Administrative Placement of the Information Systems Discipline in Universities - A SWOT Analysis of Queensland University of Technology

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Abstract

In some Queensland universities, Information Systems academics have moved out of Business Faculties. This study uses a pilot SWOT analysis to examine the ramifications of Information Systems academics being located within or outside of the Business Faculty. The analysis provides a useful basis for decision makers in the School studied, to exploit opportunities and minimise external threats. For Information Systems academics contemplating administrative relocation of their group, the study also offers useful insights. The study presages a series of further SWOT analyses to provide a range of perspectives on the relative merits of having Information Systems academics administratively located inside versus outside Business faculties.

Keywords: Information Systems education, SWOT analysis, Information Systems academics

1. Introduction

This is a time of more-than-usual uncertainty within the Information Systems (IS) community about the acceptance of Information Systems as a distinct legitimate academic discipline. Within this atmosphere of insecurity and self-doubt about the IS identity, the administrative placement of Information Systems academic staff within universities has been a matter of debate. Most commonly in the past in Australia, and even more so in America, Information Systems groups have been located within a Business Faculty. Within Australia there are now many instances of Information Systems groups located outside the Business faculty (Australasian Departments of Information Systems 2005); in the state of Queensland, for example, three of the eight universities now have their main IS academic group outside the Business Faculty. Across Australia, however, there is no picture of consistency in the placement of IS academic groups; while many IS groups are located within Business there are many others outside Business. This lack of a consistent administrative location for IS academics is in accord with the situation reported in the USA by Sherer (2002), where about 40% of IS academics were located in Departments of Information Systems (whether inside or outside a Business
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faculty is not disclosed), while the remaining 60% were located in any of six other departments. Over the past decade in America there have been reported pressures to move Information Systems groups out of Business, to join with Computer Science and Information Science groups. This has caused concern and apprehension amongst some American Information Systems academics (Watson et al. 1999).

The fact that groups of Information Systems educators are located in a diversity of administrative locations in universities may be seen as indicative of the immaturity of Information Systems as an academic discipline (Mingers and Stowell 1997). At an operational and personal level, it would seem evident that IS academics will be subject to varying stimuli and constraints depending on the administrative placement of their work group. As a result, the nature of the Information Systems curriculum offered and the IS research undertaken at a university are also likely to be impacted by the administrative placement of the IS academics. An analysis of the status of a separate Information Systems School, outside Business, can serve not only to highlight possible strategic directions for that School but, more importantly, can provide useful insights for any other Information Systems group contemplating the prospect of a changed administrative placement in their university.

Thus, the aims of this study and paper, and questions of interest are multi-faceted - To analyse, evaluate and better understand the relative merits of the current placement of the IS academic discipline at one Australian university viz. Queensland University of Technology (QUT);

- Is IS well positioned at QUT?
- What are the strengths, weaknesses of this placement?
- How well does this placement accommodate known opportunities and threats?
- As a pilot SWOT analysis, within a potentially larger study of universities elsewhere in the Pacific-Asia region, to address the questions:
  - How useful is SWOT for analysing the relative merits of IS placement?
  - What general mechanisms are useful for such analyses?

2. The Study Context

The QUT SWOT analysis is a sub-study of a project investigating IS in Australian universities (IS-in-Oz). This IS-in-Oz project, in turn, is a sub-study of an IS in Pacific Asia Region (IS-in-PAR) study. Before describing the intent of the QUT-SWOT, it is useful to further position that study within the larger effort.
The IS-in-PAR study includes five main sub-studies (see Figure 1), the principal of which is a multiple case study of the state and evolution of IS as an academic discipline across the countries of the Pacific Asia Region (PAR). In 2004, it was agreed that Australia, having the longest tradition of IS research in the region, would be a useful pilot study in advance of extending the multiple-country case study to other countries of Pacific-Asia. This resulted in a proposal to conduct a multiple-State case study of the Australian States – the IS-in-Oz study. There was subsequent agreement among the IS-in-Oz researchers on the possible value to the IS-in-Oz study from a SWOT analysis to examine the positioning of IS academic groups within Australian universities.

