of Information Systems* (AJIS) and have been consolidated in the Australian case study that appears in this issue of CAIS

#### **THE PILOT AUSTRALIAN STUDY**

A meeting of a sub-group of the IS in Pacific Asia study team in Auckland January 2004 (Gable, Huff, Tan<sup>6</sup>) agreed that Australia, having been active in IS academe since the '70s, and having a correspondingly long and internationally visible history of IS research, would provide a useful "pilot" study in advance of extending the multiple-state case study to other parts of Pacific Asia. This resulted in a proposal to conduct a multiple-case study of the Australian states – the IS in Australia study (Figure 2).

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<sup>6</sup> Felix Tan, Auckland University of Technology, who was then the elected AIS Region3 Council Representative.

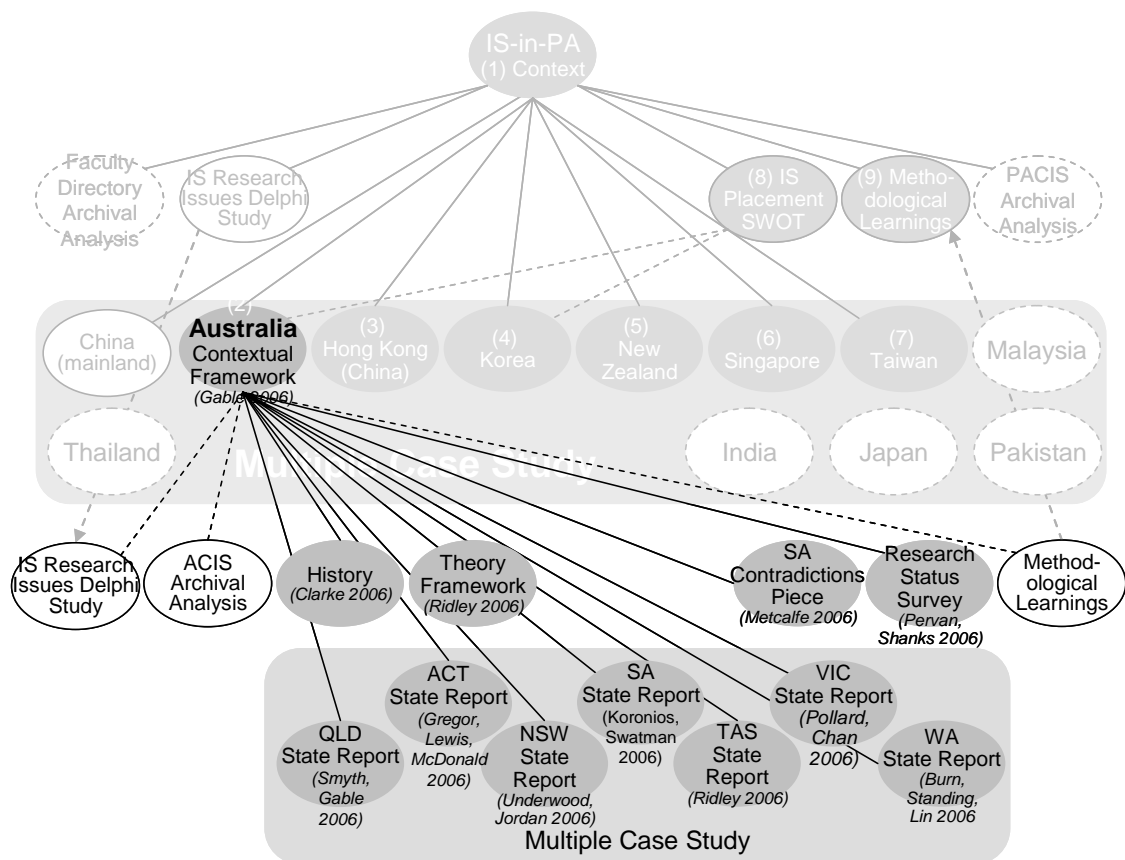


Figure 2. The IS in Australia Study Design<sup>7</sup>

## STUDY QUESTIONS

Study questions and the units-of-analysis (sometimes the university; sometimes the state) evolved over time, along with the study design, with varying emphases across the sub-studies.

Broad study questions implicit in the final case study protocol<sup>8</sup> include<sup>9</sup> :

<sup>7</sup> Australia is made up of 6 states and 2 territories: NSW – New South Wales, SA - South Australia, QLD – Queensland, TAS – Tasmania, VIC – Victoria, WA – West Australia, ACT – Australian Capital Territory, NT – Northern Territory. Note that there was little identifiable, substantive IS presence at any NT university as of this writing.

<sup>8</sup> Note that the state teams varied in their reliance upon the protocol.



- What is the relative size of the IS presence at the university?
- What is the administrative placement of IS (including changes over time)?
- To what extent has IS at the university been impacted by local contingencies?
- To what extent is IS identified as a separate field at the university?
- What are the distinctive features of the IS curriculum at the university?
- What are the distinctive features of IS research at the university?
- Who are the key people who have impacted IS in universities in the state?

In concluding this section, it is noted that though each of the papers in the special issue of CAIS has been written to stand alone, the papers in combination form a coherent and integrated description, analysis and interpretation of the state of the IS academic discipline in the region as of this writing. The next section, II, briefly reviews literature on past studies of the IS discipline. Section III describes the theoretical framework that guided evidence collection and analysis. Section IV describes various background influences on IS in the region. Section V summarizes the overall study approach, with emphasis on repeatability - a key study aim. Section VI examines overall study outcomes, and Section VII describes study limitations and potential further research.

