

## **Current issues of ERP implementations in New Zealand**

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### **Abstract**

It is well known that most large Enterprise Resource Planning (ERP) implementations have been completed by now, however the ERP market is still showing progressive growth after the slowdown of the late 1990s. The purpose of this study is to discuss the current status of ERP implementation in New Zealand (NZ). The study is designed to explore cases that can be described as “typical” implementations, where a typical case is defined as one that illustrates what is normal or average. Specifically, the two main objectives of this study are to explore what is a typical case of ERP implementation in NZ, and to suggest pointers to describe current ERP implementation practice. Semi-structured interviews were conducted with 14 key players of ERP implementations in NZ including ERP vendors, ERP consultants, IT research firms and an ERP hardware vendor. Research participants reported their interpretation of a typical case in terms of their particular experiences. The two main issues of the implementation process and the organization, which became evident in analyzing interview data, are used to describe variations of typical ERP implementations.

### **Introduction**

Enterprise Resource Planning (ERP) or enterprise systems (ES) fall into the category of packaged software applications with the added feature of integration. These applications are available from vendors such as SAP, Oracle, PeopleSoft, JDEdwards and Baan, which are recognized internationally as the top first-tier ERP vendors (Slater, 1999). ERP applications are enterprise-wide, mainly packaged software applications, which support enterprise integration (EI) and the business best practice. ERP can be one but is likely to be a combination of two or more software modules (e.g. finance, manufacturing, sales, distribution, human resources, etc.) that are integrated to perform the transactional processing of information across the whole organization (Davenport, 1998). Each ERP software module is designed to integrate into other modules, however configuration and customization is needed during implementation. Because of the integration capabilities of ERP, they are likely to become the principal software platform for the organization. The origins of ERP are in material requirement planning (MRP) and manufacturing resources planning (MRPII) systems (Chung and Snyder, 1999; Davenport, 2000; Kumar and Hillegersberg, 2000). The MRP families were mainly focused on manufacturing operations but were later extended to ERP, which included the integration to other functions within the organization.

In the late 1990s, the high end of the ERP market became saturated because most large organizations had already implemented ERP systems. In response to the competition in the industry, ERP vendors started including other applications as part of their ERP offerings. ERP evolved to become “inter-organizational” and “Internet-enabled”. New modules were added to the product portfolio to include functionalities such as supply chain management (SCM), customer relationship management (CRM), data warehousing, and artificial intelligence (Shakir and Hossain, 2002). In order to achieve this, ERP vendors built the new functionalities in-house and acquired or made partnership with specialized enterprise application vendors. Future ERP applications are predicted to have less focus on transaction processing, to include managerial support systems as a standard offering, and to support various documents types, such as multimedia and CAD (Kumar and Hillegersberg, 2000).

It is well known that most large ERP implementations are completed by now, however the ERP market is still showing progressive growth after the slowdown of the late 1990s (Broatch, 2001; Pamatau, 2002a). The purpose of this study is to discuss the current status of ERP implementation in NZ. This is part of a larger study that investigates the strategic decision-making (SDM) process of ERP implementation in NZ

as part of a multiple case study research design. The objective of this working paper is to enable exploration and selection of case studies that reflect the current state of ERP implementation. The study was designed to include cases that can be described as “typical” implementations, whereas a typical case is defined as one that illustrates what is normal or average (Patton, 1990, pp. 173). Therefore the two main questions for this study are: what is a typical case of ERP implementation in NZ? And how can a typical case be described? (Or what pointers could be used to describe a typical case?) To answer these questions, empirical findings from interviews with 14 key players in the ERP market are reported and analyzed.

This study is divided into three sections. The first section outlines the research methodology. The second section presents the empirical findings from 14 interviews with key players in the NZ ERP market. The discussion and analysis in this section provide several pointers to the definition of a typical ERP implementation practice under the two main headings of the ERP implementation process and the organization. The third section is a concluding summary on the current status of ERP implementation in NZ that draws upon the four main implementation models, which dominate the activities in the ERP market.

### **Research Methodology**

The study was carried out between November 2001 and May 2002. The main source of data was interviews with key informants in the ERP implementation industry. Secondary data included ERP vendors’ publications, industry publications and informal discussions with both colleagues and other informants working in organizations that had implemented an ERP system.

To protect the anonymity of both participating informants and the organizations in which they work, all informants’ names and job positions are withheld. Furthermore, all informants’ comments cited are not associated with their organizations unless these informants agreed to their inclusion.

Details of the data collection process are discussed next. It details procedures for the identification of key informants, establishing contact with informants, interviewing, and data analysis.

### **The identification of key informants**

The key informants’ list was developed by the researcher who identified key players of ERP implementation in NZ. Table 1 lists the key informants for this study under the four categories of ERP vendors, ERP consultants, IT research and ERP hardware vendors. Job titles for the 14 key informants included: consulting manager (2), consulting services manager (1), enterprise technology trends analyst (1), entrepreneurial services (1), general manager (1), managing director (2), partner (1), partner manager (1), professional services manager (1), sales operations manager (1), senior analyst (1), and vice-president (1).

ERP vendors	ERP consultants	IT research	ERP hardware vendors
Baan: E-Enterprise Software Limited	Cap Gemini Ernst & Young NZ	Gartner Limited	Compaq NZ
Intentia NZ Limited	Ernst & Young NZ	IDC NZ	
J.D. Edwards NZ	KPMG Consulting NZ		
Navision NZ	PricewaterhouseCoopers NZ		
Oracle NZ			
PeopleSoft NZ			
SAP NZ Limited			

**Table 1: Key informants**

It is noted that the ERP hardware vendor wasn't initially included in the list but was added later responding to the suggestion of one informant at the final stages of data collection. ERP vendors are believed to be gaining considerable influence in the ERP implementation market, not only as hardware vendors but also as partners in the provision of implementation services. Names of target informants were mainly identified from contact details of major ERP vendors, ERP consultants, and IT research firms in NZ. Contact details were mainly sought through browsing the companies' web pages and their marketing brochures. If no personnel contacts could be identified, a phone call was made to the head office to ask for the name of the CEO, the managing director, the managing partner or a senior administrator of that organization or its consulting division. An introduction letter of one page personally addressed to each informant was then posted (see [Appendix-1](#)). The letter briefly introduced both the researcher and the study, and asked for a 45-60 minute interview to share the informant's experience of ERP implementation. These letters were sent in several streams during the period starting late November 2001 until March 2002.

#### Establishing contact with informants

Each informant was contacted by phone a week to ten days after the letter was posted. The researcher reminded the informant of the letter and asked if a meeting could be arranged within a week's time. It usually took several phone calls to establish contact. Sometimes, email follow-ups were used to remind the informant of the request before making the next follow-up phone call.

In a few cases, the informant suggested a different person in the same organization be interviewed. In this case, the researcher followed similar procedures of posting a letter first, then contacting the informant within approximately a week of the date the letter was posted. In other cases, the second informant contacted the researcher first, either by phone or email and usually agreed to meet within the next seven to ten days. In this case, the informant was not posted the introductory letter because it was more convenient to email this letter along with other meeting documents prior to the meeting.

The researcher was successful in meeting informants in all target organizations except [Deloitte Consulting NZ](#), who did not wish to participate. Meeting documents were emailed to all informants prior to the meeting. At the time of the interview, the researcher had hard copies, including an extra copy for the informant to browse. Meeting documents included the four items in [Table 2](#). Each of these documents is included in the appendices section of this study (see [Appendices 2-5](#)).

Document	Purpose
Confirmation-of-meeting letter Appendix 2 - One page	- To confirm meeting details (date, time and place).
Research information sheet Appendix 3 - Three pages	- To introduce the researcher and her work - To explain research ethics, especially the issues of access to informants, informed consent, confidentiality and anonymity
Interview questions Appendix 4 - One page	- To provide a structure and several probes to the definition of a typical case of ERP implementation that would guide the discussion during the meeting
Exhibit-1: ERP strategic implementation decisions Appendix 5 - One page	- To list the fifteen key (or strategic) decisions of ERP implementations. These decisions will be the focus of the SDM process that will be explored later as part of the ongoing research program this study is part of.

**Table 2: Interview documents**

### Interview procedures

The purpose of the interview is to seek the judgment of experienced ERP implementation stakeholders in answering the two main questions for this study, which are: What is a typical case of ERP implementation in NZ? And how can a typical case be described (or what pointers could be used to describe a typical case)?

Ten of the fourteen meetings were face-to-face meetings and took place at the informants' organization except for one when the informant came to the Albany campus of Massey University. Four meetings were teleconference meetings that were initiated by the informants. At the start of the interview, the researcher gave a brief introduction explaining the research program, the contents of the research information sheet, and the concept of a typical case of ERP implementation in NZ. Furthermore, and as an acknowledgement of informants' participation in this phase of the study, they were promised sharing study findings. The interview focused on two questions. The first is open-ended and explored the concept of a typical case of ERP implementation in NZ. Informants provided their definitions of a typical case. The several probes that were given to encourage the discussion are:

- The number of users per ERP implementation.
- The number of modules implemented.
- The cost of implementation in dollars.
- The number of locations (or independent business units) where ERP is implemented.
- The size of the organization.

It is noted that most informants discussed ERP implementations in terms of their ERP applications, their clients and their implementation methodologies. If time permitted and they did not include pointers to the above probes, they were reminded to elaborate and provide the numbers if they felt they could and it was meaningful. It was clear that each informant's perspective was limited by the particular experience each had in systems implementations.

For the second question, informants were asked to identify two or more ERP implementations with case details and name contacts. It was understood that each informant needed to get their clients' permission to

provide these details to the researcher. Therefore, the researcher either emailed or phoned each informant within two to three weeks after the meeting to get invited case details. These suggestions would form the basis of the case study research for the next phase of the research program. At the end of the interview, the researcher thanked the informant and promised to forward a copy of this report to each informant in the participating organizations of [Table 1](#).

**Data analysis**

The researcher took handwritten notes during all interviews. Interview notes varied in length between two to four pages and included the main issues that were discussed during the meeting. These notes were reviewed and rewritten within 24 hours of the time of the meeting, for clarity of meaning and better organization of the topics discussed. Notes were later typed into a word processor document and added to the electronic case study database.

The [Nvivo 1.3](#) qualitative software tool (QSR, 2002) was used to manage data analysis of interview notes. Coding was semi-structured, because responses were influenced by the probes on the interview questions sheet. Furthermore, some codes were pre-identified by the section headings of interview notes documents. For example, section headings included categories such as the cost of implementation, the time to implement, modules implemented, implementation phases, etc. Other categories were identified in scanning interview documents for key issues to typical ERP implementations. These included the different concepts of the ERP implementation process, such as “vendor” vs. “3<sup>rd</sup> party” implementations, “out-of-the-box” vs. “customized”, “new” vs. “upgrade” implementations and “traditional” vs. “best-of-breed” implementations. The coding tree was incrementally developed in the sequential coding of the fourteen documents. When all the fourteen documents were coded, the tree was revised to expand some categories and shrink others as part of an overall view of the whole set. The final coding tree is illustrated in [Figure 1](#), below.

<table border="1"> <tr> <th>ERP implementation process</th> </tr> <tr> <td>Phases</td> </tr> <tr> <td>Time</td> </tr> <tr> <td>Modules</td> </tr> <tr> <td>Locations</td> </tr> <tr> <td>Implementation model-a Vendor - Implementer 3rd party - Implementer</td> </tr> <tr> <td>Implementation model-b Heavy customization Out-of-the-box</td> </tr> <tr> <td>Implementation model-c New Upgrades Add-ons Replace</td> </tr> <tr> <td>Implementation model-d Traditional Best-of-breed</td> </tr> <tr> <td>Cost</td> </tr> <tr> <td>Users- number of</td> </tr> <tr> <td>Project structure</td> </tr> </table>	ERP implementation process	Phases	Time	Modules	Locations	Implementation model-a Vendor - Implementer 3rd party - Implementer	Implementation model-b Heavy customization Out-of-the-box	Implementation model-c New Upgrades Add-ons Replace	Implementation model-d Traditional Best-of-breed	Cost	Users- number of	Project structure	<table border="1"> <tr> <th>Organization where ERP is implemented</th> </tr> <tr> <td>Organization size</td> </tr> <tr> <td>IS maturity IS Mature Keen to understand IT IT is a cost to the business</td> </tr> <tr> <td>Organization ownership and profit-making status</td> </tr> <tr> <td>Global vs. National reach Global National</td> </tr> </table>	Organization where ERP is implemented	Organization size	IS maturity IS Mature Keen to understand IT IT is a cost to the business	Organization ownership and profit-making status	Global vs. National reach Global National
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**Figure 1: Emergent categories in a typical case of ERP implementation in New Zealand**

### Empirical findings: Descriptive pointers to typical cases of ERP implementation in NZ

Two main categories became evident in analyzing interview data. The first is “ERP implementation” and is related to the systems implementation process and the second is the “organization” and is related to the organization or the company where ERP is implemented. Figure 1, lists the sub categories of each. Details of these sub-categories are discussed next.

#### ERP implementation

ERP implementation pointers identified in the probes to interview questions are discussed here. These include the number of users, modules implemented, cost of implementation and locations. Other pointers that emerged from the interviews included time, project structure and implementation models. Details of these “ERP implementation” sub-categories are discussed next.

#### Phases, modules and the time-to-implement

The discussion of the three sub-categories of phases, modules and the time-to-implement is included in one section because of the interrelationships between the three. ERP implementation is usually divided into phase I (first implementation of an ERP system) and phase II (second stage implementation). The type of modules in a typical ERP implementation differs depending on the implementation phase. Table 3 summarizes the comments made by several informants to illustrate the relationship between the phase of implementation and the type of modules implemented.

Key informants	Phase I (Core module implementations)	Phase II (Supplementary module implementations)
<b>Baan NZ: E-Enterprise Software Limited</b>	Finance, Manufacturing, Purchasing & Sales and Warehousing/ Stock control	Service, Payroll
<b>Cap Gemini Ernst &amp; Young NZ</b>	Financials, Sales & Distribution and Material Management Including Procurement	Plant Maintenance, Service Management, HR, Production Planning and Project System
<b>Ernst &amp; Young NZ</b>	Financial, Distribution, CRM and Limited Manufacturing	= Not discussed =
<b>Intentia NZ Limited</b>	Financial, Manufacturing, Distribution, Inventory, and Transport planning	Advance Planning and Business Warehousing
<b>J.D. Edwards NZ</b>	Finance, Distribution and Manufacturing	CRM, Payroll and HR
<b>KPMG Consulting NZ</b>	Finance, SCM, CRM	HR
<b>Navision NZ</b>	Core modules	E-commerce modules
<b>PeopleSoft NZ</b>	Financials, Human Resources and CRM	= Not discussed =
<b>PricewaterhouseCoopers NZ</b>	Financials plus something else, e.g. Logistics, Contracts Management, Manufacturing, etc.	= Not discussed =

**Table 3: Phase I and phase II implementation modules by respondents**

It is noted that phase I implementations would always include the core modules of financials plus one or two other modules. Other modules may include any of manufacturing, distribution, contracts’ management, supply chain management (SCM) and customer relationship management (CRM). Because of their human resources (HR) specialization, only PeopleSoft includes HR as a core module in phase I.

Table 3 also reveals that manufacturing is ranked as the second core module for phase I. However, PeopleSoft's offerings in NZ prior to 2002 didn't include manufacturing and both Navision and their implementation partners, Ernst & Young offer limited capability manufacturing. Nevertheless, Navision's share of the ERP manufacturing market is showing significant growth since the company merger in 2000, with the inclusion of Navision Axapta --- an ERP solution that has a manufacturing focus, to its solution offerings.

The length of time to the first phase implementations varied from 2.5 months to 2 years. Implementation durations suggested by four informants varied significantly and included the following ranges: (2.5 - 6 months), (3 months - 2 years), (4 - 10 months) and (6 - 8 months).

Most informants agreed that the "majority of large companies have implemented ERP since 1999 as part of their preparations for the year 2000. Everyone has core ERP systems now. They are now focusing on perfecting their ERP systems". The Gartner research company uses the term ERP II to describe the current era (Osborn, 2000), which by definition includes a majority of phase II implementations, especially in the high end ERP market. While theoretically, the focus of ERP II should be on external collaboration rather than internal organizational integration (Comport, 2002; Hilsgen, 2001), one informant noted that the "focus of the current era is still internal rather than external and is likely to involve the integration of standalone systems, such as integrating organizational web sites to back office ERP systems". The difference however is that the initiative for ERP II systems now comes from "lower levels of the organization as opposed to being driven by the CEO", which was the case for ERP I type implementations.

#### Locations

Location denotes the one or more sites where the ERP system is implemented. Findings revealed that while single site ERP implementation was more common in previous years, the number of multiple site implementations is on the rise. Navision reported that "four years ago the percentage was 1 to 4, now it is 3 to 4". However most of these implementations follow the "one main site and branches" model that includes same image implementation at the branches. Two issues are believed to be driving multi-site ERP implementations in NZ. First, the ERP product is increasingly becoming Internet capable, making it possible to be "implemented in one location and accessed from many". The majority of current multi-site implementations are believed to make use of this technology to achieve one instance implementation that is accessed from different locations. The second is the growth in the NZ export market, which is demanding systems that are capable of integrating information across the globe.

#### ERP implementation models

Four models of ERP implementation have been identified in analyzing interview data. They are the "vendor implementer" vs. "3rd party – implementer" model, the "heavy customization" vs. "out-of-the-box" implementations model, the "new, upgrades and/ or replace" model and the "traditional" vs. "best-of-breed" implementation model. Each of these models is briefly discussed next.

First, the "vendor implementer" vs. "3rd party implementer" model reflects who is responsible for managing the ERP project. Findings revealed that while the 3rd party or consultant implementer model was more popular in the past, current implementations favor vendors' involvement. There are two main drivers for the popularity of vendors' management of the implementation process. The first is vendor driven. In managing the implementation process, vendors are adding another source of revenue, especially when licensing revenues are decreasing. One informant further explained that "ERP vendors are now focusing on services to generate revenue, while clients respond well because the overall cost can be brought down significantly". The second is the continuous growth in mid-market ERP. Target organizations are more conservative and less experienced in managing the risks and complexity of IS implementation projects. Intenia, the only ERP vendor of the six interviewed that only delivers through the vendor implementer model, takes pride in that it is their business model that makes them different. They claim, "We're a one-stop shop, which means there is no consulting partner. There is only one

organization the client needs to deal with and one general manager they shout at when there is a problem. Most ERP products are mature now and the difference is in how you manage implementation”.

While there is an increase in the number of implementations that are vendor driven, there are still implementations that are only 3<sup>rd</sup> party driven, such as Navision's. All Navision's implementations are managed through its business partners. Furthermore, ERP hardware vendors have started showing increasing involvement in the ERP implementation process. Since most of these hardware vendors are likely to partner with a consulting firm in the provision of implementation services, it is suggested that as hardware vendors increase their involvement, this will generate future growth to the 3rd party ERP implementation market.

Second, the “heavy customization” vs. “out-of-the-box” implementations model reflects the implementation strategy. The heavy customization depicts a strategy that assumes that the best practice of the ERP software does not satisfy business needs, therefore many and sometimes major changes to the software are needed to derive value from the implemented ERP. On the contrary, the out-of-the-box or the vanilla alternative assumes that the value of the ERP software application is derived from the integration capabilities that are built into the software. Therefore if a misfit exists, the business process and not the software needs to change. However, because of the high cost and complexity of the heavy customization approach, the final choice may not be an issue of assumptions but issues of cost, risk and the amount of complexity the business can afford. Cost in particular is always a major driver towards vanilla implementations, which was reflected in the out-of-the-box implementations products and methodologies that 1st tier ERP vendors started pushing into the market since late 1999.

Choosing either of the two approaches has major implications on the change management strategy that accompanies the implementation of ERP, because “when best practice is chosen, people issues become top priorities. When the implementation strategy is geared towards customization, it is more of a technical challenge”.

Third, the “new”, “upgrades”, “add-ons” and/ or “replace” model depicts whether the implementation is new – which means a first implementation of an ERP system, an upgrade – which is the implementation of a software upgrade to the current implementation, an add-on – which includes adding new modules to existing implementations or a replace – which replaces an existing ERP implementation with a different vendor's software. Findings show that many NZ organizations are still at their first ERP implementation phase. However, because most large organizations already have an ERP system, upgrades represent a significant amount of the work vendors engage in, especially 1st tier vendors. One of the 1<sup>st</sup> tier ERP vendors interviewed stated that upgrades accounted for 10-15% of their total efforts. It is further noted that these upgrades are not considered trivial exercises because most of the time functionality is changing.

Replacing an existing ERP system has been particularly suggested by 2<sup>nd</sup> tier vendors as a third alternative. Most of the time, a 1<sup>st</sup> tier ERP is replaced with a 2<sup>nd</sup> tier ERP that is cheaper and easier to configure and maintain (Pullar-Strecker and Braddell, 2002). In some of these examples, organizations saw no value in having a 1<sup>st</sup> tier ERP system in place when they could only utilize 20% of its capability, plus they had to maintain legacy applications that supported a major part of their business needs. One 2<sup>nd</sup> tier ERP vendor contended that “because of the total cost of ownership becoming very high, some clients also think that the initial decision (ERP selection choice) was inappropriate”.

**Fourth**, the “traditional” vs. “best-of-breed” implementations model differentiates between the traditional approach, which is an ERP implementation that includes modules that are vendor specific, and the best-of-breed or portfolio implementation that includes “cherry picking” or a mix of different vendors' modules. Findings revealed that traditional ERP implementations have stopped making headlines. One informant contended that “throughout the last 12 months, ERP has not been a popular subject. It dropped off people's radar screen”. Best-of-breed implementations are becoming more common now, especially in large organizations, which are “looking at implementing CRM, data warehousing and business intelligence systems that sit on top of their ERPs”. Another informant further stated that “Big ERP are done. These are more of add-ons and bolt-on implementations now”. This is especially true for systems

that need to satisfy NZ specific industries such as forestry or livestock. However, for most SMEs, traditional “[ERP systems meet most of their business requirements](#)”.

The findings summarized by the four implementation models provided an overview of current implementation practice in New Zealand. **First**, it showed the increasing popularity of the vendor-implementer model that is influenced by both vendors’ service offerings and clients’ demand. **Second**, findings suggested that out-of-the-box implementation strategies are favored by NZ organizations because of their spending constraints. However, it was noted that for specialized businesses, these “no frills” strategies might not suit. **Third**, it was observed that current NZ implementations are still a mix of new, upgrades, add-ons and a replace of exiting implementations. While the majority of these new ERP implementations are happening in SMEs, ERP implementation activities in large organizations are focused on upgrades and add-ons. **Finally**, while traditional ERP implementations still dominate new implementations now, upgrades, add-ons and replacements appear to favor the best-of-breed model. The best-of-breed model is also becoming a key consideration for new implementations, especially for organizations that operate in niche industries.

### Cost

A major difference between NZ implementations to these elsewhere in the world is that NZ implementations are smaller in size. However, they share similar complexities to international implementations. Furthermore, there is less money in NZ businesses because of their small margins. Therefore, budgets are very tight. Some informants even identified cost to be “[the most important criteria in selecting an ERP system in NZ](#)”. The cost of ERP implementations varies. Because of implementation complexity, one of the vendors interviewed said that there is “[no way we can give a price over the phone](#)”. However, in comparing the different figures the informants provided, three main cost categories emerged. The **first** is the small to medium size implementations with costs between NZ\$50,000 and NZ\$700,000. The **second** is the medium-size implementations with costs between NZ\$700,000 and NZ\$3 million. The **third** is large implementations where costs are more than NZ\$3 million.

Cost was always defined by informants to include only software and implementation services, with software costing around 40% and 60% for implementation services. Most respondents agreed that implementation services “[used to cost even more, but not any more](#)”. **Compaq**, the only hardware vendor interviewed for this study, added that hardware usually costs between 20% - 25% of the overall implementation cost, depending on the level of service the hardware vendor provides. Cost is therefore higher when the hardware vendor partners with consultants for the provision of implementation services, pushing the hardware vendor’s percentage to 25% of total costs.

### Number of users

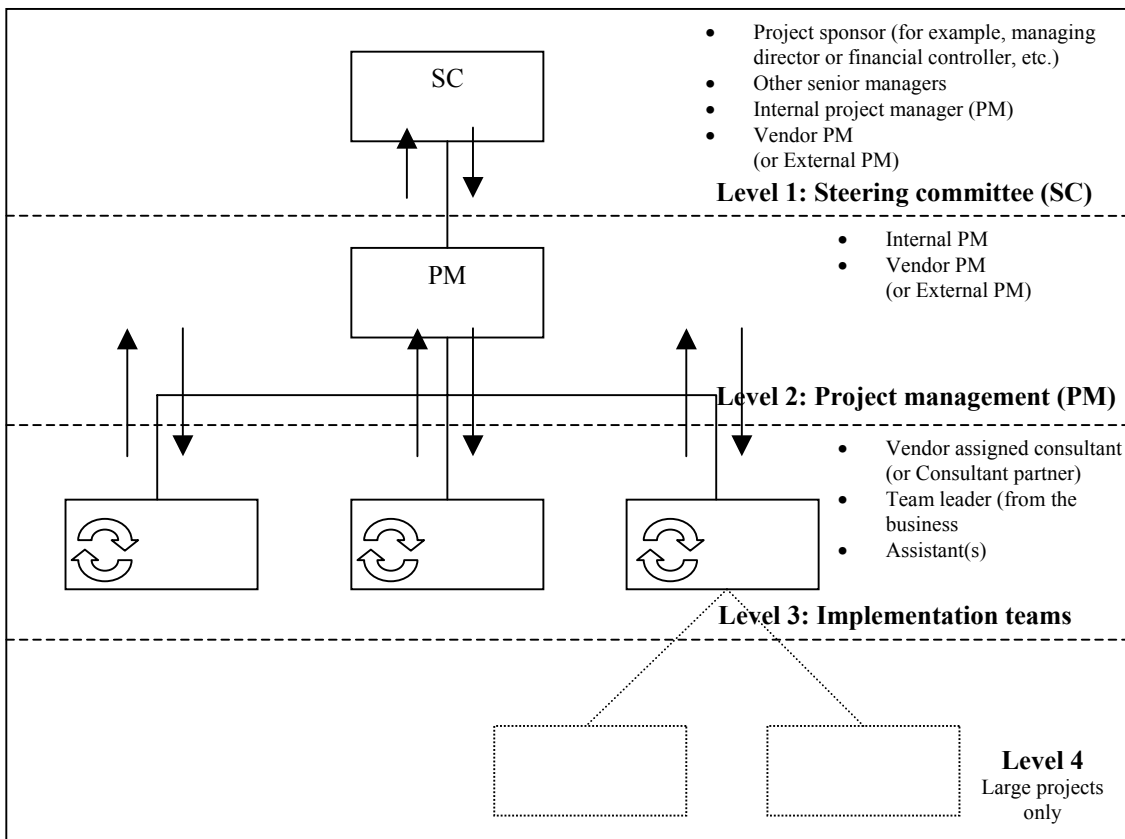
Most informants agreed that the number of users for the majority of current ERP implementations are around a hundred users, whereas the range used to be 200 - 500 two years ago. However, one of the 2<sup>nd</sup> tier ERP vendors interviewed provided a lower average per implementation, which is between 10 - 25 and a maximum of 150. When informants were asked if there was a relationship between the number of users and the complexity of implementation, most noted that “[the number of users doesn't always indicate complexity. It is more the product of the “number of users” multiplied by the “type of users”. If most of the users are the same type, implementation will be easy because all you have to do is replicate a type](#)”.

### ERP project structure

The typical ERP project structure has two main variations that can be related to the prevailing party of the vendor vs. 3rd party implementer model discussed earlier. For the vendor implementer model, the ERP project would have two consultants for each suite of modules. These are the consultant from the business (who can also be referred to as the business owner) and the vendor’s consultant. Two other key members to the ERP implementation project team are the full-time project manager from the business (who can

also be referred to as the internal project manager) and the vendor's project manager (who can also be referred to as the external project manager). Figure 2 illustrates this ERP project structure.

The change in project structure for the 3<sup>rd</sup> party implementer model is that consultant team members take the role of the vendors' team. The vendor's representative role would then be limited to being the vendor's account manager. As a result, the structure of the project remains similar with a change of implementation responsibility from vendors to consultants. One informant who comes with international experience of systems implementation further noted that in comparing NZ implementations to their international counterparts, they are believed to be different "in having less team members as part of the project structure".



**Figure 2: The ERP project structure**

### Summary

The discussions of ERP implementation in NZ identified different elements that can be used to describe the implementation process. These include phases, modules, time to implement, implementation models, cost, number of users and the ERP project structure.

The hosting or the application service provider (ASP) implementation model was mentioned by only one informant, which suggests that it is still of a limited use in NZ now. Therefore, it wasn't included as a fifth type to the ERP implementation models discussed earlier. Currently, ERP hosting is noted to be popular only in NZ implementations of multi-national corporations. However, recent announcements of two ASP applications of Oracle financials for the Warehouse (Pamatatau, 2002b) and the Great Plains accounting software for Fonterra (Malcolm, 2002) suggest that ERP hosting is becoming more popular. Both examples cited cost-efficiency and the lack of internal resources as key justifications for choosing the ASP model for their ERP implementations.

The next section provides an insight into the organization that is currently implementing an ERP system.

**The organization implementing an ERP system**

In this second category, details of NZ organizations that are currently implementing ERP systems were sought. Organization size was the only probe suggested to trigger informants’ responses as part of the semi-structured interview questions (see Appendix-4). Other organizational categories that emerged from the analysis of interview notes included the IS maturity of the organization, organizational ownership, organizational profit-making status and the organization’s global reach. Details of each of these categories are discussed next.

Organization size

Most informants used revenue, not the number of employees as a measure for organizational size. Furthermore, all informants agreed that current ERP implementations are likely to happen in SME size organizations. However, two different definitions for an SME organization emerged in the analysis of informants’ responses. Some defined SME organizations to have a revenue of NZ\$20M - NZ\$100M. Others stretched the SME organization size to a revenue of NZ\$150M-NZ\$200M. Comparing these two definitions with the survey results in the 2001 IDC Forecast for Management report (Hind, 2001) confirms the validity of the two definitions in capturing the current state of ERP implementations as measured in organizational size.

The 2001 IDC survey results revealed that around 75 percent of newly reported ERP implementations in NZ are in organizations where annual revenues are between \$10 and \$250 million (Hind, 2001). Approximately 50% of these implementations are in organizations that are \$50M-\$250M in size while 25% are in organizations of \$10M-\$50M size. The remaining 25% are divided to the two-thirds in large organizations (\$250M and over) and the one-third in small organizations that have revenue under \$10M (see Table 4). Comparing these results with the IDC 1999 survey data shows an increase of implementations in the organizational category of \$50M-\$250M, while a decrease in the two organizational categories of 10-50 M and of \$250M+ is observed.

Organizational size		Year 2001			
		Less than 10M	10-50 M	50-250M	250M and over
Revenue in million (\$NZ)					
Percentage	7%	27%	49%	17%	

**Table 4: The distribution of ERP implementations in New Zealand organizations**

Source: IDC Forecast for Management survey (Hind, 2001)

Most informants agreed that they carefully consider the size of the organization they want to do business with. One vendor commented that they made sure that their “customers have resources not just big ideas”. They further agreed that “business complexity is the same for both small and big organizations, however the size of their wallet is not the same”.

IS maturity

IS maturity is the term used to describe the level of IS/ IT adoption in organizations. It is suggested that ERP adoption is positively associated with the IS/IT maturity of the organization. IS mature organizations are these that “have taken care of their ERP needs and are now extending to CRM, SCM”. The second category would be organizations who are “keen to do and understand IT value”. They are at the stage

where they are planning to develop their IT backbone in either an ERP or some kind of proprietary system. The third category is organizations that think that “IS is a cost to the business and do not believe in spending money”. Most informants concluded that although NZ is a small country, technology is mature and that the number of companies that fall in the third category is decreasing. Specifically, NZ ERP implementations, apart from being smaller in size are “on par with what’s happening in the US. For example, everyone has ERP implementations and Internet presence now”. Furthermore, most NZ organizations implementing ERPs had ERP-like solutions that were implemented during the 1980s.

#### Organization ownership and profit-making status

Organization ownership and profit making status was suggested to influence the way implementation decisions are made. For example, in an ERP implementation where the business is owned by individuals, the way decisions are made is more personal. One informant suggested that in these organizations, decisions are made “by looking you in the eye and saying I want to do business with you”. Furthermore, whether the organization is a business organization or public sector would impose major differences in the way the business operates, thus affecting the ERP implementation decision-making.

#### Organizational reach: Global vs. national

Two issues associated with organizational reach were found to impact on ERP implementation. The first is related to SMEs that have a global reach. Although these organizations are relatively small in size, when compared to large organizations they are more likely to implement an ERP solution than their counterparts, which operate nationally and the solution they choose is more likely to be a 1<sup>st</sup> tier ERP system. The other issue concerns multi-national organizations that implement an ERP system in their NZ companies. These implementations are often based on a global template that includes the standard business processes. Regional teams would have minor involvement in providing the localization that includes things such as tax, GST, etc. Therefore, whenever possible, the global template prevails and most critical decisions are “all made off shore,” while “NZ businesses have little input into their decisions”.

#### Summary

Current organizational issues to ERP implementation in NZ include the size of the organizations, IS maturity, organizational ownership, organizational profit-making status, and organizational reach. Findings reveal that in utilizing a definition of large organizations to have revenue of NZ\$200M or more, the majority of current ERP implementations in NZ are happening in SMEs. These organizations are further expected to be more IS/IT mature and to have a global reach. In terms of decision-making, findings pointed to difference in the way implementation decisions are made that are related to organizational ownership, organizational profit-making status (i.e. between private and public organizations) and organizational reach (i.e. global vs. national reach).

#### **Concluding summary**

The aim of this exploratory study was to provide descriptive pointers to typical ERP implementations in NZ. Two main issues of the implementation process and the organization, which became evident in analyzing interview data were used to describe variations of typical ERP implementations. The study further reported on the detailed sub-categories of these two issues to reflect on current ERP implementation practice. A synthesis of these findings in relating organizational size to implementation process pointers is summarized in [Table 5](#).

Descriptive ERP implementation process pointers	Organizational size	
	SME Small \$NZ 10-50 M SME \$NZ 50-250M	Large \$NZ 250M and over
<b>ERP implementation phase</b>	Phase I	Phase II
<b>Time to implement</b>	Varies from 2.5 months to 2 years	
<b>Modules</b>	Core modules  (Two or more core modules including financials).	Supplementary modules  (With a focus on HR, CRM, e-commerce and data warehousing).
<b>Locations</b>	More multi-site implementations, especially for organizations with a global reach	Not discussed
<b>Implementation model-a- Vendor vs. 3rd party</b>	Vendor Implementer	3rd party implementer
<b>Implementation model-b Out-of-the-box vs. Heavy customization</b>	Out-of-the-box  (However, for specialized businesses, it might not suit).	Heavy customization
<b>Implementation model-c New, upgrades/ add-ons &amp; replace</b>	New	Upgrades, add-ons & replace
<b>Implementation model-d Traditional vs. Best-of-breed</b>	Traditional  (However, best-of-breed is becoming a key consideration for organizations operating in niche industries).	Best-of-breed
<b>Cost of implementation</b>	NZ\$50,000 - NZ\$700,000  NZ\$700,000 - NZ\$3 M	Above NZ\$3 million
<b>Users- number of</b>	Around 25  Around 100	Not discussed
<b>Project structure</b>	Refer to Figure 2	

**Table 5: Current variations of typical ERP implementations in NZ**

Table 5 suggests different implementation process variables to both SMEs and large organizations and conditions for alternatives when appropriate. Since the ERP market of large organization is saturated, it is clear that typical cases of ERP implementation in NZ are these that are described by the values to the variables of the SME column in Table 5. These implementations are likely to be new implementations of two or more core ERP modules; they can be single or multi site implementations and ERP vendors are likely to be involved in implementation management. The majority of these implementations aim to be

“vanilla” using only core ERP modules, however this may not always be possible depending on business specialization. The number of users for current implementations is estimated to be around a hundred and implementations cost is in the range of NZ\$700, 000 – NZ\$3 million.

Study findings are limited by the small sample size. However, the study is believed to have achieved its exploratory investigation aims. Furthermore, the diversity of the sample is believed to have strengthened the study results. Diversity was illustrated in the different perspectives research informants had, which was reflected in informants providing their interpretations of typical implementations in terms of the particular experiences each had.

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<sup>1</sup> Although the term "informant" is a popular term in case study research, it was noted in an earlier draft of this study that it isn't a familiar term for the business community. Therefore a definition is provided. Informant is defined as "a person who gives information as an informer" whereas an informer is "one that imparts knowledge or news" Merriam-Webster "Merriam-Webster Collegiate® Dictionary," *Merriam-Webster Inc.*, 2002, (Date accessed: August 2002), Web page: <http://www.m-w.com/home.htm>.

## Appendices

### Appendix-1

#### Case study interviews --- phase **one**: The selection of case studies **Example of an introduction letter**

<Insert date. Example: Tuesday, 6 November 2001>

<Insert full name of person to be contacted. Example: Peter Smith>

<Insert job title. Example: Consulting manager >

<Address: Line one>

<Address: Line two>

<Address: Line three>

<Insert first name of person to be contacted. Example: Peter >,

I would like to take a few moments of your time to explain the research project I am involved in and seek your co-operation for an interview to learn more about your experiences. I am a Ph.D. candidate at Massey University's Albany campus. My research is exploring the strategic decision-making process of enterprise systems (ES) implementations in NZ. Currently, I am preparing to start data collection from four organizations that have or are in the process of implementing an ES system.

At this time I am conducting several interviews to validate the selection criteria for the ES implementation case studies that will be analyzed and compared at the final stage of the research process. I am interested in your perspective on ES implementation in NZ. I have developed a list of questions that I can email/ post you prior to the interview, if you prefer. During the interview that follows, I'll go through the questions with you, to get your answers, reflecting on your experience of <Insert ERP product name if relevant: Example ABC> implementation. The interview is estimated to take between 45-60 minutes.

I will give you a call next week to arrange an interview. I am personally interested in your experience, however, if you have urgent time commitments, I would appreciate directing me to one of your colleagues who have been involved in the <Insert ERP product name if relevant: Example ABC> implementation.

Thank you for any assistance you can provide. I look forward to our meeting.

Kindest regards

Maha Shakir  
 Ph.D. candidate, Information Systems

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Appendix-2

Case study interviews --- phase **one**: The selection of case studies  
**Example of a confirmation-of-meeting letter**

<Insert date. Example: Tuesday, 6 November 2001>

<Insert full name of person to be contacted. Example: Peter Smith>

<Insert job title. Example: Consulting manager >

<Address: Line one>

<Address: Line two>

<Address: Line three>

<Insert first name of person to be contacted. Example: Peter > ,

I would like to thank you for taking the time to share your perspective on ERP implementation in NZ during our meeting on <Insert date. Example: Tuesday, 6 November 2001>. Please find attached the research information sheet and a list of interview questions. During the interview, I'll go through the questions with you, to get your answers, reflecting on your experience of <Insert ERP product name if relevant: Example ABC> implementation. The interview is estimated to take between 45-60 minutes.

Please feel free to contact me if you need further details. Again, thank you for your assistance and I look forward to our meeting.

Kindest regards

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Appendix-3**Research information sheet**

Research study

**The IT strategic decision process: Exploratory case studies of enterprise systems implementations in NZ**

January 2002

**Introduction**

This research is being carried out by **Maha Shakir**, a Ph.D. candidate at the Institute of Information and Mathematical Sciences, Massey University, Albany Campus.

**Maha Shakir** can be contacted through the Institute of Information and Mathematical Sciences, Massey University, Albany Campus, Private Bag 102 904 NSMC, Auckland, NZ, phone: 649-443-9799 ext. 9524.

A message can also be left with the school secretary on 649-443-9799 ext. 9160, by fax: 649-441-8181, or email: [m.shakir@massey.ac.nz](mailto:m.shakir@massey.ac.nz)

**Study abstract**

The purpose of this study is to report on a multiple comparative case study of four/ six companies that have or are in the course of implementing an enterprise system (ES). Companies will be compared on the basis of their approach to the strategic decision-making process of their ES implementations. The two questions the study addresses are; **what are the strategic decisions in the implementation of ES? and how are these decisions made?** The review of the ES implementation literature identified a list of fifteen strategic decisions that need to be addressed in the course of implementation. The list was validated with key expert ES stakeholders during the pilot phase of the study. Using this list of strategic decisions, the study applies the two theoretical perspectives of descriptive decision models and the communication network model to explore both the patterns and the network of the decision-making process, respectively. Understanding will be achieved through the focus on the sequence of activities in order to explain how and why observed outcomes evolve over time. The study will further attempt to understand the relationship between the strategic decision-making process and the ES implementation process.

## **Key words**

Enterprise systems (ES), strategic decisions, strategic decision-making (SDM), implementation process, steering committee (SC)

## **Ethical issues**

### **Access to participants**

The CEO, managing director, managing partner or a senior administrator in the organization will be first approached. If other informants in that organization need to be interviewed, the researcher will negotiate access to other informants through that first contact. The first contact person will be named as the main contact in that organization unless he/she assigns responsibility to a different person.

### **Informed consent**

The informant will be forwarded a copy of this information sheet prior to or at the start of the interview. The researcher will briefly explain the details of this research information sheet at the start of the interview and will answer any questions the informant may have. No written consent is required, however the informant agreement to proceed with answering interview questions is an indication of his/ her verbal consent. The informant will also be advised that by participating in this study, he/ she:

- Agrees to provides information to the researcher on the basis that his/ her name will not be used without his/ her permission
- Has the right to withdraw at any time during the interview or decline to answer any particular questions
- Has the right not to agree to the interview audiotaped

### **Anonymity**

Informants will not be named in written accounts of the research. In particular, the names of all organizational and individuals in both case study reports and the cross case analysis will be pseudonyms. The use of pseudonyms is implemented to protect the privacy of informants and their respective organizations. Furthermore, all controversial and sensitive comments will be placed in a broader interpretive context for the purpose of making these comments non-attributable to a particular informant. However and because of the informant past or present profile in the organization and/or the uniqueness of the organization, some information could be linked to them.

### **Confidentiality**

All information given to the researcher is treated as confidential. The researcher will be personally responsible for managing the process of: tape recording of interviews; transcribing interviews; storage and sharing of artifacts such as audio tapes, hard and soft copies of interview transcripts, interview notes, observation notes, and company documents; and the writing of case study reports. When an audiotape is used, the researcher will ask the informants permission to turn the audiotape on and explain that he/ she can ask to turn it off any time during the interview. The storage of interview

tapes will be managed by the researcher. Interviews will either be transcribed by the researcher herself or through a trusted assistant, which the researcher will be responsible to supervise. At the end of the research, tapes and transcripts will be retained by the researcher, otherwise they will be destroyed.

### **Validating research findings**

The researcher will use one or more of the following means to ensure the validity of interview findings:

- Follow-up interviews with the informant to clarify unclear issues or provide further details
- Each informant will be kindly asked to review his/ her interview transcript to correct any misunderstanding by the researcher and highlight issues that need not be disclosed, because they may pose either confidentiality or anonymity threats to either the informant or the organization.
- The researcher will hold a presentation to discuss case study findings. Verbal consent will be sought through the main contact in the organization first. All other informants will be separately contacted later for their verbal consents. The presentation will be held either at the organization premises or the university. Access will be restricted to the researcher, the main contact in the organizations and the key informants interviewed. