



The ERP Marketplace: An Australian Update

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ABSTRACT

The global ERP industry blossomed in the 1990's automating back office operations. The Australian ERP industry matched this global trend and has kept pace with the latest amalgam of front office applications including CRM, demand planning and sales-force automation being merged with the traditional ERP applications. ERP vendors are frantic in their attempts to ride the "E" wave whilst ERP customers struggle with the people, process and technology implications that ERP brings. This paper presents the preliminary results of an analysis of the Australian ERP market place. This study looks at the market movement and demographics of SAP, the dominant ERP vendor within the Australian marketplace.

ERP IN AUSTRALIA

ERP Marketplace

A recent Boston Consulting Group report (BCG, 2000) on the Australian ERP marketplace found that executives reported that only 33 percent of ERP implementations were successful. The metrics used to report success included value creation, cost-effectiveness and tangible financial impact. This report also reported significant vendor dissatisfaction among client executives. ERP vendors (Bell, 2000) balance this dissatisfaction by reporting that organisations have trouble identifying the value adding processes that a large scale ERP implementations will augment. The six main vendors in the Australia, SAP, Peoplesoft, Baan, Oracle, JD Edwards and Great Plains have dominated the large organisation marketplace. In analysing any large scale ERP suite payback and ROI are crucial to measures of success. A Deloitte Consulting Report (Deloitte, 1999) identified a number of expected benefits from ERP, these include cost reductions, inventory reduction and cycle time reduction. Identifying the back-office ROI has been a struggle in most large Australian organisations (Chung, 2000). As in the global marketplace Australian enterprises have struggled with the large-scale change necessary in ERP. Weston Foods implemented one of the largest SAP installations in Australia in 1999 and their finance director Douglas Forgie (Bass, 1999) commented on the need to change organisational culture when implementing ERP. This point is supported by John Julian (Forsyth, 1999), director of Information systems at Monash University, when they implemented a SAP back office HR/Finance system. He commented that any ERP implementation is more a people rather than a technical problem.

ERP and the Internet Marketplace

The move in the 1990's to adopt integrated ERP systems at the expense of best of breed solutions is now being reversed as E-Business (Freedman, 1999) is now dominating front office applications. Worldwide there is a move to find a viable business model for B2B on-line exchanges. AMR research (McKenna, 2000) reports that lower transaction costs will drive the B2B marketplace and will force a consolidation with major B2B companies claiming market dominance. Based on a survey of Fortune 1000 companies AMR predict the B2B (McKenna, 2000) marketplace will be worth US\$5.7 trillion by 2004. The need to extend the reach of technology into the front office and the external driver of E-Business has forced both enterprises and ERP vendors (Gartner, 1998) to adopt flexible approaches to Customer Relationship Management (CRM), supply chain management, call-centres and E-Commerce. Vertical, canned and component based implementations addressing supply-chains, customer and marketing channels are

emerging as the dominant ERP strategy for the coming decade (Chung, 2000). To accommodate the E-Business wave SAP AG is using the mySAP.com strategy to develop B2B marketplaces, role based portals, business applications and application hosting services to role out internet based capability.

Australian MySap.com Marketplaces

In the Asia-Pacific region there are 114000 mySAP.com workplace users (Roach, 2000) in 201 installations. The workplace concept has been extended through the use of mySAP.com mobile workplace. SAP Hosting and SAP Markets are leading SAP's foray into creating globally interconnected B2B marketplaces. The Asia Pacific region has five mySAP.com marketplaces providing commerce, collaboration, content and community service within the wider community. In January 2000, SAP Australia and Telstra launched the largest B2B marketplace in the Asia Pacific region. This market place is a procurement portal consisting of 11 major Australian corporations. The marketplace concept includes horizontal, vertical, channel as well industry type marketplaces. The mySAP.com workplace portal will allow organisations to develop applications covering CRM, supply chain management, E-Commerce buying, product lifecycle management, business intelligence and strategic enterprise management. The Australian market place is advantaged by adopting a second adopter strategy, using the latest technology that has been tried and tested in larger marketplaces and skipping earlier lesson cycles (Chung, 2000). Many studies (Holland, 1999; Reel, 1999; Brown, 1999; Somers, 2000) have proposed success factors for ERP implementations. Some common factors in these studies include, management support, user training, management of expectations and vendor/client relationship. In the age of E-Business will a new set of success factors emerge? A crucial question for enterprises will be the management of their span of operations. The traditional ERP should be good at managing the integrated data within the organisation, but all enterprises will need to manage the broader information chain within the E-Business supply chain (Chung, 2000). Enterprises will need to decide if their ERP vendor will provide the interface between the back-office transaction systems and the customer/marketing component based systems.