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<sup>9</sup> The protocol includes a long list of more specific questions, based around each of these broad questions.

## II. THE LITERATURE

### PAST STUDIES OF THE IS DISCIPLINE<sup>10</sup>

Articles discussing the state of the Information Systems discipline have tended to revolve around several themes: the identity crisis within IS, IS as an academic field, the state of IS research, and the evolution of the field of IS.

One dominant theme is the existence or not of an identity crisis within IS, concern being that the discipline's central identity is ambiguous [Benbasat and Zmud 2003]. Articles debating the core and scope of IS are many. The debate in recent times culminated in a series of 11 articles published in the *Communications of the AIS*. This is an important debate as the degree of convergence of a discipline can have political implications. "Convergent communities are favourably placed to advance their collective interests since they know what their collective interests are, and enjoy a clear sense of unity in promoting them" [Becher 1989, p.160].

The academic field of Information Systems is another recurring theme. Avgerou et al. [1999] comprehensively discuss the academic field of Information Systems in Europe, while other authors concentrate on a single topic. Topics of discussion include: the status of IS as an academic discipline [Introna 2003; Khazanchi and Munkvold 2000]; IS educational programs [Ang and Jiwahasuchin 1998; Lo, 1989]; and the location of IS departments in universities [Sherer 2002].

Articles on the state of IS research include: paradigmatic and methodological examinations of IS research [Chen and Hirschheim 2004; Orlikowski and Baroudi 1991; Vessey et al. 2002]; regional differences in IS research [Evaristo and Karahanna 1997]; and themes of IS research [Bacon and Fitzgerald 2001; Palvia et al. 2004].

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<sup>10</sup> This section offers a very brief overview of past studies of the IS discipline. Individual articles in the special issue make more specific reference to relevant literature.

There are two types of article on the evolution of Information Systems: those that assess the current status of the field by tracing its historical evolution and the driving forces that shape it [Adam and Fitzgerald 2000], and those that gauge the status of information systems development and evolution, by examining changes over time in topics, themes and research strategies in the literature [Alavi and Carlson 1992; Claveret al. 2000; Farhoomand and Drury 1999].

### **III. RELEVANT THEORY**

This study of IS in Pacific Asia aims to investigate the Information Systems academic discipline in the region from both a historical and current perspective, collecting evidence across a range of dimensions. To maximize the strategic potential of the study, the results need to be capable of integration, so that the relationships within and across the dimensions and geographical units are understood. A meaningful theoretical framework helps relate the results of the different dimensions of the study to characterize the discipline in the region, and assist in empowering the Pacific Asia IS research community.

Prior to the commencement of the Australian study, Ridley's [2006] theory paper reviewed literature on the development of disciplines, and developed a theoretical framework for the broader study reported in this volume. The components of the framework were derived and validated through a thematic analysis of both the IS and non-IS literature. Two major themes identified in the literature were "social processes" (including mechanisms of control) and a "core body of knowledge." The framework developed in the Ridley paper was also guided by Whitley's Theory of Scientific Change [1984b]. Scientific fields are seen as "reputational systems of work organization and control" [Whitley 1984a, p.776] and it is proposed that there is an inverse relationship between the impact of local contingencies and a discipline's degree of professionalism and maturity. The framework guided the data collection and was used to analyse data collected from the Pacific Asia states.

## IV. BACKGROUND

Two important institutions of the IS academic discipline in the region have been: (1) the Asia Pacific Directory of Information Systems Researchers (APDISR); and (2) the Pacific Asia Conference on Information Systems (PACIS). The Australasian Conference on Information Systems (ACIS), too, has had regional influence beyond Australia and New Zealand, and is discussed in some detail in the Australian State report in this special issue of CAIS.

Professional associations in the region are also important catalysts for, and indicators of, the evolution of IS in Pacific Asia. A variety of professional associations exist around the region, each having a unique combination of roles, responsibilities and membership. Examples include: Australian Computer Society (ACS); AIS Australasia (new as of 2002); Japan Society for Management Information (JASMIN); and Singapore Computer Society. The state reports pay varying attention to these associations, and to analysis of their relevance to the IS Discipline and IS in the region.

Known regional and mainstream (as opposed to specialist) IS journals are few and include: *Journal of Global Information Management (JGIM)*; *Australasian Journal of Information Systems* and various national computer society and other society/association journals (*JGIM* though international rather than regional, is an important vehicle of regional IS research). The state reports sometimes refer to non-English language IS research outlets.

### **THE ASIA PACIFIC DIRECTORY OF INFORMATION SYSTEMS RESEARCHERS**

The Asia Pacific Directory of Information Systems Researchers (APDISR) has been an important vehicle of communication and integration of the Information Systems discipline in the region. The Directory of Management Information Systems Faculty for the U.S. and Canada was first published in 1983. The Directory of Australasian Information Systems Academics was first published in 1988. In 1993, the first edition of the Directory of Information Systems Faculty in

Europe was introduced. The Asia Pacific Directory of Information Systems Researchers (APDISR), introduced in 1994, subsumed the Australasian directory, aiming ultimately to encompass the entire Pacific Asia region, thereby yielding three directories associated with the three AIS world regions.

The first edition of APDISR in 1994 included 1182 researchers from 234 departments in 151 institutions across 14 countries (see Table 2). In the second edition in 1996, the number of researchers and countries remained the same, with the number of departments and institutions represented increasing to 252 and 159. In 1999, Agreement was reached between the editors of the three regional directories to combine these into a single online directory, now the ISWorld Faculty Directory. At that time, the Pacific Asia contents of ISWorld Faculty Directory having become somewhat dated, a substantial effort was made to contact IS academics in the region and update related contents. This effort had some positive effect. Another such worldwide effort is required.

