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The ERP Market: An Australasian 2001 Update

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ABSTRACT

The global ERP industry blossomed in the 1990's automating back office operations. Research up to date has been limited especially in the relation to market penetration of these products in the Australasian region. This paper presents an analysis of the Australasian ERP market place. It looks at the market movement and demographics of companies that have implemented SAP software, the dominant ERP vendor within the Australasian marketplace. The 387 SAP customers are classified by industry sector, size, and software implemented to establish metrics for ERP implementation pertaining to the region.

ERP SYSTEMS

An Enterprise Resource Planning (ERP) system can be defined as 'an accounting-oriented information system for identifying and planning the enterprise-wide resources needed to take, make, ship, and account for customer orders' (APICS 1998). The ERP software infrastructure facilitates the flow of information between all business functions. This infrastructure is built upon a common database responsible for storing all data from processes that are essential for business operations and decision making. ERP systems are enterprise-wide and they claim to incorporate best business practices. They replace separate functional legacy systems and impact significantly on the existing business processes.

ERP sales now represent a significant proportion of total outlays by business on information technology infrastructure. A recent survey of 800 U.S. companies showed that almost half of these companies had installed an ERP system and that these systems were commanding 43% of the company's application budgets (AMR Research, 1999a). The global market for ERP software, which was $16.6 billion in 1998, is expected to have a compound annual growth rate of 32 percent, reaching more than $66 billion in sales by 2003 (AMR Research, 1999b) and is estimated to have has 300 billion spent over the last decade (AMR, 2000). There are several reasons for the increasing demand for ERP systems: integration of business processes, need for a common platform, better data visibility, lower operating costs, increased customer responsiveness, and improved strategic decision making (Iggulden, 1999).

Market penetration of ERP systems varies considerably from industry to industry. A recent report by Computer Economics Inc. stated that 76% of manufacturers, 35% of insurers and health care companies, and 24% of Federal Government agencies already have an ERP system or are in the process of installing one (Stedman, 1999). Over 60% of the U.S. Fortune 1000 companies are using ERP systems and this has resulted in the major ERP vendors targeting small to medium enterprises (SME's) to generate new sales (Stein, 1999; Piturro, 1999). This has seen the development of new implementation methodologies and modifications of ERP systems to reduce implementation complexity and the associated costs. Vendors are also extending beyond their core ERP systems to support web-based applications, e-commerce, and customer-relationship management.

The 5 leading ERP vendors: SAP, Oracle, Peoplesoft, JD Edwards, and Baan, account for 62% percent of the total ERP market revenue (AMR Research, 1999b). SAP is the largest client/server and mainframe ERP software vendor with approximately 39% market share. The company has approximately 22,300 employees, 12,500 customers, in 110 countries (SAP, 2000). Curran and Kellar's (1998) sought to establish the extent that SAP software has been adopted by major US companies. They reported that SAP software had been implemented by:

- 6 out of the top 10 Fortune 500 companies
- 7 out of the top 10 most profitable companies
- 9 of the 10 companies with the highest market value
- 7 of the top 10 pharmaceutical companies
- 7 of the top 10 petroleum companies
- 6 of the top 10 electronics companies
- 8 of the top 10 chemical companies
- 8 of the top 10 food companies

Despite the enormous growth in the use of ERP systems there is very little research associated with these products (Gable & Rosemann 1999). This lack of research is further exacerbated when applied to the Australasian region. A search of current research literature did not reveal any studies that have attempted to quantify the level of ERP usage in the region. Two proprietary reports have been produced related to ERP usage in Australia, however both of these studies had relatively small samples. The Gartner Group's ERP and FMIS Study (1998) surveyed 3783 Chief Financial Officers and achieved a valid response rate of approximately 11%. This included only 72 responses from companies that had implemented an ERP system from one of the 5 leading ERP vendors. Nolan and Norton's SAP Benchmarking Survey (2000) surveyed 270 companies that had implemented SAP's ERP software and achieved a 16% response rate.

ERP STUDY OBJECTIVES

The primary objectives of this study were to ascertain the level of ERP implementation in Australasia and to profile the demographics of companies that had implemented this software. SAP Australia was chosen as the study vector as it is reported as dominating the ERP market in Australasia (IDC, 1999). The first part of the study, as presented in this paper, will provide an analysis of SAP clients in Australasia broken down by industry sector, organisation size, and software implemented. The second part of the study will evaluate the ERP modules implemented as per industry sector and organization size. This will help identify implementation trends for companies considering implementing an ERP system.

RESEARCH METHODOLOGY

Victoria University is a member of the SAP University Alliance Program which was established to develop and deliver ERP education and to promote ERP research in Australasia. In accordance with these guidelines, SAP regularly provided confidential customer data files to the University. The first data file was the customer file that contained the following information: client name, contact, implementation date, and version details. The second file contained the information: name, go-live date and module and was supplied bimonthly since October 1998. The two files were combined into a database and cross-referenced with external sources to include financial and other pertinent demographic data pertinent to the enterprises. This data was then loaded in SPSS v10 and analysed with standard statistical measures.

RESULTS

Customers

A customer, according to SAP is an organization who is using SAP software. In Australia and New Zealand this includes SAP itself, the 17 universities which are part of SAP University Alliance, and

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SAP implementation partners in addition to the traditional business users of the software. As mentioned previously SAP has approximately 12,500 customers in 110 countries. The data indicated that there were 387 SAP customers in the Australasian region. Of these, 329 were based in Australia and 58 in New Zealand. The customers are spread across all industry sectors. SAP uses its own industry sectors to categorise its customers as illustrated in Table 1. SAP Australia includes additional categories to classify its customers compared to the SAP worldwide figures. Although the worldwide figures have less categories, there is an additional "Other" category (11.9%) which does not appear in the Australasian data. It must be remembered that the worldwide data would include the data for the Australasian region. The major sector where SAP software has been implemented in Australasia is the Public Sector (16.5%). Further analysis of the Public Sector category indicated that SAP customers were predominantly at both the Federal and State government levels with only two customers at the Local government level. At the State level, the New South Wales and Queensland governments are the main customers. The Public Sector category reveals a significant difference in percentage figures between the Australasian and the SAP worldwide figures are in the Public Sector category. This could be a reflection of the multiple levels of the Australian political system. Also each department within the governments is classified as a separate customer by SAP. Anecdotally however SAP admits that they have a very high market penetration in this sector in the Australasian region compared to the rest of the world.

The next highest category in the Australasian figures is the SAP Service Providers (11.4%). SAP, up until recently, considered themselves as a software developer and vendor. They did not consider themselves as software implementers and accordingly formed partnerships with a number of companies to perform this role. These were usually the major accounting and IT consulting companies. The "SAP Service Providers" category includes these implementation partners. It is necessary for these companies to internally install the different versions of the SAP software to provide a development and training environment for their consultants. The figures for this category in the Australasian region are comparable with the worldwide figures (11.4% compared with 10.0%).

The major discrepancy between the Australasian and worldwide figures occurs in the Higher Education and Research category (5.2% and 0.7% respectively). This can be explained by how SAP Australasia classifies its customers. The 17 universities that are part of the SAP University Alliance program in Australasia have been included in this category. These universities receive the software free of any cost, which is in contrast to the 3 universities within Australia that are using SAP software as a business system. It would appear that the worldwide figures only include universities that have purchased the software. There is approximately 170 universities in the Americas which are part of the SAP University Alliance Program. If they were included in the worldwide figures, then the category percentage would be far higher than its present value (0.7%). This reinforces the assumption that the worldwide figure only includes universities that have purchased the software.

SAP produces a pre-configured version of their software designed specifically for the Higher Education and Research sector. However none of the universities within Australasia have purchased this version, rather opting for the standard version of the SAP software. There are many other discrepancies between the Australasian and worldwide figures especially in the Engineering & Construction and Healthcare sectors which cannot be explained at present. This is a potential direction for further research. In the Nolan and Norton (1999) study it was concluded that the majority (55%) of SAP customers were from the Consumer and Industrial Markets classification (Table 2). Even though the study had a smaller sample and was limited to Australian customers, their findings are indicative of the Australasian market when the above categories (Table 1) are consolidated into the Nolan and Norton categories. The major discrepancy between our analysis and Nolan and Norton's is in the Higher Education sector. This however would be for the same reason outlined earlier.

Table 1: Customers by SAP industry type; Australasia and worldwide

Industry Sector	Australasia Customers (N=387)	World Customers (N=17,583)
Sap Public Sector	16.5%	3.0%
Sap Service Provider	11.4%	10.0%
Sap Consumer Products	8.3%	9.7%
Sap High Tech & Electronics	5.9%	11.1%
Sap Retail	5.9%	6.4%
Sap Chemicals	5.4%	8.5%
Sap Higher Education & Research	5.2%	0.7%
Sap Utilities	4.4%	4.1%
Sap Mining	4.1%	*
Sap Telecommunications	2.8%	3.4%
Sap Media	2.6%	2.2%
Sap Engineering & Construction	2.6%	9.7%
Primary Metal & Steel	2.6%	*
Sap Automotive	2.3%	5.4%
Sap Banking	2.3%	2.0%
Transportation & Storage	2.3%	*
Sap Oil & Gas	2.3%	3.2%
Forest Products & Paper	2.3%	2.8%
Sap Pharmaceuticals	2.1%	3.1%
Metal Products	2.1%	*
Building Materials, Clay & Glass	1.8%	*
Sap Insurance	1.6%	1.9%
Textiles Production	1.3%	*
Sap Aerospace & Defence	0.8%	1.5%
Sap Healthcare	0.5%	2.4%
Sap Consolidated Companies	0.5%	*

• SAP worldwide have an Other category at 11.9%

Table 2: Customers by Nolan and Norton industry type; Australia

Industry Sector	Australia Customers (N=43)
Consumer & Industrial Markets	55%
Public Sector	16%
Energy and Natural Resources	14%
Health Care and Life Services	5%
Information/Communication/Entertainment	5%
Financial	5%

The size of the enterprise is an important factor when considering market penetration. Traditionally SAP was restricted to larger organisations due to its complexity and associated costs. As mentioned, SAP, as well as the other ERP vendors, have developed a number of strategies to reduce implementation costs in an attempt to

make their software more affordable to mid range organizations (Piturro, 1999). The customer data can be classified by revenue to provide an indication of the size of companies implementing SAP software. Business Review Weekly (2000) annually produces the BRW1000 which is a ranking, by revenue, of the largest listed, private, government and foreign enterprises operating in Australia. Using the BRW figures financial data was obtained for 146 of these companies (Table 3). There was difficulty sourcing data for the remaining companies as they were either public sector organisations (16.5%), universities (5.2%), or subsidiaries of larger companies.

Companies using SAP software represent over $205.6 billion in annual revenue. According to Table 3 the majority of companies (60%) had annual revenues over $500 million which supports the notion that large companies are the dominant market for ERP vendors. However, 40% of the companies had revenues under the $500 million with the lowest being $58 million. The large percentage of smaller companies reflects the ERP vendor's strategy, in recent years, to target small to medium enterprises. Future research comparing the date of implementation to the size of the company could further test the effectiveness of this strategy. This will help determine whether market penetration of smaller companies has been a recent occurrence.

Table 3: Customers (N=146) by size (revenue)

Size $million's	Customers %
>1000	38%
750-1000	8%
500-749	14%
250-499	20%
<250	20%

Previously figures were presented on market penetration in the Fortune 500 US companies (Curran and Kellar 1998). Using the BRW1000 list similar statistics can be produced Australian companies who have implemented SAP software.

- The largest 5 employers use SAP
- 3 out of top 5 private companies
- 4 out of top 5 public companies
- 2 out of top 3 building materials companies
- 2 out of top 3 diversified resources companies
- 2 out of top 3 diversified industrials companies
- 2 out of top 3 energy companies
- 4 out of top 5 communication companies
- 3 out of top 5 mining companies

Implementations

From 1989 to July 2000, 387 customers implemented or were in the process of implementing SAP software. This does not include update or upgrade implementations. A break down of the initial year of implementation for each customer is included in Table 4.

