ACIS 2016 Proceedings   Australasian (ACIS)

2016

A SWOT Analysis of the IS Academic Discipline in Australia

Robert Smyth
Queensland University of Technology, r.smyth@qut.edu.au

Guy Gable
Queensland University of Technology, g.gable@qut.edu.au

Graham Pervan
Curtin University, graham.pervan@cbs.curtin.edu.au

A SWOT Analysis of the IS Academic Discipline in Australia

Robert Smyth
Information Systems School
Queensland University of Technology
Brisbane, Australia
Email: r.smyth@qut.edu.au

Guy Gable
Information Systems School
Queensland University of Technology
Brisbane, Australia
Email: g.gable@qut.edu.au

Graham Pervan
School of Information Systems
Curtin University
Perth, Australia
Email: Graham.Pervan@cbs.curtin.edu.au

Abstract

The study provides a review of changing perceptions of the Information Systems (IS) academic discipline in Australia across the ten year span from 2005 until 2015. The main source of data for this analysis is a series of annual surveys of Heads of Information Systems Departments across all Australian universities. The surveys incorporated questions regarding the perceived Strengths, Weaknesses, Opportunities and Threats pertaining at the time to the IS academic discipline in Australia. A review of the annual judgements, augmented by data from other sources, while revealing the inevitable changes of focus over time, brings to the fore a range of persistent and enduring issues demanding the attention of Australia's IS academics. Collaborative Doctoral Consortia are proposed as effective mechanisms to exploit the strengths and opportunities and to redress weaknesses and threats identified.

Keywords

Information Systems, Information Systems academic discipline, Information Systems in Australia, SWOT analysis

1 INTRODUCTION

The Australian Council of Professors and Heads of Information Systems (ACPHIS) is an association established in 1997 to represent Australian information systems academics. For annual ACPHIS workshops, the practice was established of surveying, prior to the meeting, heads of department, and equivalents, in each Australian university offering an Information Systems programme. As well as data on research and teaching related activity (e.g. numbers of PhD completions, numbers of journal articles) and foci (e.g. research domains, research approaches, curriculum developments), the survey sought to draw out, for subsequent discussion and action, perceptions of the major issues of the time. To facilitate this, Graham Pervan, the initiator of the survey, made use of a SWOT matrix, by which Strengths, Weaknesses, Opportunities and Threats were identified as a basis for analysis and action.

The time is opportune to revisit these surveys and review our progress as an academic discipline in Australia. In referring to the IS academic discipline in Australia, we refer to the community of academics in Australian universities. Where have we made advances and what can we learn from this apparent progress? What are the persisting issues that demand priority now?

2 THE CONTEXT

A basic principle of modern knowledge management is the capturing and preserving of the knowledge of individuals with the greatest level of experience and expertise. Here, as we seek strategies to advance the Information Systems academic discipline, we have the opportunity to examine a storehouse of historical, considered assessments by leading figures in Australian IS academia. While the data gathered in the annual ACPHIS surveys served a valuable short-term role as a focus for discussion and action at the time, the consolidation and analysis of this data offers opportunity to assemble a genuine knowledge base, a body of data and information with the capacity to contribute to action (De Long and Fahey 2000; Davenport and Prusak 1998; Zack 1999).

3 SWOT AS AN ANALYTICAL APPROACH

SWOT is a framework long used in management practice for analysing strengths, weaknesses, opportunities and threats (Helms and Nixon 2010). The strengths and weaknesses are based on an **internal audit** of the organisation. The opportunities and threats relate to **environmental factors** that need to be taken account of in planning strategic actions. Opportunities represent environmental factors that can be beneficially exploited, while threats need to be considered because of their potential to damage the organisation.

The origin of SWOT as an analytical technique lies with the growth of strategic planning in the 1960s. SWOT was developed as an attempt to address perceived shortcomings in strategic planning outcomes (Mintzberg 1994). Specifically, SWOT and its variants (Houben et al. 1999) sought to provide a structured basis for planning strategic action (Jackson et al. 2003). Over time, SWOT has been applied across a broader context (e.g. Gable and Smyth 2006, Awais and Samin 2012).

The theoretical underpinnings of the SWOT technique are slight. Its origins in the strategic planning literature and its persistence in management practice point to a technique grounded in pragmatism rather than strong theory. The potential for misuse of SWOT as an analytical technique has led to warnings about its shortcomings (Hill and Westbrook, 1997). Since the technique has, at its heart, the extraction of perceptions intended to determine plans of action, its potential efficacy is heavily dependent on the quality of the perceptions being tapped; where the subjects proffering their perceptions via SWOT can be seen as experts in the domain of study, the SWOT technique is likely to provide the basis for sound analysis leading to useful plans; without this level of expertise among the subjects, a SWOT analysis is unlikely to produce useful outcomes. Here, SWOT is applied as a structured framework for data collection from the nominal leaders of the Information Systems academic discipline in Australia.