The QUT SWOT analysis represents a pilot, as part of a multiple or meta-SWOT analysis across several Australian Universities, and subsequently across other universities in the Pacific-Asia region. Each individual institution SWOT analysis is expected to inform the respective Institution and/or State case study. As a 'pilot', the QUT SWOT has the additional aims of distilling relevant questions that might help to direct evidence collection across subsequent SWOTs. A priority in selecting a follow-up to the QUT SWOT will be to conduct the analysis with senior academics from a university where, unlike QUT, the Information Systems presence is within a Business Faculty. The advantage in completing SWOT analyses with IS staff in Business faculties is to gain data from the alternate perspective to that presented by the QUT academics. This is akin to Yin’s (2003) concept of “theoretical replications” (in contrast to “literal replications” where future SWOT analyses are conducted in other universities where IS is similarly placed outside Business).

Significantly, at QUT the IS academics are not only outside Business but somewhat autonomous, as a separate School within a Faculty of Information Technology. Hence, future replications of SWOT will be conducted at universities where there are various combinations of location (Business/Other) and of degrees of autonomy (full autonomy/limited autonomy/no autonomy).
3. A Brief History of IS at QUT
Although the current paper and analysis focus on the current positioning of IS at QUT, history can be revealing. Table 1 lists main instantiations of IS at QUT since its advent as the Data Processing Section in the Department of Management. QUT’s Information Systems group is an example of Information Systems academics moving from Business to a separate Information Technology group. In 1983, the Business Computing Section from the Department of Accountancy merged with the Computer Science Section from the Department of Mathematics and Computer Science in the Faculty of Science. The new entity was a “stand-alone” School of Computing Studies comprising a Business Computing Section and a Computer Science Section. In 1987, the two Sections in the School of Computing Studies were created as Departments, with the Business Computing Section changing its name to the Department of Information Systems. At the same time, a Library Science group was transferred from the Business School and incorporated into the Department of Information Systems. By 1989, the School of Computing Studies was re-constituted as the Faculty of Information Technology and the School of Information Systems was established.

4. A Tool for Documenting Administrative Location over Time
As a by-product of the QUT SWOT analysis, a charting method was sought to document effectively changes in the administrative location of the IS group since the initial establishment of an IS academic group. It was found that a table with columns representing levels in the administrative hierarchy and rows representing the years could capture this data in a simple form. It was decided to arrange the years with “most recent” at the top. To better communicate changes in terminology for the different levels in the hierarchy over time, supplementary columns are provided to record the names of the “generic levels” current at the time. The style of table developed is illustrated in Table 1 below, where the appropriate entries have been made to reflect the history of changing administrative location of IS at QUT. The guidelines used for making entries to the table are:
(1) Starting with the first year of the existence of IS as an academic discipline at the institution (making this assessment can require some judgement and subjectivity), enter the name of that IS organisational unit in the appropriate column under 'location of information systems'. In the same row, also enter the actual names of all higher levels of the University under which the IS unit resided. Finally, in the right-hand columns, enter the generic level names used at the institution in that year.
(2) NEXT - working forward in time (up the table), complete a row of the table in each year that there was a name, level or affiliation change to the IS unit. If at some stage IS split into more than one unit at the institution, follow the history of the unit with which you are most familiar (i.e. with which you are affiliated). Also record instances (enter a row) where the IS unit name and level may not have changed, but relevant changes have occurred higher up that branch of the organisation (e.g. a faculty name change).
Note that Table 1 was developed in light of the ‘pilot’ nature of the QUT-SWOT. Replication of this table structure is expected to aid subsequent SWOTs, and to encourage some consistency for comparative analyses.

