



## EDITORIAL

# Information systems research in the Asia Pacific region

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### Abstract

Research in information systems (IS) in the Asia Pacific has experienced fast progress in the past 10 years. A major driving force is the Pacific Asia Conference on Information Systems. In this paper, we provide an overview of the IS research in the Asia Pacific and in China and four best papers selected from the 2004 Pacific Asia Conference on Information System Shanghai Conference.

*European Journal of Information Systems* (2005) 14, 317–323.

doi:10.1057/palgrave.ejis.3000548

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**Keywords:** information systems research; Asia Pacific region; research topic comparison

### Introduction

The field of information systems (IS) has evolved into a mature discipline along with the development of information technology and its applications over the past three decades. As the role of IS increases in both profit-making and non-profit making organizations around the world, the academic discipline of IS research has also become more globalized. Although still a bit behind the American and the European counterparts, IS research has grown rapidly in the Asia Pacific (AP) region in the past decade, both in terms of the number of IS programs and the number of IS researchers in the region.

Two major driving forces for the development are the initiation of the Pacific Asia Conference on Information Systems (PACIS) in 1993, held at National Sun Yat-sen University in Kaohsiung, Taiwan, and the founding of the Association for Information Systems (AIS) in 1994. PACIS provides a platform for scholars in the region to share their research findings, while AIS has a mechanism for members in the region to be involved in the global scholar network in the area. As a result, IS researchers in the region have become much more active and collaborative as compared to the situation 10 or 15 years ago.

In this introduction, we first provide an overview of the evolution of IS research in the AP region in the past decade based on papers published in previous PACIS proceedings. We then look at the key drivers for such a rapid growth. We conclude with what the IS research community in the region has achieved so far and a brief description of the papers selected from PACIS 2004 for this Special Section.

### Evolution of IS research in the AP region

A good snapshot of the evolution of IS research in the AP region is the papers that have been published in PACIS Proceedings. An examination of the conference proceedings from 1993 to 2004 shows that a total of 878 papers has been published (including poster sessions, <http://www.pacis-net.org>). Their authors distribute among 34 different countries.

Table 1 Distribution of contributor's nationality

Country/region	1993 TW	1995 SG	1997 AUS	2000 HK	2001 KR	2002 Japan	2003 AUS	2004 China	Total
Australia	3	19	48	32	21	27	69	37	256
USA	26	15	13	7	6	3	6	29	105
Taiwan	20	9	2	5	6	9	11	32	94
Singapore	10	14	4	3	11	14	8	27	91
Hong Kong	5	11	8	10	7	14	11	20	86
Korea	2	3	1	7	30	5	5	16	69
China	1	3	1	2	2	5	3	47	64
Japan	4	8	6	7	6	16	3	6	56
New Zealand	0	6	5	5	3	6	8	6	39
Others	5	30	12	23	8	18	26	33	155
Total	76	118	100	101	100	117	150	253	1015

Note: Some papers have co-authors from multiple countries and hence the total number of paper counts by country is higher than the total number of published papers.

Among them, Australian scholars contribute over a quarter of all papers (25.2%), followed by the United States of America (10.3%), Taiwan (9.3%), Singapore (9.0%), Hong Kong (8.4%), Korea (6.8%), China (6.3%), and Japan (5.5%). Table 1 shows the distribution of author nationality in the past.

Owing to the active participation from Australian professors, PACIS has been held in Australia twice (1997 and 2003). Australian Authors contributed 48 and 60 papers, respectively. Similarly, a substantial portion of the papers from Taiwan, Korea, and China also occurred in the year where the conference was held in a local city (1993, 2001, and 2004, respectively). For instance, 47 of the 64 papers from China were published at the 2004 Shanghai meeting. Contributions from Hong Kong, Singapore, and Japan are more evenly distributed. In general, we can see an increasing trend in the number of papers published in PACIS, from an average of around 100 before 2001 to more than 150 after 2003. This trend reflects the growth of the IS community and the increased international connections in the region. An interesting trend is that we see a decreasing involvement of US researchers until the 2004 Shanghai meeting, which attracted 29 authors.