4 REVIEW OF THE ANNUAL DATA

The approach used in this study entails a review of the consolidated data from SWOT analyses carried out over 10 years, and 11 ACPHIS meetings, thus providing the basis for a longitudinal view of the Australian IS academic discipline across this period. Before each ACPHIS meeting over the 10 years, the prospective attendees were invited to respond to four questions phrased thus: "What, in your

opinion, are the three main **strength**s of the IS academic research field currently in Australia?" with equivalent questions for Weaknesses, Opportunities and Threats. The analysis entailed a consolidation of the individual responses by year, aggregation of responses deemed to be consistent in meaning and simple counts of the most frequent items persistent over the 11 surveys and those evident only in the later surveys. Of the 39 Australian universities, several do not have an Information Systems (IS) group, while others have multiple IS groups. Although the total number of IS groups has varied over time, in 2008 there were 40 different IS groups in Australian universities Ridley et al. 2008). This can be taken to be a representative figure across the ten year range of this study's data.

4.1 Initial Data Gathering Method

The data set consolidated and analysed for this study derives from eleven annual surveys of members of the Australian Council of Professors and Heads of Information Systems (ACPHIS) conducted between 2005 and 2015 inclusive. In each of these years, leading up to the ACPHIS Annual General Meeting in December, heads of department or equivalents from each of the 40 Information Systems groups across the 39 Australian universities were surveyed by Graham Pervan, an ACPHIS member. The goal of building a picture of the academic discipline is consistent with prior work in assessing the discipline in Europe (Avgerou et al. 1999).

Following, the consolidated data is discussed in terms of strengths, weaknesses, opportunities and threats, each in turn. Examination of the data across the eleven surveys emphasises identification of: 1. those that are constant, year after year, and 2. others that emerge in more recent years.

4.2 The Consolidated Data - Strengths

Reassuringly, there are perceived strengths characteristic of the Information Systems academic discipline in Australia, that persist across the period of the study. Three such constant, or core, strengths stand out: 1. Relevance, 2. Diversity, and 3. Collegiality. On the other hand, there is evidence of new strengths emerging over the duration of the ten surveys. Three such emergent strengths observed from 2011 onwards are: 1. Research Excellence, 2. International Presence, and 3. Increased Availability of PhD Students.

4.2.1 Relevance as a Constant Strength

In the first survey, in 2005, the relevance-to-practice of the IS academic discipline was nominated as its greatest strength, and each subsequent year, this is identified as a major strength. The perception is that the course offerings across the universities are relevant to the needs of Business and Industry and that Australian IS academics have strong links with IS practitioners and business users. With the passage of time, this concept of relevance broadens to include reference to the practical relevance of the research being undertaken by Australian IS academics.

4.2.2 Diversity as a Constant Strength

In the early surveys, diversity is second only to relevance as a perceived strength of the Australian IS academic discipline. The diversity referred to relates to the wide range of IS application areas and the potential for even wider reach. The sense is that this diversity offers a basis for ongoing resilience through the discipline's capacity to adapt and evolve to meet the changing needs of industry. Again, across the years of the surveys there is a broadening of the concept to also incorporate benefits deriving from a diversity of research topics and research methods.

4.2.3 Collegiality as a Constant Strength

The data makes it clear that senior Australian IS academics regard the existence of strong levels of cohesiveness and collegiality as an enduring strength of the discipline in Australia. Respondents refer to a high level of cooperation and cohesiveness amongst IS academics in Australian universities evidenced by the strong support for ACIS and the ongoing success of associated doctoral consortia. They point also to the numerical strength of some IS groups and a good blend of experienced and early-career academics, emphasising in later surveys the presence of an experienced cohort of competent IS researchers with a strong practical focus.

4.2.4 Excellence of Research as an Emerging Strength

The 2012 APHIS SWOT survey is the first to nominate an improved focus on quality research outputs as a strength of Australia's IS academic discipline. This and subsequent surveys highlight excellence in a variety of research methods and topic areas.

4.2.5 International Presence as an Emerging Strength

The 2011 survey is the first to refer to the strong international standing of Australian IS academics. Reference is made to an increasing level of collaboration between Australian IS academics and their international counterparts and increasing recognition on the international stage of Australian IS academics.

4.2.6 Increased Availability of PhD Students as an Emerging Strength

Only in the later surveys, again from 2011 onwards, is there mention of increased availability of PhD students in IS as a strength of the discipline in Australia. While this theme persists in later years, it is leavened with later comments about a relative shortage of local (as opposed to international), Australian PhD candidates, and reservations about the quality of the students.

