

Appendix A

The Evolution of Enterprise Wide Systems within Australian Higher Education

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According to the Australian vice chancellor's committee (AVCC), there are 38 individual universities in Australia, with two of them being privately owned and not funded by the government (AVCC, 2002). These universities operate in one of the most reviewed sectors in Australia (Hamilton, 1997), which has undergone and is in the process of undergoing major restructuring. Universities are expected to respond to these changes, which include the recruitment of more students, declining public funding, and increased government pressures to reform their structures, lower their costs, and achieve greater administrative efficiency (Kemp, 1998; Li, Karmel, & Maclachlan, 2000; Sarros & Winter, 2001).

In the late 1980s, there were calls from the government to attract more students into universities (Hore & Barwood, 1989) when it became clear that universities needed to improve economic efficiency, resulting in a restructuring of the entire

Australian university sector. Some people claim the higher education sector has been through a phase termed “the corporatisation of universities” (Guthrie & Neumann, 2001). Wagner and Scott (2001) referred to this trend for changes to business solutions to reflect the marketization of universities within the global higher education sector, which has grown increasingly complex and competitive over the past decade.

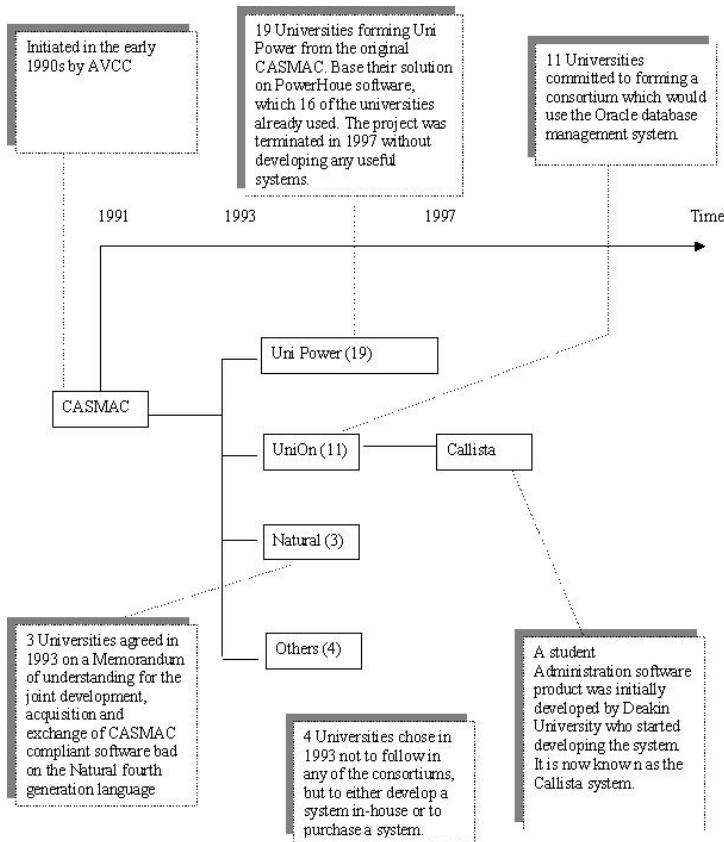
The literature suggests a demand for improvement in the quality of education (McConville, 2000), however this has been difficult to achieve when government funding has not followed the growth of students in Australian universities (Hoare, 1996). This restructuring of universities to create a place for the masses, not just for the elite (Coaldrake, 2001), has pushed universities into a situation where the role of the academics and knowledge creation has been shifted out of the university debate somewhat (Hort, 1996; McCollow & Lingard, 1996; Johnston, 1998; Sarros & Winter, 2001). The major focus of research regarding higher education has instead focused on restructure (Nicholls & Marginson, 1996) and identifying sources of income for the universities (Marginson, 1996).

As an answer to government policies, politics, social, and economical factors (Anderson, Johnson, & Milligan, 1999), strategic directions for universities have included the use of information technology to streamline operations. These strategies attempt to utilize IT to have an increase in competitiveness and to bring about improvements in efficiency by relying on large-scale commercial information systems. These IT strategies began in the mid- to late-1990s (AVCC, 1996; Meredyth & Thomas, 1996), with some of the associated IT projects deemed essential for universities to operate, and was described as “necessary for survival” (AVCC, 1996; Yetton, 1997; Oliver & Romm, 2000).

Resulting from these changes in higher education in Australia, the AVCC created the *Core Australian Specification for Management and Administrative Computing* (CASMAC) steering committee in 1991. CASMAC was created to develop a set of common management and administration systems across the Australian university network (Vitale, 2000). This committee attempted to provide guidance and advice on systems development approaches for universities. In 1993, due to conflicting views on hardware platforms, it was decided that the system development costs of CASMAC would be shared across the participating universities. Costs of the failed systems developments reached AUD\$9 million (Vitale, 2000).

The consortium then split into a number of groups. One group became known as *Unipower* (AVCC, 1996), and 19 universities chose this strategy. Eleven universities chose to focus on another type of system and formed a consortium termed the *UniOn Group*, the Callista student administration system (Callista Software Services, 2001; Cresswell, 2001) was developed by one of the participating universities. Three universities known as the *Natural Group*

Figure A1



Model adapted from the original model developed by Oliver and Romm (2000).

agreed partially on the CSMAC agreement, and the remaining universities decided to either develop systems in-house or purchase systems from other software vendors. The Unipower project was terminated in 1997 when no useful system was developed (Oliver & Romm, 2000).

Figure A1 presents a graphical representation of the systems development of CSMAC that can be mapped to the ERP initiatives found in higher education in Australia today. This figure is based on information found in the literature.

The major ERP vendors (PeopleSoft®, Oracle®, SAP®, and JD Edwards®) have historically focused on the corporate market; however, they made the transition into higher education by offering a campus management/student administration module to complement their suite of solutions. In Australia,

universities embraced this functionality, allowing them to integrate all core functions across the university, with many university ERP systems supporting functions across multiple campuses.

Current State of ERP in Australian Higher Education

Michael Vitale (2000) suggested, “the importance of administrative computing to the smooth, economical operation of a tertiary institution cannot be denied.” In 2002, around 86% of Australian universities had adopted at least one module of an ERP from a major vendor for day-to-day operations (Beekhuyzen, Goodwin, & Nielsen, 2002). At this time, 38% of universities had adopted solutions from a single vendor, with the commonly adopted modules being financial, human resources, and student administration. With 48% adopting a “Best of Breed” approach, this approach was found to be popular among Australian universities, with Australian vendors providing a popular modular choice for teaming up with modules from the major vendors. Technology One (financials, student administration), Callista (student administration), and Concept (human resources) are all local vendors taking advantage of this uptake by universities. Reportedly, 14% of universities had not implemented any enterprise modules at this time (2002).

Interestingly, SAP has up to 60% of the global corporate ERP market, and PeopleSoft has 6%. Within universities in Australia in 2002, PeopleSoft held approximately 55% of the higher education market (Beekhuyzen, 2002), with SAP holding around 35%. Tables A1, A2, and A3 represent these findings.

A number of universities stated things like “Absolutely not - we are not that silly!” when asked if they are or have implemented an ERP, however, many of these universities are now venturing down the ERP path. Adoption of ERP in Australian universities is now close to full saturation. With the increased pressure on tertiary competitive advantage and attracting students, universities have realized that they need to be “in the ERP game” if they want to survive. Resulting from the adoption of this new technology, universities are now starting to experience the long-term benefits of these changes. Universities have had to change from a historically decentralized and autonomous structure to one that is much more central and controlled. ERP technology has forced universities to reengineer their business processes and retrain (or train) their users (including management, academics, administration staff, and students). These systems have made users more responsible for their data and have increased the impact that errors can have on decision making. ERP technology, despite its many flaws

Table A1: Single-vendor ERP implementations

Australian State	% Impl. in State	University	# of Campuses
New South Wales	44%	University of Sydney	9
		University of NSW (UNSW)	5
		University Of Wollongong (UOW)	6
		University of Western Sydney (UWS)	6
Victoria	44%	La Trobe University	8
		Monash University	8
		Royal Melbourne Institute of Technology (RMIT)	3
		Victoria University (VU)	13
Aust. Capital Territory	33%	Australian National University (ANU)	1
Queensland	50%	Queensland University of Technology	4
		Griffith University (GU)	6
		University of Queensland (UQ)	3
		University of Sunshine Coast (USC)	1
		University of Southern Queensland (USQ)	1
South Australia	33%	Adelaide University	4
Western Australia	20%	University of Western Australia (UWA)	1
Total Campuses			79

Table A2: “Best of Breed” ERP implementations

Australian State	% Impl. in State	University	# of Campuses
Aust. Capital Territory	33%	Australian Catholic University (ACU)	6
New South Wales	44%	Newcastle University	2
		Southern Cross University (SCU)	3
		Macquarie University	1
		University of Technology Sydney (UTS)	3
Queensland	44%	Queensland University of Technology (QUT)	3
		University of New England (UNE)	1
		Bond University	1
		Central Queensland University (CQU)	12
South Australia	67%	University of South Australia (UNISA)	6
		Flinders University	1
Victoria	44%	University of Ballarat	4
		Deakin University	4
		Swinburne University	8
		Victoria University of Technology (VUT)	1
Northern Territory	100%	Batchelor Institute	1
		Northern Territory University (NTU)	2
Western Australia	60%	Murdoch University	2
		Curtin University	7
		Edith Cowan University (ECU)	5
Total Campuses			73

Table A3: ERP implementations by vendor

Vendor	% of uni's impl. with vendor	University	State
PeopleSoft	53%	University of Sydney	NSW
		University of New South Wales (UNSW)	NSW
		Griffith University (GU)	Qld
		University of Queensland (UQ)	Qld
		University of Sunshine Coast (USC)	Qld
		University of Southern Queensland (USQ)	Qld
		Adelaide University	SA
		University of Western Australia (UniWA)	WA
SAP	35%	Australian National Uni (ANU)	ACT
		Queensland University of Technology (QUT)	Qld
		Monash University	NSW
		La Trobe University	Vic
		Royal Melbourne Institute of Technology (RMIT)	Vic
Oracle	6%	Victoria University (VU)	Vic
		University of Western Sydney (UWS)	NSW
J.D.Edwards	6%	University of Wollongong (UOW)	NSW

within the university environment, has allowed universities to move to a new level of accountability, availability, and marketability.

In Table A1, the 16 Australian universities reportedly adopting a single-vendor ERP solution are identified.

Identified in Table A2 are the 20 Australian universities that are reportedly adopting a "Best of Breed" approach.

Table A3 identifies the vendor market reported in Australian universities.

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