Another issue to understand the research profile in the region is whether the research topics and methods in the region are different from those in other regions. A group of doctoral students at National Sun Yat-sen University analyzed the topic of papers published in previous PACIS from 1993 to 2004 and divided papers into five major areas, human (I), systems (II), technology (III), management (IV), and research methods (V), and 10 subareas. The result as shown in Table 2 indicates that system-related papers were the most popular, followed by human-related topics. This compares with the benchmark in Table 3, the topic distribution of IS papers published in eight major journals (*MIS Quarterly*, *Information Systems Research*, *Journal of MIS*, *Decision Support*

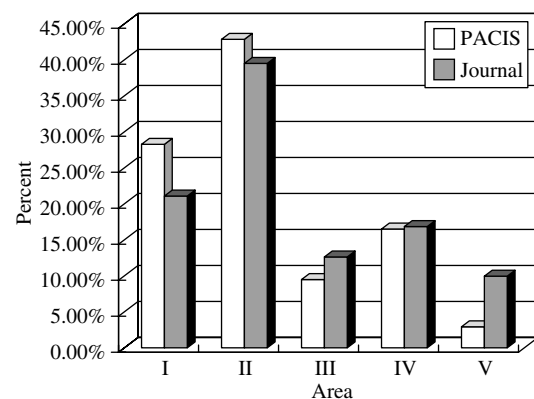


Figure 1 Topic distributions of PACIS and major IS journal papers.

*Systems, Management Science, Communications of the ACM, Information and Management, Decision Sciences*) from 1980 to 2001 (Liang & Chen, 2003). We can see that the topic distributions are quite similar in a sense that human- and system-related issues dominated in both channels (Figure 1). However, papers on research methods are much less at PACIS. PACIS does not have the trend of a significant decline in system-related research, as occurred in IS journals from 38.4% in 1992–1998 to 33.6% in 1999–2001 (see Table 3).

Research methods used in PACIS papers are shown in Table 4. The top three methods are survey, experiment, and case studies. The profile is similar to the research methods in papers published in MIS journals, in which empirical research was more than 68% from 1981 to 1997 (Claver *et al.*, 2000).

### Emerging research in China

A major trend in the AP region is the increased contribution from researchers in China. Although the

**Table 2 Distribution of research topics in PACIS**

Area	1993	1995	1997	2000	2001	2002	2003	2004	Total
<i>I</i>									
Individual	2	4	9	7	15	12	11	21	81
Group	1	2	6	1	6	1	0	4	21
Organization	5	8	23	21	25	28	26	32	168
Societal	3	10	4	3	2	6	5	7	40
Subtotal	11	24	42	32	48	47	42	64	310
<i>II</i>									
Development methods	2	13	4	8	3	6	5	7	48
System development	27	19	8	5	7	9	9	15	99
System applications	19	23	26	40	45	56	28	86	323
Subtotal	48	55	38	53	55	71	42	108	470
<i>III</i>									
IT tools	14	14	8	4	4	5	26	29	104
<i>IV</i>									
Management	18	21	23	21	21	8	21	48	181
<i>V</i>									
Research methods	1	1	0	1	3	0	17	9	32
Total	92	115	111	111	131	131	148	258	1097

Note: Total number is higher than the number of papers, due to multiple areas per paper.