4.3 Analysis of Perceived Strengths

Examination of the data relating to perceived strengths reveals a collaborative discipline with a strong sense of the relevance of their endeavours. This ongoing emphasis on relevance can be set against the international debate predating and persisting through the survey time period, in relation to the relative importance that ought to be accorded to rigour, as opposed to relevance, in the IS academic discipline (Davenport and Markus 1999). As the wider argument persists, it is possible to discern internationally a perception that relevance of IS study must remain predominant in the face of the increasing quest for rigour (Rosemann and Vessey 2008).

The leaders of the discipline in Australia continue to value the diversity of application areas and research approaches as a strength of the discipline in Australia's academic community. Widely acknowledged as a feature of the IS academic discipline worldwide, this diversity has been seen by some to carry with it hidden costs (Benbasat and Weber 1996).

4.4 The Consolidated Data - Weaknesses

As with strengths, the data reveals perceived weaknesses that recur across the eleven annual surveys as well as ones that become evident in later years. The recurring weaknesses include: 1. Unclear Identity 2. Poor Funding, and 3. Inadequate Rigour. The emerging weaknesses, from about 2009 on, include: 1. Limited Career Options 2. Declining Links with Industry, and 3. Inadequate Theorising.

4.4.1 Unclear Identity as a Constant Weakness

In every one of the eleven surveys, respondents express concern for IS's lack of a clear identity as a discipline. Comments relate to a lack of visibility within individual universities and in the general community because IS is poorly understood. The flow-on from this ongoing lack of differentiation as a discipline is seen by respondents as contributing to problems in receiving adequate acknowledgement from university management, from funding bodies and from prospective students. In later surveys, this continuing concern about lack of identity is amplified, with expressions of frustration at the apparent lack of "an agenda" among discipline leaders to redress the problem.

4.4.2 Poor Funding as a Constant Weakness

From the earliest surveys, inadequate funding for the discipline is identified as a weakness. At least in part, this weakness is seen as an extension of the identity problem. Respondents suggest that faculty management and university management, limit resources provided to IS out of poor understanding of the discipline's scope and potential. In later surveys, specific reference is made to limited funding flowing to IS researchers from the Australian Research Council because of perceived limitations in understanding of IS research by the body's assessors appointed to evaluate research proposals.

4.4.3 Inadequate Rigour as a Constant Weakness

Recurring concerns among respondents about inadequate rigour in the discipline can perhaps be seen as a counterpoint to the perceived relevance and diversity of IS in Australian universities (many, including the authors, believe there exists a natural tension between rigour and relevance, at times involving a trade-off). Some later surveys refer to perceptions of inadequate research training among PhD students as a contributor to shortcomings in research rigour within the discipline in Australia.

4.4.4 Limited Career Options as an Emerging Weakness

In 2011 and the years following, survey respondents refer to the ageing profile of Australian IS academics, with few younger academics entering the profession and with a perceived narrowing of career opportunities. The surveys report fewer full-time positions becoming available for IS academics

in Australia. This reduction in career options for IS academics is attributed to a perceived failure to "carve out territory vis-à-vis other disciplines".

4.4.5 Declining Industry Links as an Emerging Weakness

Perhaps symptomatic of a suspected decline in the standing of the discipline in Australian universities, later surveys show concern for a perceived lessening of the strong links with industry that had been evident in earlier surveys. The very question of relevance to Business and Industry, which had been portrayed as a major strength of the discipline in Australia, is called into question in the surveys of 2013, 2014 and 2015, with one respondent expressing frustration at a perceived poor attitude toward academics by Australian industry.

4.4.6 Inadequate Theorising as an Emerging Weakness

As an extension to the more general concern about the rigour of the IS discipline in Australia, later surveys focus on inadequate "theoretical rigour" as a weakness. An assertion is that the discipline is over-reliant on theory from other disciplines and has been slow to develop its own "discipline-specific" theory base. Only in more recent surveys has this specifically been identified by respondents as a weakness of the discipline in Australia.

4.5 Analysis of Perceived Weaknesses

The perceived weaknesses identified in Australia's IS academic discipline are generally consistent with problems identified internationally over the past two decades, or more. The difficulty in establishing a clearly-defined, high profile identity for the IS discipline is a theme running through the IS literature (Watson et al. 1999; Agarwal and Lucas 2005). Similarly, there have been ongoing concerns internationally about the need to improve the rigour of IS research, without detracting from its relevance (Davenport et al. 1999).

An over-reliance on theory from reference disciplines and a perceived dearth of theory specific to Information Systems have been the subject of ongoing comment and criticism (Weber 2012). Certainly there have been strong efforts to address the challenge of more and better theory in Information Systems research worldwide.

Concerns about the lack of growth in Information Systems groups in Australian universities and the associated limits on career options for IS academics can be seen in the context of a broad decline in interest in science and technology in the Australian education system (Kennedy et al. 2014). The evidence points to a decline in enrolments across science, mathematics and technology in Australian high schools through the late 1990s and 2000s, with the suggestion that the decline may have more recently begun to level off or reverse. The Australian study also cites a similar decline in several other countries around the world. While it is of little comfort to Australian IS academics, it would seem that the decline in their career prospects has been matched by their colleagues in other areas of science and technology.