Table 2. ISWorld Faculty Directory Membership by State 1994, 1996, 2002

		1994	1996	2002	%	%Change 96-02
Strong	Australia	636	620	590	55%	-5%
	New Zealand	87	94	121	11%	29%
	Taiwan	131	130	75	7%	-42%
	Hong Kong	44	49	73	7%	49%
	Singapore	110	111	67	6%	-40%
Promising	India	16	16	51	5%	219%
	Korea	1	2	34	3%	1600%
	Japan	35	36	18	2%	-50%
	Thailand	76	77	16	1%	-79%
	Malaysia	7	8	15	1%	88%
	China	18	18	7	1%	-61%
Uncertain	Indonesia	7	7	4	0%	-43%
	Philippines	13	13	4	0%	-69%
	Brunei	n/a	n/a	1	0%	n/a
	Fiji	n/a	n/a	1	0%	n/a
	Mongolia	n/a	n/a	1	0%	n/a
	PNG	1	1	1	0%	0%
	Vietnam	n/a	n/a	1	0%	n/a
	TOTAL	1182	1182	1080	100%	-9%

The Table 2 is a breakdown of entries in the ISWorld Faculty Directory by state (where the term “state” denotes the political entities) in Pacific Asia, for the years 1994, 1996 and 2002. Table 3 is a further summary of this data. Using this data from the faculty directory as a proxy for the actual population of IS academics in the region, several conservative observations can be made.

Table 3. Pacific Asia Membership in ISWorld 1994 - 2002

	1994	1996	2002
# of countries	14	14	18
# of institutions	151	159	unknown
# of departments	234	252	unknown
# of academics	1182	1182	1080

Though dramatic growth is observed in numbers between 1996 and 2002 for Hong Kong (49 to 73), India (16 to 51), Korea (2 to 34), Malaysia (8 to 15), and New Zealand (94 to 121), and dramatic decline is observed in numbers for China (18 to 7), Japan (36 to 18), Philippines (13 to 4), Singapore (111 to 67), Taiwan (130 to 75), and Thailand (77 to 16), these changes should not be misconstrued as changes in levels of IS activity in these states. Rather, it is believed that, in example, declines may simply reflect reduced awareness of the directory; possibly unsustainable over-subscription in 1994/1996 from certain states (e.g. Singapore was perhaps too rigorously canvassed in 1994); or in the case of growth in numbers, recognition of previously existing staff (e.g. India and Korea) or the subscription of larger proportions of PhD and Masters students (e.g. Hong Kong).

Regardless, though the numbers are somewhat dated and incomplete, they do tell us something – the top five states represent 86 percent of entrants; Japan and Thailand would appear to be grossly under-represented based on the drastic decline from 1996 to 2002 and an expectation based on anecdotal evidence that they would grow rather than decline; the bottom seven states represent only 1 percent of entrants; and Korea and India have seen quite radical growth in

representation (a directory search on 25-08-2007 revealed 60, 76 and 86 entries for Korea, India and China respectively). It is further observed that enrolments from some states can be capricious, so more robust and sustainable representation in the directory and the international IS community has to be an AIS objective [see Gable and Smyth 2007].

### **THE PACIFIC ASIA CONFERENCE ON INFORMATION SYSTEMS**

The Pacific Asia Conference on Information Systems (PACIS) is the main international IS conference, and the only AIS sponsored conference, in the region. PACIS has run 10 times, in 1993, 1995, 1997, 2000, then annually since. To date, the conference has been held in nine different countries in the region. PACIS 2007 is planned for New Zealand, with China and India scheduled to hold the two conferences after that. Table 4 following summarizes key characteristics of PACIS over time, including available data on the next three PACIS conferences.

From Table 4 we observe growth in number of paper submissions to 300 or more in each of the last three years; an acceptance rate fluctuating around 50 percent and more recently trending downward; a peak in number of countries represented in 2006, at 25; in excess of 100 papers in the proceedings since 2003; in excess of 200 delegates since 2001 (numbers varying substantially with location).