Table 4: Customer implmentations by year

Year	Number of Implementations	%
1989/94	13	3.4%
1995	28	7.2%
1996	41	10.6%
1997	62	16.0%
1998	109	28.2%
1999	72	18.6%
2000	45	11.6%
Not specified	17	4.4%

The data indicates that approximately 65% of companies have had their ERP systems for at least two years. Nolan and Norton (2000) grouped implementations into levels of maturity. They argued that when evaluating costs of an ERP implementation, the company's previous experience with ERP systems should be considered. Their maturity classifications were: Beginning – implemented SAP in the past 12 months, Consolidating – implemented SAP between 1 and 3 years, and Mature – implemented SAP for more than 3 years. Applying the maturity classification to the above data indicates that the majority of Australasian companies are in the Consolidating stage (58.4%) then followed by the Mature phase (37.2%) and the Beginning phase (11.6%).

The increasing numbers of implementations leading up to 2000 reflect companies implementing solutions to the Y2K problem. A recent study by the Institute of Management Accountants (2000) found that 64% of companies surveyed had initiated an ERP project to redress their Y2K issues (Krumwiede et al, 2000). This could also partially explain the decrease in implementations after 2000. Additionally the post 2000 decrease would also be due to the introduction of a consumption tax (Goods and Services Tax) in Australia in June 2000. Many organisations would have focused their information technology expenditure on modifying their existing systems to calculate and record this new tax.

The data indicated that although there were 387 customers, this represented 711 instances. An instance is a separate implementation of SAP software usually for the purpose of handling data for a separate company within the overall enterprise or used to support an installation of one of SAP's software solutions. Table 5 provides details of the different SAP products and the number of implementations. SAP has developed two major releases of their ERP software. The first was R/2, which was mainframe based while their newer client server based version, R/3 was released in 1992. In addition to their ERP software they released a range of products that were referred to as the "*new dimension*" products. These products were basically enhancements to the ERP software. They included Business Information Warehouse (BW), Knowledge Warehouse (KW), Strategic Enterprise Management (SEM), Customer Relationship Management (CRM) and Advanced Planner and Optimisation (APO). SAP recently has grouped its "*new dimension*" products and R/3 with added eCommerce functionality (Workplace and Marketplace) and referred to it as mySAP.com.

Table 5: Software implementations

Software	Number of Implementations	%
R/2	13	1.7%
R/3	506	66.4%
CRM	51	6.7%
KW	62	8.1%
BW	74	9.7%
APO	22	2.9%
SEM	8	1.0%
Workplace	26	3.4%

SAP's major sales in the Australasian region have been its R/3 product (66.4%). The 506 R/3 implementations represent 374 customers, which indicates that many of these customers are now adding value to their ERP implementation by purchasing the "*new dimension*" products. Even though SAP are attempting to develop new markets for their R/3 product, it would be expected that the sales of the "*new dimension*" products will increase while sales of R/3 will decrease due to market saturation. It could be argued that the implementation of "*new dimension*" products is a measure of maturity of the ERP implementation. It would be expected that companies would not be implementing any of the "*new dimension*" products until their ERP implementation was fully functional. Therefore there would a

relationship between a company's experience with SAP R/3 as defined by Nolan and Norton's (2000) maturity classification and the implementation of the "*new dimension*" products. MySAP.com is touted as SAP's eBusiness solution which facilitates back-end and front-end integration. The "marketplace" component provides a foundation for collaborative eBusiness. The data supplied by SAP will provide a basis for determining the extent of eBusiness solutions implementation by many of the leading companies in Australasia. A direction for future research would be the relationship between levels of maturity as defined by Nolan and Norton and the adoption of eBusiness solutions.

CONCLUSION

The use of ERP systems in Australasia is well established with many leading companies implementing these types of systems. The companies represent all industry sectors with the Public Sector being most dominant. The companies vary in size and the products implemented. Sales have slowed since 2000 and it will be interesting to follow future sales trends and directions. Research related to the extent of ERP implementation has been limited. This study into the ERP (SAP) market in Australasia provides a foundation for future research into the adopters of ERP systems. The data that SAP has provided to the university is invaluable and will enable researchers to conduct ongoing research into the various implementation trends associated with these products. Throughout the paper there are indications to the type of research in progress as an extension of this initial study as well as future directions. These studies other than contributing to the gamut of knowledge associated with ERP products and information systems will be a valuable resource to companies considering the implementation of this type of software. It is envisaged that these series of studies will provide benchmarks for various aspects of ERP implementations.

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