4.6 The Consolidated Data - Opportunities

There are certain issues that persist across the eleven surveys as opportunities recognised by the respondents. Three such recurring opportunities are: 1. Opportunities to Collaborate with Industry, 2. Opportunities to Collaborate with Peers, and 3. The Opportunity to Embrace New Application Areas. Among newer opportunities, emerging in the later surveys are: 1. Opportunities Arising from Increased Demand for IS Skills, 2. Opportunities Presenting Internationally, Especially from Australia's Proximity to Asia, and 3. Opportunities Arising from Improved Methodologies.

4.6.1 Collaboration with Industry as a Constant Opportunity

The survey respondents constantly refer to the relative advantage enjoyed by the IS discipline in terms of opportunities to collaborate with local industry. The advantage is seen by the respondents to derive from the nature of Information Systems in bridging the technical and organisational factors inherent in the effective use of Information and Communication Technology in the real world. The opportunities for such collaboration are manifold; IS academics are well placed to work with industry representatives to refine the IS curricula to keep them up-to-date and relevant; similarly, the respondents see increasing opportunities for collaboration in research; in particular, the opportunities for joint research grant projects, as with the ARC Linkage-Grants, are seen to be increasingly strong.

4.6.2 Collaboration with Peers as a Constant Opportunity

Survey respondents identify the strength of cooperation among Australian IS academics as something to be exploited for the benefit of all. It is in research in particular that the greatest opportunities are seen. Some see these opportunities as presenting a mechanism for addressing established weaknesses and threats to the discipline; the idea of ongoing collaboration in running research training workshops is viewed not only as a means of building on the solidarity within the discipline but as a practical mechanism for bringing greater rigour to local IS research. Improved research methodology, with a greater focus on sound theory, is also foreseen as a beneficial outcome of this collaboration.

4.6.3 Embracing New Application Areas as a Constant Opportunity

Regularly across the eleven surveys, respondents highlight the flexibility available to the IS discipline through involvement in a wider range of application areas. They point out a potential for involvement in newly evolving and growing applications such as Health Informatics. Particular reference is also made to Big Data applications, business analytics, cloud computing, e-Research and IT in education. The ability for IS to take a more holistic view in relation to problem solving with technology in the context of the particular application area is proposed as the basis for these opportunities.

4.6.4 Increasing Demand for IS Skills as an Emerging Opportunity

Incongruously, while respondents were consistently reporting reduced student numbers and decreasing career opportunities for IS academics, in the latter surveys in particular, they were reporting increasing demand from employers for IS skills. This mismatch between the supply of IS graduates from Australian universities and a strong demand from industry for IS skills offers significant opportunities for the IS discipline in Australia. Any success in alerting the wider community, including potential students, to the increasing job opportunities in IS should see IS groups experiencing increased student numbers, with all the flow-on funding and career opportunities arising from this.

4.6.5 Internationalisation/ Proximity to Asia as an Emerging Opportunity

Increasing international standing of Australian IS academics is seen in later surveys as the basis for stronger links with the international IS academic community. This is viewed as providing improved opportunity to have the very best IS researchers from overseas come to Australia to run workshops for local academics and postgraduate students, again leading to improvement in research rigour among Australian researchers.

Respondents point to improving opportunities to recruit international students to Australian IS courses. Strengthened links with Asian countries through enrolment in Australian universities of capable international PhD students is seen as a likely positive outcome of this trend. The economic growth of China in concert with already strong links between Australia and China and the geographic proximity of China to Australia provide great potential for beneficial relationships between the IS academic community in Australia and its emerging counterpart in China.

4.6.6 Improvement in Methodologies as an Emerging Opportunity

Acknowledgement of shortcomings in methodological approaches to IS research in Australia has prompted recognition of the opportunities for greater efficiencies and improved status for the discipline that can result from concerted efforts to redress this deficiency. Respondents observe inefficiencies in the supervision of Australian IS students, manifesting in student drop-outs, delays in completion and perceptions of unsatisfactory standards of research mastery among the student cohort. Better defined methodologies, including in some instances more prescriptive processes, offer promise in overcoming the observed problems with student research but also among established IS academics in Australia.

4.7 Analysis of Perceived Opportunities

At the heart of the opportunities identified by the survey respondents is a willingness to engage with the wider world. This is very much in harmony with the major forces of globalisation sweeping the world over the past decade. The senior members of the Australian IS academic discipline have shown themselves keen to embrace the benefits that can flow from collaboration with their peers locally and internationally, as well as from collaboration with Industry. Awareness of the potential benefits that can be generated from Australia's geographical proximity to the rising power of China can also be seen as a sign of this outward-looking attitude.