Table 4. History of the Pacific Asia Conference on Information Systems

Year	1993	1995	1997	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
State	Taiwan	Singapore	Australia	Hong Kong	Korea	Japan	Australia	China (Mainland)	Thailand	Malaysia	New Zealand	China	India
City	Kaohsiung	Singapore	Brisbane	Hong Kong	Seoul	Tokyo	Adelaide	Shanghai	Bangkok	KL	Auckland	Suzhou	Bangalore
program chair(s)	TPLiang	Chuan and Dhaliwal	GGable, RWeber	Chau	HLee, KKWei	Terano, MMyers	LMarkus, TWood-Harper	LHHuang, Hsiang	PChau	BTan, HGLee	FTan, Jthong	Whuang, HHTeo	
conference chair(s)	Lin	MTan	AUnderwood	Tam	JSKim, JKLee	RManabe	MHeng, JSKim	Zheng, TPLiang	TBui, Junjaroen	JKLee, ZAKidam	MMyers, Srinivasan	KKWei, MKOLee	
organising chair(s)	n/a	n/a	n/a	n/a	KSSuh	Takai	DFalconer, JHanisch	Ling, Chu, Wei	Keretho, Ongkasuwan	JBojei, FSaad	LJanczewski		
panels & tutorials chair(s)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Tbui, CLSia	n/a		
conference dates	30 May - 1Jun	29 Jun- 2Jul	1-5 Apr	1-3 Jun	20-22 Jun	2-4 Sep	10-13 Jul	8-11 Jul	7-10 Jul	6-9 Jul	3-6 Jul	4-6 Jul	
conference duration	2.5days	2.5days	2.5days	2.5days	2days	2days	2.5days	3days	3days	3days	3days	3days	
# of submissions	n/a	n/a	160	188	130	170	230	368	300	302	277		
from # countries	9	13	20	24	17	19	21	17	20	25	20		
acceptance rate	n/a	n/a	50%	46%	66%	47%	48%	60%	51%	30%(b)	59%/41%(c)		
parallel streams	4	4	4	6	6	6	6	6	5	4	6		
papers in proceedings	65	72	81	86	87	80	111	222	153	120	164(c)		
panel discussions	5	11	2	1	n/a	n/a	3	4	2	2	2		
tutorials	n/a	n/a	8	n/a	4	n/a	n/a	3	7	3	2		
keynote speakers	3	5	10	4	4	3	3	3	2	4	2		
# of delegates	140	174	230	150	320	220	200+	295	~300	200+	243		
doctoral consortium	no	no	1day	1day	1day	1day	1day	1day	1day	1day	1day		
consortium students	n/a	n/a	13	21	13	22	15	16	16	16	18		
consortium chair(s)	n/a	n/a	RManabe, GDavis	RManabe, GGable	ASrinivasan, HMChung	Chung, Lee	KKWei, GGable	PChau, OChen, PSeddon	KALim, JThong	ABharadwaj, BYen	CUrquhart, CSoh	CLSia	
Notes:	<p>a excluding doctoral consortium</p> <p>b 30% acceptance for papers; 10% for posters</p> <p>c 59% includes 50 research in progress papers</p>												



## **V. STUDY APPROACH**

The study design is reflected in Figure 1. Sub-study methods and methodology are addressed in the individual papers of this CAIS special issue, some details of the case study method being included below in order to avoid repetition across the six state case reports. The last in the series of nine papers making up this special issue of CAIS [Gable and Smyth 2007] reports on generalizable methodological knowledge gleaned from the conduct of the sub-studies that comprise the overall project. In particular, there is analysis of the specific research artifacts developed for the individual sub-studies, it being proposed that the methodological learnings derived from this project will be of benefit in the replication and extension of the project to other regions of the world.

### **OVERVIEW**

The study process was a combination of deductive, top-down broad definitions of aims, questions and procedures, and inductive, bottom-up consideration of sources of evidence, project resources and feasibility. It could be said that early results were mainly inductive, these being followed by a more deductive, top-down review.

### **Project Management**

Individual state teams managed their respective case studies, with the overall project managed by Guy G. Gable (project leader) and Bob Smyth (project manager). Main mechanisms of project management were: (1) a project Web site; (2) regular status meetings of the project leader and project manager and related project status reporting by email; and (3) face-to-face team meetings as feasible. The case study protocol, too, served as a valuable mechanism for coordinating the study teams.

## **Complexities and Issues Encountered**

A range of complexities was encountered throughout the study, some of which were fully or partially overcome; others of which were not. Several pertained to the scope of the study: academe versus the profession versus both; teaching versus research; past versus present; Perhaps most consequential was the downturn in demand for IS student places, the beginning of which coincided with the commencement of this study. Though this phenomenon was less severe in parts of Pacific Asia, certainly as compared with the western experience, it nonetheless had serious implications that demanded the attention of most IS academics worldwide.

## **THE STATE CASE STUDIES**

The case studies were largely exploratory and descriptive, with relatively lesser emphasis on interpretation and generalizability. The data collected in the case studies addressed study questions listed earlier. The case study approach is well suited for investigation where there is little established theory on the topic [Yin 2003]. The case study method also has the advantage of allowing the researcher to get a good feeling for the complexities of interacting forces and subtleties that are more difficult to detect with other methods. Walsham [1995] refers to the “rich insight” possible from the case study approach.

## **Team Data Gathering**

It was planned that team members in the Pacific Asia states would gather qualitative data about each university (as well as relevant state-level data). The case study method was agreed as the research approach for the team study. The data gathered was intended to provide insights into the distinctive characteristics of IS in each university in relation to: degree of administrative autonomy, size and influence, curriculum, research, local influences, and significant persons in shaping IS at that university. Anchoring the data gathering and analysis was Gail Ridley’s then evolving draft framework derived from theory on the emergence of disciplines [Ridley 2006a]. Team members in each state

sought to analyze the data across the universities engaged in IS in that state, and to present general observations on the features of IS as an academic discipline in that state.

### **The Protocol**

Yin argues for the use of a case study protocol to guide any study employing the case study method. To this end, a multi-state case study protocol was developed for use by study team members. In this instance, it was intended that use of the protocol would contribute to:

- comparability across the states;
- consistency across the individual case studies; and
- efficiency in the conduct of the case studies, with potential for data gathering and some analysis being delegated to research assistants or other junior researchers

Yin strongly favours building a protocol around relevant theory. In this study, the protocol relies on a framework, emergence of a discipline, developed by Ridley [2006a]. In practice, the Ridley framework was refined in parallel with the data gathering and analysis for the individual state case studies. Thus, data gathering in most states was guided by a partial version of the final framework, incorporating two constructs: (1) degree of “professionalisation” as a discipline and (2) maturity as a scientific field. Both derive from Whitley’s theory of scientific change [1984a, 1984b].