Table 1- The Historical Placement of IS at Queensland University of Technology

<table>
<thead>
<tr>
<th>Year</th>
<th>1st Level Down</th>
<th>2nd Level Down</th>
<th>3rd Level Down</th>
<th>1st Level Down</th>
<th>2nd Level Down</th>
<th>3rd Level Down</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>Faculty of Information Technology</td>
<td>School of Information Systems</td>
<td></td>
<td>Faculty</td>
<td>School</td>
<td></td>
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<tr>
<td>1990</td>
<td>Faculty of Information Technology</td>
<td>School of Information Systems</td>
<td></td>
<td>Faculty</td>
<td>School</td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td>School of Computing Studies</td>
<td>Department of Information Systems</td>
<td></td>
<td>School</td>
<td>Department</td>
<td>Section</td>
</tr>
<tr>
<td>1988</td>
<td>School of Computing Studies</td>
<td>(No School designated)</td>
<td>Business Computing Section</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1987</td>
<td>School of Computing Studies</td>
<td>Department of Management</td>
<td>Data Processing Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>School of Computing Studies</td>
<td>Department of Accountancy</td>
<td>Business Computing Section</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>School of Computing Studies</td>
<td>Department of Management</td>
<td>Data Processing Group</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1984</td>
<td>School of Computing Studies</td>
<td>Department of Management</td>
<td>Data Processing Group</td>
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<td>1983</td>
<td>School of Computing Studies</td>
<td>Department of Accountancy</td>
<td>Business Computing Section</td>
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<td>Department of Management</td>
<td>Data Processing Group</td>
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<tr>
<td>1981</td>
<td>School of Computing Studies</td>
<td>Department of Accountancy</td>
<td>Business Computing Section</td>
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<tr>
<td>1980</td>
<td>School of Computing Studies</td>
<td>Department of Management</td>
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<tr>
<td>1979</td>
<td>School of Computing Studies</td>
<td>Department of Accountancy</td>
<td>Business Computing Section</td>
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<td>1978</td>
<td>School of Computing Studies</td>
<td>Department of Management</td>
<td>Data Processing Group</td>
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<tr>
<td>1977</td>
<td>School of Computing Studies</td>
<td>Department of Accountancy</td>
<td>Business Computing Section</td>
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<tr>
<td>1976</td>
<td>School of Computing Studies</td>
<td>Department of Management</td>
<td>Data Processing Group</td>
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<td></td>
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<tr>
<td>1975</td>
<td>School of Computing Studies</td>
<td>Department of Accountancy</td>
<td>Business Computing Section</td>
<td></td>
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<td></td>
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<tr>
<td>1974</td>
<td>School of Computing Studies</td>
<td>Department of Management</td>
<td>Data Processing Group</td>
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</tr>
<tr>
<td>1973</td>
<td>School of Computing Studies</td>
<td>Department of Accountancy</td>
<td>Business Computing Section</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972</td>
<td>School of Computing Studies</td>
<td>Department of Management</td>
<td>Data Processing Group</td>
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</tbody>
</table>

5. The Setting for This Analysis
This SWOT analysis seeks to examine the Strengths, Weaknesses, Opportunities, and Threats associated with locating Information Systems outside Business and as a separate School within an Information Technology Faculty. The analysis is made by QUT Information Systems staff, based on their experience of this location and level of autonomy for IS at QUT. Of course, perceptions are undoubtedly influenced by their observations of other Australian universities with various other combinations of location and autonomy. It is acknowledged that important and valuable consideration should also be given to the relative merits of alternative forms IS might take within other faculties – e.g. Business, with or without separate administrative identity for IS. Hence, there is a need for subsequent studies at universities where different combinations of location and autonomy apply.

6. SWOT as an Analytical Technique
SWOT is a framework for analysing strengths, weaknesses, opportunities and threats (Johnson et al. 1989). 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 (Weihrich 1982; Houben et al. 1999) sought to provide a structured basis for planning strategic action (Bourgeois 1996; Pearce and Robinson 1997).