4.8 The Consolidated Data - Threats

The ten surveys reveal the following persistent threats to the IS academic discipline in Australia: 1. Declining Student Appeal for IS, 2. Instability in the Administrative Placement of IS Groups in Australian Universities, and 3. Inadequate Levels of Research Quality. Respondents identify three emerging threats to the discipline in Australia viz.: 1. Constraints on Funding, 2. Restricted Access to Quality IS Journals, and 3. A Trend to Overseas Outsourcing of the IS Function.

4.8.1 Declining Student Appeal of IS as a Constant Threat

A fundamental threat to the IS academic discipline in Australia has been a sustained decline in student enrolments in university IS courses. Although later surveys point to some amelioration of this trend, the prolonged drop in student numbers and apparent ongoing disengagement of potential IS students can be seen to threaten the very basis of the discipline in Australia.

4.8.2 Positioning of IS within Other Faculties as a Constant Threat

Only infrequently in Australia have IS groups achieved independent Department or School status in universities. Most commonly, IS groups have been administratively located within Business Faculties, with smaller numbers within Science or Engineering (Gable et al 2008). Some Australian universities actually have more than one Information Systems group, located within different faculties in the university. The inherent threat in this variability of administrative placement and lack of administrative independence is that IS academics in Australia are constrained in a variety of ways: course development and curriculum development can be restricted or amended by non-IS decision makers in the parent faculty; budget planning is also subject to priorities set by university managers who may not have a good understanding of the needs of the IS group; recruiting of students and general promotion of IS can be obscured by the presence of IS within another more prominent academic group.

4.8.3 Inadequate Levels of IS Research Quality as a Constant Threat

The data makes it clear that senior Australian IS academics consider that the quality of IS research being undertaken in Australian universities has not been perceived as being of the highest quality. In part this perception can be seen as a corollary of the discipline's lack of a clear identity, meaning that IS research is frequently reviewed by academics from outside IS, in some cases reviewers who are hostile to the very concept of IS, and, more commonly, reviewers who do not understand the principles and objectives of IS research. Beyond this, there is an expressed opinion from the survey respondents that there have been deficiencies in rigour and sound methodology that threaten the status of the discipline in Australia.

4.8.4 Constraints on Funding as an Emerging Threat

A shortage of adequate funding to support the IS academic discipline in Australia has emerged as a serious threat to the development of the discipline. The sources of the threat are manifold, intertwined with several other weaknesses and threats identified elsewhere in this paper: lack of clear identity; declining appeal to students; lack of administrative independence; failure to win substantial national research funding grants, among others. What is clear is that access to adequate funds has the potential to limit the ability for the discipline to overcome acknowledged weaknesses and to fully exploit the identified opportunities for the discipline in Australia.

4.8.5 Restricted Access to Quality IS Journals as an Emerging Threat

Under increasing pressure in recent years for Australian IS academics to publish in what are judged to be high quality journals, respondents to the more recent surveys have pointed to a shortage of suitable Australian journals and difficulty in gaining acceptance for Australian research papers in the relatively small number of international journals deemed to be of the highest standard. Attempts to reduce this threat by gaining acceptance, from decision-makers outside IS, that a larger range of journals ought to be accorded the highest status, was not seen as having been effective.

4.8.6 Trend to Overseas Outsourcing as an Emerging Threat

While the trend to globalisation was seen to have brought opportunities to the IS academic discipline in Australia, it was also seen to bring threats. Notable among these threats observed in the more recent surveys was the growth of overseas outsourcing of IS tasks by Australian organisations. Not only were these practices seen to reduce the employment opportunities for Australian IS graduates, but publicity given to such outsourcing has the potential to engender negative perceptions among potential students of IS career prospects.

4.9 Analysis of Perceived Threats

An examination of the data relating to perceived threats reveals that the most dangerous threat to the IS academic discipline in Australia has been the decline in interest in IS as a career among prospective university students. The threat is both stark and surprising in the context of apparent growth in demand by Industry for IS skills. Of course, as has been observed earlier in this report, this dilemma is not confined to Australia, several other western countries reporting a similar downturn in demand (Walstrom et al. 2008).

Several of the other threats to the discipline in Australia can be seen as consequences of the decline in IS student numbers; funding, so fundamental to strong growth, is heavily dependent on student numbers. Administrative status within the university, promotion of an individual identity, a stronger role within research grant bodies and consequent growth in research output are all fundamentally dependent on the funding flowing from strong student numbers.

5 STUDY FINDINGS

This review illustrates the effectiveness of a longitudinal SWOT study in identifying issues key to planning the advancement of the IS academic discipline in Australia. The need for such a plan can be seen in the apparent intransigence of weaknesses and threats that are observed to have persisted across the duration of the eleven annual surveys. Similarly, strengths and opportunities have been reported year after year without evidence that they have been exploited effectively. Having identified these recurring Strengths, Weaknesses, Opportunities and Threats, along with those more recently emergent, we have a basis for a 2016 plan to advance the Information Systems discipline in Australia.