Also, many of the tenets of General Systems Theory [Ackoff 1971] are implicit in the approach to data gathering and the themes and questions documented in the case study protocol. The approach to data gathering advocated, based on semi-structured interviews utilising broad themes to tap the perceptions of interviewees, is consistent with General Systems Theory. This approach permits the researcher to take a more holistic approach to the topic, and allows the interviewee to touch on the multiplicity of interacting factors that might contribute to the distinctive characteristics of the IS presence in each university. The

protocol directs the researcher to just some of the potential interacting factors that might determine the distinctive characteristics of IS at a given university: that the interaction of geography, administrative structure, individuals from within and outside the university, over time, may influence curriculum and research at that university.

Another assumption implicit in the protocol, supported by the work of management researchers and IS people like McFarlan, Nolan and Norton [1973], is that form influences function. The protocol suggests that to know the structure of the IS group and its position in the university's administrative framework is a good starting point for looking at the nature of IS curriculum and research at that university.

Study team members from the different states chose to follow the protocol to varying extents. The study favoured an approach that maximized the capacity for the state team members to draw out the distinctive features of IS in universities in each state; thus, conscious deviation from the protocol was not discouraged where such deviations achieved the objective of highlighting distinctive characteristics of any state.

### **MECHANISMS TO INCREASE REPRESENTATIVENESS**

Given the breadth and descriptive and exploratory character of the overall study, the team harboured no illusions regarding the ultimate completeness of issues to be identified, related evidence to be gathered, and analyses to be conducted. It was acknowledged that the study offers a mere starting point for ongoing monitoring of the state of IS in the Pacific Asia region. Regardless, efforts were made to achieve some level of representativeness of the evidence and perspectives reported. Key mechanisms were: (1) selection of the study team; (2) review of draft state reports by interviewees; (3) review of state reports by other within-state experts; and (4) all authors on all papers of the special issue reviewed the complete draft special issue.

### **Selection of the Study Team**

In establishing the study team, region-wide representation was sought; this suggested state-based case reports. Senior and well known IS academics were approached, in most cases those first contacted welcoming involvement.

### **Review of Draft State Reports by Interviewees**

All interviewees received an early draft of the state report in which their views were synthesized. On the basis of the feedback, changes were implemented by the state teams.

### **Within-State Reviewers**

In addition to careful review by state team members, interviewees, and the project leader and manager, each state report was given further local exposure in draft form. Selected “local experts” were sent a copy of the draft report for review, aims being to:

- Minimize potential adverse reaction from perceived misrepresentation;
- Try to ensure the report is as representative of the state as possible;
- Enrich the report with further insights; and
- Ensure that the process of peer-review results in papers of good academic standard for publication in the special edition.

### **Apologies for Omissions or Oversights**

Though extensive measures have been pursued to ensure representative input to the special issue and a balanced report, resource and time limitations have constrained what is possible. While such a report will unavoidably reflect certain emphases and biases and choices made at all stages of its production, the team nonetheless apologizes for any omissions or oversights. Given the desire that this study be replicated in future, feedback on any such omissions or oversights is all the more welcome.

## **METHODOLOGICAL ACTION RESEARCH**

The overall study effort was compounded substantially by the intention to document the approach for repeatability. Mats Alvesson [2000] uses the term “reflexive methodology,” referring to an evolutionary approach that aims to maximize the quality of study results. We prefer the term “methodological action research” whereby, in addition to results in relation to research questions posed, the study seeks generalizable contributions to knowledge as regards the research process. Thus, we sought to establish a systematized approach, readily extended and repeatable across other countries and regions and across time.

With the objectives of reporting on methods employed and related learnings together in a single article, and in the interests of minimizing redundancy across the special issue articles, much detail on methods employed has been excluded from the individual evidentiary papers and, rather, appears in the Methodological Learnings paper in this special issue of CAIS [Gable and Smyth 2007].

## **VI. STUDY OUTCOMES**

The main study outcomes are reported in the separate papers of this special issue of CAIS. This section includes brief comment on each of the nine papers in the special issue.

## **CONTENTS OF THE SPECIAL ISSUE**

### **IS in Pacific Asia: Contextual Analysis (This Paper)**

This paper introduces the IS in Pacific Asia study and the special issue. It describes the genesis of the study; reflects on prior literature on the state of IS; discusses the theory underpinning the individual case studies; and outlines the overall multi-method approach, particularly the case study method used for the state reports. The process of multiple peer review of the individual state reports is also described. Importantly, this paper summarizes and interrelates each of the component studies reported in the special edition. An outline is also provided of in-progress studies that complement the efforts reported in this special edition.

## **IS in Australia: A Case Study**

The Australian case study was commenced first and is in closest accord with the protocol, it being intended as an exemplar for the other teams and for future replications/extensions of the study. The Australian study assesses the state of IS in Australian universities in relation to criteria indicative of the maturity of a discipline. With 19 core team members in 12 sub-study teams, and in excess of 30 interviewees and a similar number of reviewers across Australia, the study, too, serves as a useful example of large-scale research project management.

The IS discipline in Australia emerged in parallel with, and until the end of the 1970s, independent of developments overseas. In Australia, an immediate precursor to the discipline was the Commonwealth public sector's Programmer in Training (PIT) scheme, which ran from 1963 to 1970. By the beginning of the 1970s several Colleges of Advanced Education (CAEs) and Institutes of Technology had established departments. The first specialist department, called Electronic Data Processing (EDP), appears to have been established at Caulfield Institute of Technology in 1965. In the 1960s IS topics began to appear in university accounting departments and by the beginning of the 1970s honours theses in IS topics began to emerge from the University of New South Wales and University of Queensland Accounting departments. In 1974, the University of New South Wales appointed the first professor of IS, Cyril Brookes, and formed the first university IS department [Clarke 2006].