**6.1 The Basis for Rigour in SWOT Analysis**

For a SWOT analysis to have rigour, the associated data gathering needs to be thorough and the providers of the data need to have a deep understanding of the organisation (to be able to identify its strengths and weaknesses) as well as a strong understanding of the current environment (to be able to discern external opportunities and threats) (Jackson et al. 2003). More recent use of SWOT analyses in an ad hoc, informal manner across a wide range of application areas has tended to detract from its potential potency as an analytical technique (Hill and Westbrook 1997). In this study, the contributors to the data gathering and analysis were the Head of the School of Information Systems at QUT and a second staff member, who had been with the School, and its earlier manifestations, for more than thirty years. A SWOT worksheet, comprising a 2x2 matrix as shown in Table 2, was used for documenting the strengths, weaknesses, opportunities and threats associated with having a separate School of Information Systems within a Faculty of Information Technology, which is the current position of IS at QUT. In keeping with recommended practice (Johnson et al. 1989) to facilitate meaningful analysis, the points documented were neither too general nor too detailed (with a maximum of 10 factors per quadrant).

### Table 2. SWOT Worksheet

<table>
<thead>
<tr>
<th>Internal Strengths</th>
<th>Internal Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>External Opportunities</th>
<th>External Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

7. **The Strengths, Weaknesses, Opportunities and Threats at QUT**

The discussion below reports on the perceptions of the two IS academics participating in the QUT SWOT study. The participants’ seniority and extensive experience of QUT and of the wider IS environment give added substance to their views.
7.1 STRENGTHS

7.1.1 Autonomy – Control over Curriculum and Research
Many of the strengths associated with having an Information Systems School within a separate Information Technology Faculty relate to the relatively high level of autonomy available to the Information Systems academics. The Information Systems academics, as a distinct entity with strong representation on Faculty Academic Board and other committees, can exercise a high level of control over the Information Systems curriculum. Decisions on degree offerings, course content and teaching methods can be proposed by the Information Systems academics with minimal constraints on their adoption. Similarly, the Information Systems research focus and the structuring of the Information Systems research effort can be largely determined by the Information Systems academics.

7.1.2 High Academic Morale
A potential benefit of having Information Systems curriculum and Information Systems research within the university determined by Information Systems academics, with minimal interference from other academics, is higher morale amongst the Information Systems academics by virtue of their greater control over their work. Additionally, the university and wider society stand to benefit from decisions about Information Systems curriculum and research being made by those people most informed, by virtue of their roles as specialist IS academics. With quick, relatively unconstrained decision making on Information Systems curriculum and research, since these decisions are made by groups comprising IS academics rather than by hierarchies of committees involving, for instance, Business academics, it is easier to review and update and maintain currency of Information Systems offerings.

7.1.3 Focus on IS Specialisation
The structure involving a separate Information Systems school has a strength in not requiring Information Systems academic staff to teach in areas other than Information Systems. This opportunity to specialise in Information Systems offers academics the possibility of developing a higher level of concentrated Information Systems knowledge than if they were expected to combine Information Systems teaching with teaching in, say, accountancy or management.

7.1.4 Capacity to Make Effective Allocation of Resources
Control over the budget is a further strength of this administrative model. The Head of Information Systems is able to make decisions about the allocation of finances for such matters as the purchase of hardware and software, the appointment of staff, and conference and travel support for Information Systems academics. Once again, decisions can be made quickly by the individual most in touch with the needs of the Information Systems group.
7.1.5 Beneficial Collaboration with Other ICT Academics
The ease of collaboration with Computing Science and Data Communications academics is a strength of the placement of all Information Systems academics in a separate School within a Faculty of Information Technology. In view of the increasing overlap between Information Systems and associated ICT disciplines, it is advantageous to have Information Systems academics in continuing contact with the other ICT academics in the university. Not only is collaboration easier, but potential demarcation disputes can be addressed within the Faculty, reducing wasteful duplication in subject offerings.