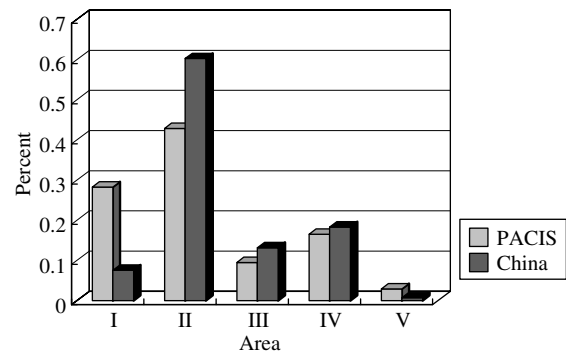
**Table 3 Distribution of papers published in eight major IS journals**

	Human		System		Technology and analysis model		Management		Research methodology and theory	
	Paper counts	%	Paper counts	%	Paper counts	%	Paper counts	%	Paper counts	%
1980–1984	85	18.0	231	49.0	38	8.1	65	13.8	52	11.0
1985–1991	398	17.2	1027	44.4	262	11.3	414	17.9	212	9.2
1992–1998	740	20.9	1358	38.4	467	13.2	595	16.8	378	10.7
1999–2001	531	26.6	670	33.6	283	14.2	327	16.4	186	9.3

Source: Liang & Chen (2003).

quality and topic profile of research in China have not reached the level of Hong Kong or Australia, the growth is very fast. Currently, there is no pure MIS Journal in China. By surveying the MIS papers published in 10 major management science, computer science, and system engineering journals, we can still have an understanding of MIS research in China. A total of 410 papers published between 1999 and 2004 was identified and coded by a group of graduate students in Fudan University in the study. Their topic distribution is shown in Table 5. Figure 2 shows that a substantial difference exists between PACIS and China local research. Around 68% of the research in China is in system development. Only a very small portion of the papers investigates human-related issues. Similarly, the research methods used are primarily system development and applications. Table 6 shows the difference between PACIS and journal papers in China.

This may reflect that China is still in the early stage of IS adoption, in which developing systems is the over-



**Figure 2** Topic difference between PACIS and China.

whelming concern (as shown in Table 3, system-related issues occupied around 50% of the space in IS journals in 1980–1984). Another reason may be because of the nature of journals we surveyed, which are more engineering-oriented. Given the resource limitation, however, the

**Table 4** Distribution of research methods in PACIS papers

Method	1993	1995	1997	2000	2001	2002	2003	2004	Total
Case	1	5	16	12	12	13	29	42	130
Survey	11	31	20	28	33	14	22	80	239
Experiment	16	22	20	12	22	3	5	21	121
Qualitative	3	0	2	3	5	29	20	29	91
System development	6	3	5	7	3	4	20	4	52
Problem solving	6	4	4	4	4	0	3	13	38
System application	8	16	11	19	5	0	0	14	73
Concept description	10	10	2	0	6	14	12	19	73
Other	6	6	4	1	0	25	19	0	61
Total	67	97	84	86	90	102	130	222	878

**Table 5** Topic distribution of PACIS and China papers

Area	PACIS	China
<i>I</i>		
Individual	81	2
Group	21	6
Organization	168	17
Societal	40	6
Subtotal	310	31
<i>II</i>		
Development methods	48	11
System development	99	136
System applications	323	100
Subtotal	470	247
<i>III</i>		
IT tools	104	54
<i>IV</i>		
Management	181	75
<i>V</i>		
Research methods	32	3
Total	1097	410

findings do give us some insight into IS research in China.

### Key drivers for the rapid growth

Looking into the future of IS Development in the AP, we can see five key drivers for the rapid growth of IS research and IS scholars in the area, three on the 'supply' side, and two on the 'demand' side.

As said at the beginning of the paper, the establishment of both AIS and PACIS are important milestones contributed to the rapid growth. The establishment of the AIS has provided IS researchers in the AP region with an unprecedented opportunity to 'blend' with the International IS community. Under the AIS governance structure, the President of the Association is on a

**Table 6** Difference in research methods between PACIS and China

Method	PACIS		China	
Case	130	14.8%	3	0.7%
Survey	239	27.2%	3	0.7%
Experiment	121	13.8%	0	0%
Qualitative	91	10.4%	0	0%
System development	52	5.9%	89	21.7%
Problem solving and modeling	38	4.3%	58	14.1%
System application	73	8.3%	132	32.2%
Concept description	73	8.3%	120	29.3%
Other	61	7.0%	5	1.3%
Total	878	100%	410	100%

rotational basis among the three regions, Americas, Europe, and AP. This makes IS researchers in the AP region have an opportunity to play a key and leading role in the global IS academic community every 3 years. Together with the two regional representatives in the Council, the voice from the region can be heard. This factor certainly will continue to play a major role in the future.