A critical initiative was the national conference, the Australian Conference in Information Systems (ACIS). The first conference was held at Monash University in 1990. The national specialist journal the *Australian Journal of Information Systems* (AJIS) was established in 1993. Liaison among IS professors and departmental heads was formalized through the Australian Committee of Professors and Heads of Information Systems (ACPHIS) in 1995.

There are 39 universities in Australia, 37 being public and two private. The organizational location of IS in Australian universities has been highly varied from the outset. In 2006, more universities had IS located within a business faculty

than within a technology faculty. The business versus technical ratio was approximately 60/40. Five universities had two separate IS groups, with one group in business and one in technology.

A survey of the heads of all IS discipline groups in Australian universities, conducted in mid-2005, revealed a wide range of topics researched (with rapid growth in electronic commerce and knowledge management), a range of foci, a balance between positivist and interpretivist research; survey was the most frequently used research method, and most research was directed at informing IS professionals [Pervan and Shanks 2006].

While the overall study revealed little evidence of a distinctive Australian flavour of Information Systems, it did find that the state of Information Systems in Australia reflects the highly decentralized nature of the country. The diversity of curriculum approaches, the disparate administrative location of IS academics, and the lack of a strong identity for IS in some universities led to the conclusion that IS has a low degree of “professionalisation” relative to longer-standing disciplines. IS cannot yet be considered a mature, distinct academic discipline in Australia.

### **IS in Singapore: A Case Study**

Tan and Chan report on the status of information systems in Singapore’s three universities. The IS curriculum in Singapore generally follows the curriculum outlined by the AIS but also includes some distinctive subjects developed on the advice of the Infocomm Development Authority (IDA) of Singapore, which conducts surveys into local industry needs.

IS researchers at Singapore universities have an impressive research output which is well represented in top-tier journals. There are no distinct specialist IS research groups within the three universities. Topics researched tend to be determined by individuals, with fluid and flexible collaboration among the IS academics.



While the status of IS as a discipline differs somewhat across the universities, prominence in IS does provide potential for prestige and power. An IS academic occupies the position of dean of the Nanyang Business School and prominent IS researchers serve on many national level planning committees. Tan and Chan conclude that the IS discipline in Singapore is indeed developing into a distinct scientific discipline.

### **IS in Korea: A Case Study**

In the report “The Information Systems Academic Discipline in Korea 2006: A Focus on Leading Universities” Lee and Yoo explore the status of IS as a discipline in Korea by analysing the characteristics of IS programs and IS research in 10 top Korean universities. In-depth interviews, and intensive secondary data gathering and analysis based on the case study approach, were used to produce this report.

IS began to emerge as a separate field of academic study in Korea in the mid-1980s. In Korean universities, IS is generally located within the College of Business Administration as either an academic major or as a department. IS as a major has been mainly adopted by top-tier schools, while second-tier universities have established IS as a key program to attract more students and have established separate IS departments. Economic pressure in recent times has been driving restructuring of universities in Korea and it is not yet certain whether this restructuring trend will be an opportunity or a threat to IS.

IS was located in the business school of all 10 of the top Korean universities studied. The number of IS academics in these universities ranged from three to six. Korean universities offer diverse course-based postgraduate programs for part-time students working in industry. These are a key source of income and donation; they enable applied research to be done; and they enhance a university’s social reputation and connections. As a result, universities generally have more and bigger course-based postgraduate programs than research-

based programs. The number of postgraduate IS students varied from 10 to 60 across the 10 universities.

In Korea, academic research areas are strongly influenced by the needs of the professional business community. There was considerable diversity in the areas of IS research interest, though e-commerce, knowledge management, and telecommunications were common across the universities studied.

A conclusion of the Korean study was that IS could be considered an immature discipline in that country as the impact of local contingencies is quite high.

### **IS in Hong Kong: A Case Study**

Chau and Kuan's Hong Kong report portrays comparatively strong growth in the IS academic discipline in Hong Kong. While the first IS department in Hong Kong was established only 17 years ago at the City Polytechnic of Hong Kong (now City University of Hong Kong), today across the seven Hong Kong universities there are around 90 IS academics teaching more than 700 undergraduate students and 400 masters students.

All IS groups in Hong Kong are located in business schools. A major challenge faced by the groups is that they are generally small in terms of the number of staff and have low representation in senior faculty positions. Only three IS academics hold professorial chairs in Hong Kong universities. The IS programs offered are comparable with those in North America.

IS research in Hong Kong is quite diverse. One research area that has government support and is attracting increasing attention is logistics and supply chain management. There are approximately 90 IS research students studying towards their MPhil/PhD degrees. While IS groups have been very active organizing professional development activities, interaction between groups and with industry professionals has been fairly limited. The recent establishment of the Hong Kong Association for Information Systems (HK AIS) in January 2006 is playing a positive role in encouraging more collaboration.

### **IS in Taiwan: A Case Study**

Lee and Liang report on the development of IS as a discipline in Taiwan. In Taiwan, IS is regarded as a business discipline and is generally called Information Management. While the first IS department was not established until 1981, today more than 80 percent of the 145 universities in Taiwan have IS departments. Program sizes range from 100 to 3,000 students and more than 20,000 students graduate from IS programs each year. A significant milestone in the history of IS in Taiwan was the first doctoral graduate in IS in 1998 which signalled that Taiwanese IS programs had the ability to train their own faculty members.