7.1.6 Informed Selection of Students
A separate Information Systems School is able to exercise greater control over the entry of Information Systems students to the university. Importantly, there can be separate entry requirements for Information Systems students, to exercise some control over the suitability of entrants. At QUT, undergraduate IS students must meet criteria established by the Faculty of Information Technology, subject to broader university guidelines. Hence IS staff can influence directly both general entry cut-offs and entry pre-requisites. At post-graduate level, Information Systems academics can determine the precise basis for entry by coursework IS students. A separate Information Systems School is advantaged in recruiting domestic and overseas students, both by the increased visibility of Information Systems in the university, and also by the degree of control the Information Systems academics have over the recruiting process.

7.2 WEAKNESSES

7.2.1 Exposure to Economic Downturns
While the autonomy that comes with having Information Systems as a separate administrative entity generates many benefits, also inherent in this autonomy are some weaknesses. For instance, the stand-alone Information Systems academic group are more exposed to the economic consequences of a downturn in demand for Information Systems. Where Information Systems academics embedded in a large Business Faculty can be cushioned by the continuing inflow of funds elsewhere in the Faculty, the Information Systems School in an IT Faculty has no similar hedge available; the whole IT Faculty thrives when demand for IT is strong and the whole Faculty suffers when demand for IT is low.

7.2.2 Reduced Collaboration with Business Academics
Collaboration with academics in Information Systems’ reference disciplines (Ariav 1987; Klein et al.1991) may be more difficult when Information Systems academics are administratively separate. So, the informal bonds with academics in Management, Economics, Accounting and Marketing are likely to be weaker when Information Systems academics belong to a separate Faculty.
7.2.3 Dilution of Business Content in IS Curriculum
Administrative isolation from allied disciplines can lead to progressive abandonment in Information Systems courses of content from these other disciplines in favour of increased IT content. Such a diminution in Business content had occurred in the IS curriculum at QUT. In light of employers’ ongoing demands for Information Systems graduates with a broad perspective on Business and related applications, this by-product of stand-alone placement of the Information Systems group may be viewed as a weakness; the greater freedom by the Information Systems academics to load Information Systems curricula with IT content may be counter-productive in terms of graduate outcomes.

7.2.4 Reduced Internal Competitive Strength
Having a separate Faculty of IT comprising just Information Systems and Computer Science groups results in a Faculty smaller in size than most others at the university. In the QUT case, it is felt that this small faculty size may result in lesser influence within QUT and disadvantage in competing for resources.

7.2.5 Constraints from Other Faculties
A further weakness in this administrative placement of Information Systems relates to the role of the School of Information Systems as a service group to students outside the Faculty of IT. For instance, in providing Information Systems subjects for MBA students, the Information Systems School may encounter Business Faculty guidelines at odds with those of the Faculty of IT and essentially non-negotiable. As a provider of service subjects, the School of Information Systems may then have to structure teaching arrangements, such as tutorial size and exclusion of advanced undergraduate students from MBA tutorials, in ways inconsistent with its own policies.

7.3 OPPORTUNITIES

7.3.1 Opportunity to Promote IS as a Separate Discipline
It is felt at QUT that the placement of Information Systems academics within a separate School of Information Systems provides an opportunity for the promotion and advancement of Information Systems as a distinct academic discipline. A clearly identified administrative grouping for Information Systems can be seen as beneficial to the advancement of Information Systems as a distinct discipline area (Checkland and Howell 1998). By contrast, it can be argued that having Information Systems staff embedded as a relatively small group within a Business Faculty perpetuates the view of Information Systems as an adjunct of other disciplines. This separate identity has been a long-held goal of Information Systems academics and practitioners (Banville and Landry 1992). For reasons of professional status, there are strong practical benefits that flow from the increased recognition of Information Systems as a distinct discipline. A major reason for Information Systems academics to pursue opportunities to enhance the standing of Information Systems as a separate academic
discipline relate to improved prospects for research funding. When bodies such as the Australian Research Council (ARC) recognise Information Systems as a distinct discipline area, the probability increases that applications for Information Systems research funding will be assessed in terms of appropriate criteria for Information Systems research. So long as Information Systems is regarded as an extension of some other discipline area or areas, such as Computer Science or Business, Information Systems research proposals will be assessed by individuals from these other disciplines. These assessors will, of course, evaluate the proposals according to criteria set up for their research areas, to the detriment of the funding prospects of the Information Systems proposals.