METHODOLOGY

ERP Study Objectives

The primary objective of the study was to survey a range of ERP clients and seek responses to a range of issues confronting enterprises within the Australian marketplace. SAP Australia was chosen as the study vector as it dominates (IDC, 1999) the ERP market in Australia. The first part of the study as presented in this

paper will provide an analysis of SAP clients in Australia. Clients will be analysed by;

- Date, industry sector and organisation size,
- Modules implemented,
- Database, operating system and vendor.

The second part of this study will be to survey the SAP cohort to explore two main ERP issues, the impact of ERP systems upon the job progression and skills mix of IS professionals and the changing nature of ERP success factors. Several key issues will be addressed by these future studies;

- Plans for merging back-office ERP and front office applications ie CRM,
- Career planning for IS professionals in ERP organisations,
- Impact of emerging mySAP.com E-Business applications upon existing ERP staff skill sets,
- Exploration of the success metrics for back-office versus front-office applications,
- How existing companies are adapting to the emerging B2B marketplace.

Research Methodology

SAP Australia provided two customer data files. The first was the customer file, this contained client name, contact, implementation date and type. The second file contained name, go-live date and module information. The two files were combined into a database and cross-referenced with external sources to include financial data pertinent to the enterprises. This information was confidential and provided to Victoria University's School of Information Systems due to is a membership of the SAP University Alliance Program. This data was then loaded in SPSS v10 and analysed with standard statistical measures.

RESULTS

Customers

SAP has approximately 13,000 customers in 120 countries. SAP defines a customer as an organisation using SAP software. In Australia and New Zealand this includes SAP itself, the 15 universities which are part of SAP University Alliance, and SAP implementation partners in addition to the traditional business users of the software. From 1994 to July 2000 387 customers implemented a version of SAP's R/3 software. This does not include update or upgrade implementations. A break down for the first year a customer implemented SAP R/3 is included in Table 1.

Table 1. Customer Implementations (N=387) by Year

Year	Number of Implementations
1994/1995	10
1996	32
1997	50
1998	96
1999	56
2000 wip	143

The large numbers of implementations for 2000 include those being worked up into go-live. This would include all instances of projects that are work in progress. The data indicated that the 387 customers represent 711 instances of SAP R/3. An instance is a separate implementation of SAP R/3 usually for the purpose of handling data for a separate company within the overall enterprise or used to support some of the SAP's new dimension products such as data warehousing, customer relationship management etc.

Of the 387 customers 329 were based in Australia and 58 in New Zealand.

The customers are spread across all industry sectors as defined by the Australian Bureau of Statistics Industry (Table 2). Public Administration is the dominant sector with customers at both the Federal and State levels. At the state level New South Wales and Queensland governments are the main customers.

Table 2. Customers (N=387) by Industry Type

Industry Type	% of Customers	Industry Type	% of Customers
Public Administration	27%	Manufacturing	19%
Wholesale & Retail	17%	IT services	3%
Agriculture & Mining	12%	Transport & Storage	4%
Utilities & Construction	5%	Community Services	1%
Finance & Business Services	4%	Other Services	8%

SAP uses its own industry sectors to categorise its customers as illustrated in Table 3. There appears to be additional categories included for the Australian market that would be included in other categories on the worldwide figures. It must be remembered that the worldwide data would include the data for Australia and the Australian data would be influenced by the relatively small sample. The major differences in percentage figures are in the Public Sector, Higher Education and Research, and Health Sectors. The Public Sector category maybe a reflection of the multiple levels of the Australian Government and each department is classified as a customer. However, anecdotally SAP admits that they have a very high market penetration in this sector compared to the rest of the world.

The discrepancy for the difference in sales in the Higher Education and Research sector can be partially explained by how SAP Australia classifies its customers. SAP Australia has recently included the 15 universities that are part of SAP University Alliance program as part of this sector. These universities receive the software free of any cost as distinct to the 3 universities within Australia that are using SAP R/3 as a business system. SAP sells a Higher Education and Research version to support universities. It would appear that the worldwide figures might only include universities that have purchased the software.