Lee and Liang have detailed the IS programs in nine major Taiwanese universities to provide a snapshot of IS education and research in Taiwan. Information Management programs in Taiwan differ somewhat from the typical IS program in the United States in that students are required to learn not only the strategic and organizational aspects of information systems but place much emphasis on programming and systems development. Most graduates find a ready market for this combination of technical and business skills in Taiwan's high-tech manufacturing or service industries. Research areas are in line with global research trends and include e-commerce, DSS, technology adoption issues and knowledge management.

Lee and Liang conclude that the IS discipline in Taiwan, despite its short history, is identified as a separate and relatively mature field that enjoys high respect in Taiwanese universities.

### **IS in New Zealand: A Case Study**

The New Zealand study team of Huff and Lehmann interviewed key IS figures from each of the eight New Zealand universities, as well as from the polytechnic, Unitec, which, at the time of data gathering, was in the process of being granted university status.

The New Zealand study examines three phases in the evolution of IS in New Zealand universities: a period of gentle growth through until about 1996, followed by a major upsurge associated with the dot.com boom through until about 2002, followed, in turn, by a major decline in academic IS growth.

The study analyses approaches to research and curriculum in each of the universities. One conclusion of the study is that IS in New Zealand, despite its clear business orientation, does have a significant bias towards the more technical elements of the discipline, especially a pronounced overlap with systems engineering.

While acknowledging factors designed to unify aspects of IS in New Zealand universities, the study concludes that the character of the New Zealand IS discipline remains a “fragmented adhocracy” [Whitley 1984a].

### **The Administrative Placement of IS: A SWOT Analysis of Korean and Australian Universities**

Two Australian academics, Guy Gable and Peter Green, and two Korean academics, Jae-Nam Lee and Kee-Young Kwahk, report on an analysis designed to highlight relative advantages and disadvantages associated with alternative administrative placement of the IS group in universities. Gable, from QUT in Australia, and Kwahk from Kookmin University in Korea, each report on instances of administratively separate IS schools. By contrast, Green, from University of Queensland in Australia, and Lee, from Korea University, describe situations where the IS academics are placed in a section or “cluster” within business.

The SWOT technique, applied with care in selection of the interviewees, proved useful as a technique for extracting perceived advantages and disadvantages in the different administrative locations of IS academics in universities. In the SWOT approach, more widely used in strategic planning, interviewees with a deep knowledge of the relevant IS group and with a strong knowledge of the wider IS environment, were questioned in relation to perceived internal strengths

and weaknesses associated with the placement of their group, as well as being questioned about their perceptions of opportunities and threats relating to external factors that impinge on the IS group. Opportunities represent environmental factors that can be beneficially exploited, while threats need to be considered because of their potential to damage the organization.

The paper provides useful pointers for decision makers, both from IS groups in separate schools and from IS groups embedded within business faculties, to exploit opportunities and minimize external threats that flow from the respective academic placements. The study also offers useful insights for Information Systems academics contemplating administrative relocation of their group.

In the two universities where the IS academic group is in a separate IS school [QUT and Kookmin], there is evidence of internal strengths associated with greater autonomy over both curriculum and research while the report also indicates opportunities for these groups in raising the profile of IS as a distinct discipline. On the other hand, both at QUT and Kookmin, the autonomy of the IS groups was associated with reduced competitive strength within the university and vulnerability to the tendency to regard IS/IT as a commodity within business.

As might be expected, the reported strengths, weaknesses, opportunities and threats at University of Queensland (UQ) and Korea University (KU), where IS academics are embedded within business faculties, were seen to be largely the inverse of those at the other two universities. So, some quarantining from the adverse effects of IT downturns, because of the capacity to rely on continuing demand for business, was seen as a strength at both UQ and KU. Similarly, both UQ and KU IS groups saw opportunity in the emerging trend towards commoditization of IT. Again, both UQ and KU reported constraints on curriculum as weaknesses associated with lack of autonomy and threats from other ICT academic groups in their universities.

The paper provides an example of the effective and novel use of the SWOT method in an IS context. The paper is also effective in evolving an approach and

related tools for usefully extending the SWOT analysis approach to other institutions and states, and across time.

### IS in Pacific Asia: Methodological Learnings

This paper, the last in the series of nine papers making up the special issue, reports on methodological knowledge gleaned from the conduct of the sub-studies. In particular, the specific and detailed research artifacts developed for the individual sub-studies are reported. It is proposed that the methodological learnings derived from this project will be of benefit in the replication and extension of the project to other states of the Pacific Asia region, to other world regions, and longitudinally within region. The paper addresses a key aim of the over arching study; the development and application of a repeatable process of evidence collection and review, to facilitate tracking diffusion of the IS discipline.

### CROSS-CASE OBSERVATIONS

Table 5 presents several coarse and cursory observations across the State case studies. None of the state teams reported the existence of a unique IS symbol system and most reported medium to high influence of local contingencies on curriculum and research foci. Based in Whitley's theory, these results suggest a lack of maturity as a separate discipline; yet no individual case conforms neatly with the theory.