5.1 Collaborative Doctoral Consortia: A Mechanism to Exploit Identified SWOT

The study suggests issues that warrant priority in planning to advance the Australian IS academic discipline. Such planning seems especially warranted regarding: (i) Raising the status of Information Systems in Australia; (ii) Effective collaborative research training; (iii) Improving IS research training in Australian universities; and (iv) Facilitating more collaborative research in Australia.

We find the current situation of IS paradoxical in several respects. Firstly, it is paradoxical that senior Australian IS academics have consistently expressed concern about the decline of IS in Australian universities while at the same time the evidence seems to be that student numbers are on the increase. It is notable that at the most recent 2015 ACPHIS Workshop, one of the largest IS Schools in Australia reported coursework student numbers had in that year surpassed those they experienced in 2000, the previous highpoint of the IS discipline's student intake[1].

A perhaps more concerning paradox is the increasing diffuseness of IS as a distinct academic discipline in Australia at a time when disciplines generally are under increasing threat. (Gable et.al., 2016: 693) write "*The challenge today is from de-professionalization, a challenge facing all academic disciplines in varying degrees. We sense a growing tension between the disciplines, and institutions that seek increased allegiance from individuals in the face of increasingly demanding organisational KPIs and new directions. That strong institutional pull demands that disciplines better communicate their value proposition and reconsider opportunities for reinforcing and strengthening the values, beliefs and codes that have underpinned IS research. This is a complex, recent and potent development demanding further research scrutiny*." That article, titled "The Role of the Doctoral Consortium: an Information Systems signature pedagogy?" analyses doctoral consortia as a strategic developmental and governance mechanism of the IS academic discipline (without using the language of 'governance mechanisms'). We concur with the authors who "*advocate growing the IS doctoral consortium ecosystem to include more local events. While the international and regional consortia [e.g. ICIS, ACIS] have worked especially well (given the smaller past community, they had greater relative reach), we believe wider exposure to the consortium experience is in the discipline's (and individuals' (i.e., students and scholars) best interests. Gable and Smyth (2007) suggest a possible vehicle of such growth: an AISWorld faculty directory ("representatives' hierarchy"), and they include in their paper a detailed implementation plan[2]. Though they focus mainly on attaining a current and*

---

[1] Immediately preceding the dot-com crash, jadedness due to a largely uneventful Y2K and a general malaise with regards IT, in which many organisations felt they had inappropriately over-invested.

[2] The appendix in Gable and Smyth (2007) refers only to a network of country representatives. An earlier, unpublished version of the plan also refers to institution representatives and defines the respective roles.

complete directory of IS academics worldwide[3], one could mobilize such a hierarchy of representatives to facilitate local consortia and promote and reinforce the discipline" ... in Australia as well as worldwide.

Thus, two tangible mechanisms advocated by Gable et al. (2016), which we endorse are: (i) grow the IS doctoral consortium ecosystem, and (ii) develop a hierarchy of IS representatives. These two initiatives are mutually reinforcing and, based on the SWOT review, viable foundational components of a strategic plan for the IS academic discipline in Australia. Following, we discuss how these mechanisms can reinforce the IS discipline in Australia in the face of weaknesses and threats observed from the study data, while leveraging observed strengths and opportunities.

They go on to state "*We further hope this article serves as a catalyst for deeper and more critical thinking: an entry point. We employ theory that in many ways, is functionalist in its approach, which nevertheless has given us some insight into the consortium as a potentially significant pedagogy for strengthening the discipline.*" They continue "*For the discipline, we believe Consortia are strategic: a centrally important mechanism for sustainment, rejuvenation and defence of the discipline. While ICIS is premier in this role, all levels [of Consortia] can play a part.*" Note that they differentiate four levels of consortia[4]: (i) International (ICIS), (ii) Regional (e.g. PACIS), (iii) National (e.g. ACIS) and (iv) Local (e.g. Information Systems School at Queensland University of Technology) giving some consideration to their relative roles and influence.

In closing they write "*we return to the advent of the 1st ICIS Doctoral Consortium in 1980, seen against a background at that time of questioning the status of Information Systems as a legitimate academic discipline. In some sense, the adversary then was other disciplines, and their perceived higher standards of professionalism. Today there is a different adversary, and again we see the Consortium as a possible vehicle of discipline reinforcement.*

That article achieved to a degree the goal of facilitating PACIS (and thereby AIS) organisational memory regarding doctoral consortia, and, beyond Doctoral Consortia, suggesting a framework for follow-on work to similarly document 'The Role of the IS Conference', another strategic governance mechanism of the IS academic discipline.

With collaborative goodwill identified as a core strength among Australian IS academics, there is clearly scope to extend the offering of doctoral consortia in Australia, beyond the current offerings, to the local, university, level. Such offerings, supported by local and international researchers, have the potential to strengthen the discipline's profile and sense of identity while addressing the recognised need to generate a greater output of high quality Australian Information Systems research.