7.3.2 Opportunity for Increased Visibility to External Entities
There is opportunity for separate Information Systems Schools, as at QUT, to recruit students more efficiently and more effectively. Because the Information Systems School has greater autonomy, its course offerings can be made more visible to prospective students than if the school, and its courses, were part of a larger school. Again, entry requirements and entry standards can be more appropriately set when the entering students are identified by the university, and the tertiary entry bodies, specifically as Information Systems students, rather than, for instance, Business students planning to pursue an Information Systems course.

A separate Information Systems School offers improved opportunities for collaboration between Information Systems academics and Industry. The presence of a separate Information Systems group makes it easier to present a higher profile to Industry. Again, discussions and negotiations between the Information Systems academics and Industry representatives are less likely to be constrained by rules and guidelines more appropriate to a “parent” discipline group.

7.3.3 Opportunity for Improved Access to Advisors from Industry
With a separate Information Systems School, there is opportunity to recruit from outside the university appropriate Information Systems specialists to help guide the School. This opportunity again flows from the greater decision-making autonomy in a separate Information Systems School. It is the experience at QUT that not only can the presence of appropriate advisory IT people contribute within the school to the soundness of the teaching and research in Information Systems, but the influence of the Information Systems group within the university can be enhanced. High profile, knowledgeable Information Systems advisors from outside the university can make representation to the senior management of the university to improve the standing of the Information Systems School in the university’s decision making.

7.3.4 Opportunity for Enhanced International Reputations
There is enhanced opportunity for Information Systems academics who are part of a separate Information Systems School to establish an international reputation in the world Information Systems community. It is the QUT experience that the competence and
achievements of a body of Information Systems academics is more easily promoted where they work within a distinct, clearly labelled Information Systems group.

7.4 THREATS

7.4.1 Threat of Increased Damage in Times of IT Downturn
Declining international interest in IT as a career choice (Fusilier and Durlabhji 2003) has the potential to disproportionally damage separate Information Systems Schools. An Information Systems group embedded within another School, such as Commerce or Accountancy, is better able to absorb a downturn in demand since staff can be more easily redeployed into associated subject areas. Furthermore, a decline in income from Information Systems courses can be softened where Information Systems is only a small part of a larger School. At QUT, the impact of the recent IT downturn was exacerbated by the administrative isolation and specialisation of the School of Information Systems.

7.4.2 Threat from Hardware and Software Obsolescence
The rapid obsolescence of computer hardware and software poses a special threat to the separate Information Systems School during times of reduced demand for IT courses. Frequent turnover of hardware and software is essential for an Information Systems group to maintain currency in its courses, a prerequisite for attracting good students. Yet, as outlined earlier, the separate School status provides no economic buffer to allow necessary replenishment of hardware and software resources during times of more limited demand for IT courses.

7.4.3 Threat from Perceived Commoditisation of IT
The perceived commoditisation of IT (Carr 2003) is a threat to separate Information Systems Schools. Acceptance that IT should be regarded as a business commodity, of no strategic importance, threatens the claims of Information Systems academic groups to a separate identity. The view of IT as an operational commodity would support the idea that Information Systems is best taught by application specialists as an extension to their own discipline areas. Hence, since IS academics at universities like QUT are seen as specialists in IS, rather than as, say, Business academics with a strong knowledge of IS, their ongoing viability as a group is put at risk by the view that all IT is but an adjunct to Business (or some other application area).