Table 5. Cross-Case Comparisons

	Australia	Hong Kong China	Korea	New Zealand	Singapore	Taiwan
IS Governance	Improving	Starting	weak	Improving	Governed	Established
Administrative Location	Mixed	Business	Business	Mixed	Mixed	Business
Technology vs Management	Mixed	Balance/ Management	Mixed	Mixed/ Technical	Balance	Mixed/ Technical
Unique Symbol	No	No	No	No	No	No
Impact of Local Contingencies	Medium	Low	High	Low/Medium	High	High
Maturity as Separate Scientific Field	Plateau	Plateau	Declining	Plateau	Evolving	Evolving
Presence	Substantial	Established	Medium	Substantial	Substantial	Substantial

Table 5 suggests that in Australia, Hong Kong and New Zealand there has been movement towards maturity of IS as an academic discipline but that this progress has stalled (reached a plateau) short of full maturity. In Korea, where IS now lacks any independent status in universities, the level of maturity is depicted as “declining”. By contrast, the evidence in both Taiwan and Singapore points to relatively high levels of maturity, with apparent continuing progress towards even higher levels.

The Taiwan IS academic community appears especially proactive, the discipline being extremely well regarded and having a substantial presence and prestige. Though the emphasis on technology versus management across Taiwanese universities is mixed, there is an overall greater emphasis on technology as compared to North American universities, this being in response to the needs of the local high-tech manufacturing industry. Singapore too has a substantial IS presence, being well regarded and enjoying prestige, and is also much influenced by the needs of local government and industry (the universities tending to reflect a more consistent ‘balance’ of technology and management). These two cases alone - where local contingencies have much influence on IS in universities, yet where IS in the universities is strong and of high status - suggest a need to revisit the theory, and cast doubt on the theoretical proposition that a mature discipline should be uniform internationally, and relatively uninfluenced by local contingencies. Within each of Taiwan and Singapore, we observe relative homogeneity of the local IS discipline, largely a consequence of strong influence from government and industry. As an adjunct to the theory employed, some correspondence is observed between the level of governance of the IS academic discipline and the strength of the discipline in each state.

## **OTHER STUDY DELIVERABLES**

Key study deliverables, in addition to the special issue of CAIS also include:

- an EndNote file of all past ACIS proceedings;
- a scanned image file of all past ACIS proceedings; and

- the table listing IS location within Australian universities posted at the ACIS home page <http://www.aaisnet.org/>.

These are addressed in somewhat more detail in the Methodological Learnings paper [Gable and Smyth 2007] in this special issue of CAIS.

## **VII. CONCLUSION**

To conclude this context report, the following are described: (1) the communication of study results; (2) further planned or in progress research; and (3) study limitations.

### **COMMUNICATING STUDY RESULTS**

The main vehicle for communicating study results is the special issue of *Communications of the AIS* within which this paper appears. More detailed results of the IS in Australia study were reported in the previously mentioned special issue of the *Australasian Journal of Information Systems* [Gable 2006]. Further detail of that study is to appear in a book following on from that special issue. In addition to the descriptive material that makes up the bulk of this CAIS special issue, a particularly important vehicle for communication of the study process and experience is the concluding paper in this special issue. Therein are reported methodological learnings, these hopefully of value to replications and extensions of this work across time and regions.

### **FURTHER RESEARCH**

As per Figure 1, and represented therein by unshaded ovals, two sub-studies that complement the results reported in this special issue have been commenced but are not yet completed. They are: (1) The IS Research Issues survey, and (2) the China (mainland) case study.

#### **The IS Research Issues Survey**

In March of 2005 as part of this overall initiative, a global survey of issues facing IS researchers yielded over 800 responses. Various results from this sub-study



have been presented at several workshops in Australia, Hong Kong, and Shanghai, and as keynotes at the AIS SIG ISAP (IS in Asia Pacific) of ICIS 2005, and at the Information Systems and Management track (ISM'07) of the IEEE WiCOM2007 conference in Shanghai [Gable, Stark and Smyth 2007]. Further, more detailed results are to appear in a further publication, though outside the timeframe of this CAIS special issue.

### **Mainland China Case Study**

Efforts are underway for a case study of the “The Information Systems Academic Discipline in Mainland China.” In line with the Chinese economy, the IS academic community in China too is mushrooming. PACIS 2005 in Shanghai attracted 368 paper submissions and 295 delegates. A strong winning bid brings PACIS back to China (Suzhou) in 2008 (see Table 4). China is attracting a steady stream of notable IS academic visitors, and is hosting a growing number of IS events (e.g. the ISM'07 track of IEEE WiCOM mentioned above attracted 600+ paper submissions and approximately 250 senior IS academics and research student delegates).

### **Other Extensions**

It is reiterated that both the IS in Pacific Asia study and the prior pilot study of the IS academic discipline in Australia, have, from the outset, been designed and executed with the expectation that they will be extended and repeated over time. Figure 1 depicts various states to which the study is soon to be extended. It is suggested that future replication in the six states reported in this special issue also is of value.

### **LIMITATIONS**

As acknowledged at various points in this paper, the study was a learning experience, a major aim being to evolve an approach that could be repeated across time and across regions; as such, its limitations are many, several of which have been specified throughout this paper.

A feature highlighted in the execution of this study was the dynamic state of Information Systems in universities at the time of the study. Hence, the study represents a snapshot of a rapidly changing scene. To capitalize on the findings of this study, there is an imperative to replicate it over time. A longitudinal view of the state of Information systems in Pacific Asia universities will tell much about the maturing of Information Systems as a discipline.

## **ACKNOWLEDGEMENTS**

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*Editor's Note:* The following reference list contains hyperlinks to World Wide Web pages. Readers who have the ability to access the Web directly from their word processor or are reading the paper on the Web, can gain direct access to these linked references. Readers are warned, however, that:

1. These links existed as of the date of publication but are not guaranteed to be working thereafter.
2. The contents of Web pages may change over time. Where version information is provided in the References, different versions may not contain the information or the conclusions referenced.
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