An explanation for the difference in the Health sector figures can not be put forward at this moment, but similar to many of the other sectors it provides a basis for future research on SAP market penetration in different regions around the world.

Table 3
Customers by
SAP Industry
Type; Australia
and Worldwide

Industry Sector	Australia Customers (N=387) %	World Customers (N=17,583) %
Building Materials, Clay & Glass	1.8%*	
Forest Products & Paper	2.3%	2.80%
Metal Products	2.1%*	
Primary Metal & Steel	2.6%*	
Sap Aerospace & Defence	0.8%	1.50%
Sap Automotive	2.3%	5.40%
Sap Banking	2.3%	2%
Sap Chemicals	5.4%	8.50%
Sap Consolidated Companies	0.5%*	
Sap Consumer Products	8.3%	9.70%
Sap Engineering & Construction	2.6%	9.70%
Sap Healthcare	0.5%	2.40%
Sap High Tech & Electronics	5.9%	11.10%
Sap Higher Education & Research	5.2%	0.70%
Sap Insurance	1.6%	1.90%
Sap Media	2.6%	2.20%
Sap Mining	4.1%*	
Sap Oil & Gas	2.3%	3.20%
Sap Pharmaceuticals	2.1%	3.10%
Sap Public Sector	16.5%	3.00%
Sap Retail	5.9%	6.40%
Sap Service Provider	11.4%	10%
Sap Telecommunications	2.8%	3.40%
Sap Utilities	4.4%	4.10%
Textiles Production	1.3%*	
Transportation & Storage	2.3%*	

* SAP worldwide have an Other category at 11.9%

The size of the enterprise is an important factor when considering the market penetration. Traditionally SAP was restricted larger organizations due to its complexity and associated costs. This is reflected in the following figures that illustrate the level of SAP penetration in the USA.

- 6 out of top 10 Fortune 500 companies
- 7 out of the top 10 most profitable companies
- 7 out of the top 10 pharmaceutical companies
- 7 out of the top 10 computer companies
- 7 out of the top 10 petroleum companies
- 7 out of the top 10 electronics companies
- 7 out of the top 10 chemical companies
- 7 out of the top 10 food companies (Curran and Kellar 1998)

The above figures indicate that towards the end of the 90's the SAP market in large organisations had become limited and alternative markets were needed. SAP has developed a number of strategies to reduce implementation costs in an attempt to make their software more affordable to mid-range organisations. The Australian customer data can be classified by revenue to provide an indication of the size of companies implementing SAP software (Table 4). As would be expected large organisations (32%) dominate the client base. The SME grouping at 20% shows the move of SAP down into the smaller market demographic has been successful. The large number reported as other (40%) would indicate some work in progress implementations as well as the difficulty to categorise organizations due to the public sector customers and the lack of financial data for other customers. More work categorising the other grouping would be beneficial.

Table 4. Customers (N=387) by Size (Client Revenue)

Size \$1000's	Customers
Large (>1000)	124 32%
Large/Medium(500-1000)	12 3%
Medium/Small (50-500)	76 20%
Small(<50)	16 5%
Other	154 40%

Implementations

SAP has released a number of versions of their software since the company's inception. The major releases are R/2 which was a mainframe based system, R/3 which is based on client server technology and the "New Dimension" products which are now packaged with SAP R/3 under the banner of mySAP.com with the E-Commerce components Workplace and Marketplace. The "New Dimension" products include Customer Relationship Management (CRM), Data Warehousing (BW), Knowledge Management (KW), Advanced Planner and Optimiser (APO), and Strategic Enterprise Management (SEM).

The breakdown for SAP software versions for Australian customers by instance is presented in Table 5. SAP R/3 version 3.1 dominates the market place and this indicates that a large number of SAP's customers are faced with upgrading in the new future, especially if they want to take advantage of the new E-Commerce functionality.