Table 3: Summary of the SWOT Data for QUT

<table>
<thead>
<tr>
<th>Internal Strengths</th>
<th>Internal Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy in Decision Making</td>
<td>Exposure to Economic Downturns</td>
</tr>
<tr>
<td>Control over IS Curriculum</td>
<td>Reduced Collaboration with Business</td>
</tr>
<tr>
<td>Control over Research Focus</td>
<td>Dilution of Business Content in IS Curriculum</td>
</tr>
<tr>
<td>Higher Personal Morale among Staff</td>
<td></td>
</tr>
</tbody>
</table>

1384
8. Contribution of the Study

8.1 SWOT As a Strong Analytical Technique
In this study, the value of SWOT Analysis as a useful analytical technique to assist strategic planning has been reinforced. By using subjects with an intimate knowledge of the application area and its contemporary context it was possible to gather and document a range of useful factors relating to the internal strengths and weaknesses and the external opportunities and threats associated with having Information Systems academics outside Business in a separate School of Information Systems. The principles applied in this pilot SWOT analysis to ensure suitable rigour are documented earlier in this paper (Section 6.1). It is planned that these principles will again be applied by us in follow-up SWOT analyses, both in Australia and in the Pacific-Asia region. Furthermore, the documenting of these principles here also offers other researchers the opportunity to maximise the potential of SWOT as an analytical technique.

8.2 Assistance for QUT Information Systems Decision Makers
For managers in QUT’s School of Information Systems, this SWOT analysis provides a useful framework for planning further actions. In relation to assessing how best to exploit each identified opportunity associated with a stand-alone School of Information Systems, the managers would further examine the opportunity in relation to the identified strengths and weaknesses. For example, the QUT School of Information Systems could choose to exploit the documented opportunity to establish an international reputation for its academics by drawing on an identified strength of its autonomous status by choosing to budget resources to allow its academic staff to engage in activities that could raise the profile of the individuals and their School. For instance, finances could be provided to encourage staff to contribute to international Information Systems conferences, as well as providing for its staff to seek office on IS Journal Editorial Committees, and in various local and international IS Professional Societies.
Similarly, potential threats can be mitigated by taking account of identified strengths and weaknesses. For instance, the threat associated with a perceived commoditisation of Information Technology can be addressed at QUT by actions associated with overcoming the identified inadequacy of collaboration between the School’s academics and those from the Business Faculty. By sharing research activities with QUT’s Business academics, the Information Systems group can demonstrate the continuing capacity of Information Systems to be able to provide competitive advantage for Business. Similarly, efforts can be made to build relevant, useful Information Systems subjects into Business courses.

8.3 Potential for Replication

For Information Systems academics facing the prospect of having their group move to a separate Information Systems School, the SWOT Analysis presented here provides useful insights to assist in arguing the case for or against such a change. As other such separate Information Systems Schools are established worldwide, there is ample potential to replicate this analysis as a basis for evaluating how best to exploit the opportunities and to mitigate the threats.

This study also provides a table of factors (Table 3) worthy of consideration by others wishing to replicate the SWOT analysis at another university. Taking account of the QUT SWOT analysis in data gathering for a SWOT analysis exercise at other universities also maximises the subsequent comparability of the SWOT studies.

We would recommend enhancement of this SWOT analysis as a basis for providing still greater insights into the relative merits of different administrative placements of IS academic groups. The enhancement would take the form of retrospective SWOT analyses in relation to each of the critical changes in the past in the placement of the IS group. Key decision makers involved in the change would analyse their perceptions, at that time, of the strengths, weaknesses, opportunities and threats associated with the change made. With the advantage of hindsight, and changed environmental factors, these participant decision makers could then review the outcomes of each change of administrative placement.