As stated above, the doctoral consortium as organised with postgraduate Information Systems research students is a pedagogical approach rarely found in other disciplines. Its efficacy in promoting a range of positive outcomes for the students as well as for the IS discipline has been demonstrated (Gable et al. 2016). Given the success of IS doctoral consortia, there is a strong argument for retaining the basic doctoral consortium model in organising and conducting collaborative IS research training workshops in Australian universities. On the evidence from this longitudinal SWOT analysis, collaborative doctoral consortia, and variants, can be used as the cornerstone of a strategic plan to overcome weaknesses and build on strengths within the IS academic discipline in Australia.

6 LIMITATIONS AND POTENTIAL FOR FUTURE STUDY

At the heart of this report is a review of expressed judgements, over ten years, of the nominal leaders of the IS academic discipline in Australia. A significant limitation of the study lies in the relatively small response rate for each of the annual ACPHIS surveys. While during the period of the annual surveys there were about forty separate Information Systems groups in Australian universities, the response rate was only about 50%. Hence, although the respondents can be said to include discipline leaders, there are a number of voices unrepresented in the data. Again, since the data was initially gathered as a basis for discussion rather than with the objective of careful analysis, response counts are inconsistent and wording is informal.

---

[3] We believe the AIS faculty directory at http://directory.aisnet.org/ is sorely out of date, incomplete, and much more important than its state reflects. We have authority to comment here, the second author and Roger Clarke having in 1994 championed the Asia Pacific directory of information systems researchers, which in 1999 merged with the European and Americas directories to form the AIS faculty directory.

[4] ICIS = International Conference on Information Systems; PACIS = Pacific Asia Conference on Information Systems; ACIS = Australasian Conference on Information Systems.

The original SWOT evidence reviewed here was not intended as input to any academic analysis. Unfortunately, as with too many studies, inadequate attention for the purposes of rigorous research has been given to level of analysis and conceptual clarity. Undoubtedly, phenomena in the minds of respondents will have spanned such things as: the international IS academic discipline, the IS academic discipline in Pacific Asia or in Australia; the respondent's own university; the IS group within that university; the respondent's local research group; or the respondent themselves. Precisely defining then carefully isolating the target phenomenon in operationalisation demands rigorous research and instrument design and administration (the authors have directly relevant experience of these difficulties; see Gable et al. 2007).

While the data reviewed provides a useful longitudinal view, and a useful knowledge repository, there is benefit in its continuing update. Using this study as a starting point, an effort could be made to collect future data in a more controlled way, conducive to further analysis. There is also obvious value in monitoring, and recording, annual outcomes from the planning initiatives proposed here.

Outside the scope of this analysis was the adoption of either a more research-specific, or a more teaching & learning-specific lens on the data. This has undoubtedly limited observations possible, for example, there being periods during which higher degree research student numbers have been increasing at the same time as coursework student numbers have been declining. Further, as reflected by the data, though some SWOT are persistent, general variability in SWOT are observed over time. Data reported though up-to-date as at 2015, is already by this writing a year out-of-date, with, for example, strong growth in demand from coursework students noted over this past year.

Comparative analysis of issues for IS in Australia versus IS elsewhere could be revealing. What aspects of IS in Australia distinguish us? What issues distinguish us? How does Australia compare to the rest of the world? To North America? Europe? Asia? Comparative analysis of issues for IS versus other academic disciplines could be revealing. No effort has been made here to ascertain whether such comparative data might exist for any other discipline.

An impetus for this paper was interest in drivers of research foci in IS: Why do some research topics gain traction in the discipline? Why do some research topics gain more traction in certain parts of the world than others? Further evidence and research is required to assess any possible relationship between regional SWOT factors and regional research emphasis.

Any further work in this direction should consider the appropriateness of applying organisational strategic thinking (SWOT) to what is essentially a loose network of actors; there may be more appropriate strategy theory. There, too, is the concern that SWOT may be too static and that a more dynamic approach to strategy should be considered in order to surface matters of relevance in the more dynamic world we live in. (Sorensen et.al. 2015:158) argue *"that the IS field seems to more readily engage in a debate of phenomena involving centralised and organisationally-bound technological innovations whereas distributed, decentralised and infrastructural discourses find it much more difficult to gain a foothold. So, whilst the IS field may still be stuck in the mainframe age, it needs to move beyond in order to fully engage with the world we live in."*

REFERENCES

Agarwal, R., and Lucas, H. C. 2005. "The Information Systems Identity Crisis: Focusing on High-Visibility and High-Impact Research," *MIS Quarterly* (29:3), pp 381-398.

Avgerou, C., Siemer, J., and Bjørn-Andersen, N. 1999. "The academic field of information systems in Europe," *European Journal of Information Systems* (8:2), pp 136-153.