Table 5. Implementations (N=387) by Release

Release	Implementations (no.)	Implementations (%)
New Dimension		
APO	22	3%
BW	75	11%
CRM	52	7%
KM	5	1%
SEM	8	1%
SAP R/2	14	2%
SAP R/3		
unspecified	60	8%
2.0	11	2%
3.0	45	6%
3.1	161	23%
4.0	103	14%
4.5	76	11%
4.6	79	11%

The SAP supplied data included a comment field where customers indicated their upgrade strategy. Table 6 shows that up to 140 of the installed SAP client base are undertaking upgrades into the internet enabled versions of SAP. This is important given the move into marketplaces and portals mentioned previously.

Table 6. Upgrade Versions (N=387) by Release

Release	Number of Implementations
4.0B	4 1%
4.5B	28 7%
4.5 long term(6mths)	24 6%
4.6	32 8%
4.6B	74 19%
4.6C	2 0%
4.6 long term(6mths)	59 15%

SAP R/3 software is an open system, which can operate under a variety of operating systems on differing hardware platforms utilising a number of database technologies. The breakdowns for SAP operating systems and database platforms are presented in Table 6. The main trends evident are the domination of the O/S by the various flavours of Unix platforms with the majority of these instances utilising an Oracle database. Oracle is the database of choice on all operating systems. Hardware platforms are spread evenly and further breakdown based upon industry sector would be beneficial.

Table 7. Implementations (N=386) by Operating System, Hardware & Database Platform.

Operating System	Number of Imps	Hardware Platform	Number of Imps	Database Platform	Number of Imps
AIX	50 13%	COMPAQ	55 14%	DB2/400	25 6%
DEC-UNIX	30 8%	DELL	50 13%	INFORMIX	30 7%
HP-UX	44 11%	HP	52 13%	MSSQL	65 17%
NT/ALPHA	11 3%	IBM	96 25%	ORACLE	241 62%
NT/INTEL	130 34%	SUN	55 14%	Other	25 7%
OS/400	16 4%	DEC	45 12%		
SOLARIS	50 13%	SNI	25 7%		
Other	55 14%	Other	8 2%		

Modules

SAP R/3 is modular based software. Due to the software's complexity customers usually implement only a few modules a time. A preliminary analysis of the modules implemented by some customers is presented in Table 8. As would be expected the majority of customers had implemented the financial related modules (Financial Accounting and Controlling). It appears that many of the public sector companies have implemented HR based modules. Material Management modules depict the manufacturing flavour of many SAP implementations.

Table 8. Implementation Modules by %

Module	%	Module	%
Material Management	48	Production Planning	24
Financial Accounting	65	Basis Components	19
Controlling	58	Treasury	18
Sales & Distribution	37	HR-Payroll Accounting	54
Project System	16	HR-PD	14
Plant Maintenance	21		

Discussion

ERP vendors as well as organisations are struggling to find stability in the emerging B2B E-Business marketplace. The B2B business model promises lower transaction costs, as well strategic advantage in procurement and supply chain management. Large-scale ERP vendors are struggling to connect their back office systems with Web enabled access. The portal or B2B marketplace will gain acceptance as advantages are measured. The Australian marketplace continues to follow other major business marketplaces and are now exploring the B2B portal as a new business model. SAP companies are upgrading to the Web enabled model (V4 & above) and also exploring creating consortium portals.

Stage two and three of the project requires targeted and wide-spread information gathering utilising contacts from the SAP mailing list. Three organisational contacts are provided with each organisation and email will be used to contact respondents. Stage two will collect information relating to career planning and skill development amongst the cohort. The public administration cohort will be targeted as a pilot survey with questions relating to previous, current and future job- roles, education, training and information skill-sets. Each of the three organisational contacts will be emailed with the survey and requested to reply after filling in the survey. Several studies (Dillman, 1998; Mehta, 1995) have compared email versus mail information collection methods and have demonstrated the viability of collecting information through email. Comley (1995) found that email surveys compared favourably with postal methods in the areas of cost, speed, response quality and response rate. The use of an email directing the respondent to a web site will also be investigated pending analysis of the trail survey. Once the trail has been completed and analysed the whole cohort will be sampled.

Stage three of the project will utilise lessons learnt from stage two and obtain a picture of the success factors that the entire cohort see as crucial in the ERP system. Special emphasis will be placed on the potential changing nature of success factors with the merging of back-office and front office applications. Respondents will be given a list of success factors obtained from previous studies and then asked to rank them. They will also be asked to develop new factors through the use of open-ended questions. Analysis will be based upon industry type, application maturity and respondent position.

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