The growth of PACIS as a bigger and more prominent academic conference in the field has also made significant contribution. As seen in the above publication analysis, PACIS provides a forum for interaction between IS researchers in the AP region and leading/established scholars in the international IS community. Almost in each of the past four PACIS, the Presidents of AIS and the Chief/Senior Editors of leading IS journals including *MIS Quarterly*, *Journal of AIS*, and *Journal of MIS* have been invited and participated as keynote/plenary speakers in the main conference, the Doctoral Consortium, and featured panels. The experience and exposure gained from meeting with these international leading scholars make IS researchers in AP not just understand what is going on in the IS field in a broader context but also help them find out issues and challenges unique to the AP region.

The third driver on the supply side is the rapid growth of North-American and European-trained IS scholars who are originally coming from the AP region and the increased collaboration between scholars from the Chinese community and those from Australia and New Zealand. In the 1970s and 1980s, with the growth of international business (including education) between North America and AP and with the 'open-door' policy of the Mainland China, a significant number of young scholars in the AP region went to North America or Europe to pursue their doctoral studies, in the field of IS. These groups of young scholars, since the beginning of 1990s, have begun to return to their home countries to help develop the field of IS or Information Management (as is usually called in the Mainland China and Taiwan) and nurture young IS scholars through the establishment of IS or IM departments/programs in their serving universities/institutes. For instance, in Hong Kong, there were virtually no IS departments/programs in the late 1980s. In 2004, all eight universities offered IS programs at undergraduate, Master's, and/or PhD levels with close to one hundred researchers and graduate students in the field. Similar growth happens in Taiwan and the Mainland China. There are hundreds of new MIS or related programs (e.g., electronic commerce) in Taiwan and in China. This growth provides a new generation/pool of IS scholars in the AP region.

On the 'demand' side, the rapid growth of IS/IT applications in organizations in the AP region fuels the need for IS research. The success of broadband penetration and the leading role of mobile commerce and applications of Korea in the world, the contributions to the study of knowledge and knowledge management by a group of Japanese scholars, notably, I. Nonaka, the phenomenal growth of being an R&D and outsourcing center of the world of the Mainland China, the huge potential market offered by the Mainland China to the international business and IS/IT markets, all contribute to the rapidly growing demand for IS researchers in the Region to work with both the local business community of their own and the international IS academic community in order to meet with the opportunities and challenges along with the social and economic betterment of the region.

The new business models being adopted in organizations in the AP region, which may or may not be similar to those in their counterparts in the Americas and Europe, also demand for IS research that is unique with the AP perspective. This should not be bounded by the so-called 'cross-cultural' studies but also include or incorporate the distinct Asian intellectual tradition that emphasizes synthetic and holistic perspectives (Yoo *et al.*, 2004). The success of i-Mode in Japan and mobile business in Hong Kong (e.g., the Octopus card) and Korea provide a rich environment in which new research issues and theories may be developed. The open-door policy of China provides another exciting opportunity for researchers looking for innovative research directions.

The record-high papers and participation of the PACIS Shanghai meeting is just one of the clues.