Awais, M., and Samin, T. 2012. "Advanced SWOT Analysis of E-commerce," *IJCSI International Journal of Computer Science Issues* (9:2), pp 569-574.

Benbasat, I., and Weber, R. 1996. "Research commentary: Rethinking "diversity" in information systems research," *Information Systems Research* (7:4), pp 389-399.

Davenport, T. H., and Markus, M. L. 1999. "Rigor vs. relevance revisited: Response to Benbasat and Zmud," *MIS Quarterly* (23:1), pp 19-23.

Davenport, T. H., and Prusak, L. 1998. *Working Knowledge: How Organizations Manage What They Know*, Harvard Business School Press: Boston.

De Long, D. W., and Fahey, L. 2000. "Diagnosing cultural barriers to knowledge management," *The Academy of management executive* (14:4), pp 113-127.

Gable, G. G., Gregor, S., Clarke, R., Ridley, G., and Smyth, R. (eds.) 2008. *The Information Systems Academic Discipline in Australia*. ANU E Press, Canberra.

Gable, G. G., Smyth, R., and Gable, A. 2016. "The Role of the Doctoral Consortium: An Information Systems Signature Pedagogy?," *Communications of the Association for Information Systems* (38:Paper 33), pp 678 – 711.

Gable, G. G., and Smyth, R. W. 2006. "Administrative Placement of the Information Systems Discipline in Universities - A SWOT Analysis of Queensland University of Technology," in *10th Pacific Asia Conference on Information Systems (PACIS 2006)*: Kuala Lumpur, Malaysia, pp. 1374-1389.

Gable, G. G., Stark, Karen A., and Smyth, Robert W. 2007. "IS Researcher Issues," in *2007 International Symposium on Information Systems & Management at the International Conference on Wireless Communications, Networking and Mobile Computing (WiCom 2007), July 25-28, Shanghai, China.*

Helms, M. M., and Nixon, J. 2010. "Exploring SWOT analysis – where are we now?: A review of academic research from the last decade," *Journal of Strategy and Management* (3:3), pp 215-251.

Hill, T., and Westbrook, R. 1997. "SWOT analysis: It's time for a product recall," *Long Range Planning* (30:1), pp 46-52.

Houben, G., Lenie, K., and Vanhoof, K. 1999. "A knowledge-based SWOT-analysis system as an instrument for strategic planning in small and medium sized enterprises," *Decision Support Systems* (26:2), pp 125-135.

Jackson, S. E., Joshi, A., and Erhardt, N. L. 2003. "Recent research on team and organizational diversity: SWOT analysis and implications," *Journal of Management* (29:6), pp 801-830.

Kennedy, J. P., Lyons, T., and Quinn, F. 2014. "The continuing decline of science and mathematics enrolments in Australian high schools," *Teaching Science* (60:2), pp 34-46.

Mintzberg, H. 1994. *The Rise and Fall of Strategic Planning*, Prentice Hall: New York.

Pervan, G., and Shanks, G. 2008. "A longitudinal study of information systems research in Australia," in *The Information Systems academic discipline in Australia,* G. G. Gable, S. Gregor, R. Clarke, G. Ridley and R. Smyth (eds.), ANU ePress: Canberra ACT, pp. 295-305.

Ridley, G., Gable, G. G., Smyth, R., Gregor, S., and Clarke, R. 2008. "The information systems academic discipline in Australian universities: a meta-analysis," in *The Information Systems Academic Discipline in Australia,* G. G. Gable, S. Gregor, R. Clarke, G. Ridley and R. Smyth (eds.), ANU E Press: Canberra, pp. 307-342.

Rosemann, M., and Vessey, I. 2008. "Toward improving the relevance of information systems research to practice: the role of applicability checks," *MIS Quarterly* (32:1), pp 1-22.

Sherer, S. A. 2002. "Academic departments of Information Systems faculty in the U.S.," *Journal of Information Systems Education* (13:2), pp 105-116.

Sørensen, C., and Landau, J. S. 2015. "Academic agility in digital innovation research: The case of mobile ICT publications within Information Systems 2000–2014," *Journal of Strategic Information Systems* (24:3), pp 158-170.

Walstrom, K. A., Schambach, T. P., Jones, K. T., and Crampton, W. J. 2008. "Why Are Students Not Majoring in Information Systems?," *Journal of Information Systems Education* (19:1), pp 43-54.

Watson, H. J., Taylor, K. P., Higgins, G., Kadlec, C., and Meeks, M. 1999. "Leaders assess the current state of the academic IS discipline," *Communications of the AIS* (Article 2).

Weber, R. 2012. "Evaluating and developing theories in the Information Systems discipline," *Journal of the Association for Information systems* (13:1), Article 2.

Zack, M. H. 1999. "Developing a knowledge strategy," *California Management Review* (41:3), pp 125-145.

COPYRIGHT