9. Limitations and Potential for Future Research

The most obvious limitation of this study is that it draws only on views internal to the single Information Systems entity under study; a single case study of an instance of Information Systems located within a Faculty of Information Technology. Such a location for the Information Systems group is, in fact, a minority arrangement in Australia (and elsewhere). There is the risk that this single SWOT analysis is distorted by the inevitably limited perspectives of the two participants in the data gathering process. This potential bias is to be addressed by replicating the SWOT analysis in other universities, including those where the Information Systems academics are located within a Business Faculty, with and without autonomy as a group. Similarly, the SWOT analysis reported here does not provide “the voice of customers” of the IS academics. There is potential to seek the views of students and employers in relation to the administrative placement of the IS academics in universities. Subsequent SWOT analyses will benefit from attention to these subtler issues of placement and relative autonomy (e.g. variants...
within a Faculty of Business). Regardless of these limitations, as a pilot the study provides useful insights.

10. Generalisable Learnings for Other Institutions
From a review of QUT SWOT results, we observe several general learnings that may have value to other institutions undertaking a similar SWOT analysis. Firstly, this study highlights the importance of ensuring that the participants in the data collection and analysis associated with the SWOT study have a deep understanding of the Information Systems group to be examined. Similarly, to identify and analyse external opportunities and threats, the participants in the SWOT study should have a sound appreciation of emerging trends in ICT and in higher education policy.

The specific instances of Strengths, Weaknesses, Opportunities and Threats documented in Table 3 could be considered in subsequent studies of Information Systems groups in other universities. While the views of SWOT participants ought to be sought initially without prompting, it should be expected that many of the items identified in this study would be relevant, albeit in different classifications, in other studies; so, a strength associated with the location treated in this study may well be a weakness where the Information Systems group has a different location. Similarly, opportunities and threats identified here may be expected to recur in other SWOT analyses in other universities. In summary, the specific items in Table 3 could be usefully considered in subsequent studies, as a partial checklist, after an initial SWOT data gathering exercise.

A historical analysis of evolution of Information Systems in the institution can be revealing. A retrospective analysis, based on an after-the-fact SWOT analysis at each of the critical administrative re-locations, captured in a table similar to that shown in Table 1, may be useful in documenting key changes over time. More than this, such a retrospective analysis may provide pointers to assist in making contemporary decisions about the relative merits of different administrative locations of the Information Systems group in a university.

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Review of the PKI status in New Zealand

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Abstract

The research presented in this report was an attempt to answer the question: What is the situation with regard to the deployment of the PKI in New Zealand and are there attractive business models that can be successful in New Zealand? This work also provided an answer to the question of acceptance issues we face when deploying PKI in New Zealand. It attempted to find a workable model that could be appealing to New Zealand businesses and other organisations that need to use the Internet for conducting their affairs.

Keywords: PKI, Management of Information Security, Information Security case studies

1. Introduction

The research presented in this paper was an attempt to answer the question: What is the situation with regard to the deployment of the PKI in New Zealand and are there attractive business models that can be successful in New Zealand? This work will also try to give the answer to the question of acceptance issues we face when deploying PKI in New Zealand. It will attempt to find a workable model that could be appealing to New Zealand businesses and other organisations that need to use the Internet for conducting their affairs.

The report is divided into the following parts: in the first part we set up the PKI definition. Then we are presenting and commenting on the five New Zealand cases of an implementation system allowing for the secure transmission of information. It is then followed by formulating basic limitations of widespread PKI implementations in this country. After that we present a roadmap for building and implementing effective and efficient PKI systems in New Zealand. Conclusions close this report.

2. PKI definition

For the purpose of this project the following PKI definition was adopted: Public Key Infrastructure is an enabler, underlying basis, or framework, of following public cryptography security services: authentication, integrity, confidentiality, time stamping, secure notary service, non – repudiation, privilege management, etc.