### Conclusions and papers in this special section

So, what have the IS researchers in the AP region achieved so far? In essence, we believe there are at least three major achievements. First, we do see a phenomenal growth of IS research and IS researchers in the AP region, as supported by the analysis of paper published in PACIS proceedings in the previous section. Second, we also see a healthy growth of PACIS, in terms of submissions and participants by number and by country. For instance, in PACIS 2004 in Shanghai, there were over 360 submissions from at least 17 countries and the conference was attended by over 300 IS researchers from more than 20 countries including those from the U.S.A., Canada, and quite a few European countries. Third, the 'inroad' of IS researchers from the AP region into the editorial boards of major IS journals also represents another achievement. To date, we can find scholars in the AP Region on the editorial boards of *MIS Quarterly*, *Information Systems Research*, *Journal of MIS*, etc. We can foresee that this high momentum will soon contribute to the future development of IS research in Europe and North America.

Nevertheless, while we do believe that IS researchers in the AP region have made good achievements in the past decade or so, there is also a clear sense that there are many challenges and opportunities ahead. IS researchers in the region are doing research in the domains that are important to their own countries and contexts (and are of no significant differences from their counterparts in Americas and Europe).

The goal of this special section is to provide exemplars of research conducted by IS scholars in the Region. From more than 300 submissions to PACIS 2004, four papers were finally accepted for publication in this special issue. Two of the papers focus on management issues in firms, one examines processes within firms, and one looks into individual information-seeking behavior. Three papers are using the case study approach, and one examines the issue in laboratory experiment. While they all contribute to the main challenges of IS research in the AP region, they each address a different but important IS issue in the region.

Hsiao-Lan Wei, Eric T.G. Wang, and Pei-Hung Ju (Understanding Misalignment and Cascading Change of ERP Implementation: A Stage View of Process Analysis) draw upon data collected from a company in Taiwan to understand the misalignments of ERP adoption and the associated change dynamics from a stage view. The results of their study reveal that industry-, company-, and regulation-specific misalignments often occurred in the chartering phase; misalignments of input, control, data, process, output, and schedule are the major problems in the project phase; and misalignments of information and new business requirements are the main concerns in the shakedown phase and onward and upward phase. The

paper offers insights related to the cascading effects of misalignments and change actions and the possible misalignment resolution strategies.

Jong Han Park, Jae Kyu Lee, and Jung Soo Yoo (A Framework of Designing the Balanced Supply Chain Scorecard) propose a framework that applies balanced scorecard (BSC) in the context of supply chain management (SCM). Integrating literature on BSC and SCM, SCM solutions, the Korean researchers develop a framework of Balanced Supply Chain Scorecard that includes Supplier Relationship Management, Electronic Data Interchange, Collaborative Planning, Forecasting, and Replenishment, and desktop purchasing. The usefulness of the framework was demonstrated by a comparative case study of two distinctive companies in Korean.

Wasana Bandara, Guy G. Gable and Michael Rosemann (Factors and Measures of business process modelling: model building through a multiple case study) examine two important issues in business process modeling: what are the important success factors of process modeling and how can the success be measured. Derived from the literature, the Australian group develop an *a priori* process modeling success model, which was then under validation by a multiple case study design with three leading Australian organizations. The results of the analysis offer new insights to what constitutes a success model for business process modeling and provide practical guidance

on how to measure the effectiveness and efficiency of a modeling project.

Paulus Insap Santosa, Kwok Kee Wei, and Hock Chuan Chan (User Involvement and User Satisfaction with Information-Seeking Activity) investigate how two types of motivators, namely intrinsic and situational motivators, affect a user's involvement and satisfaction with his or her information-seeking activity using a laboratory experiment approach. The results provide implications to both theory (on distinction between intrinsic and situational motivators in understanding information-seeking activity via a Website) and practice (on design of a Website that is usable and serviceable).

Collectively, the four papers in this Special Section showcase both the quality of the papers and the diversity of research topics or interests of IS researchers in the AP region. We hope that this Issue can advance the understanding of IS researchers around the globe of what AP researchers in the field of IS are doing.

### Acknowledgements

We thank Bob O'Keefe for agreeing to publish the special section and all the reviewers who helped us in reviewing the papers. The PACIS survey was partially supported by MOE Program for Promoting Academic Excellent of Universities under the Grant number A-91-H-FA08-1-4.

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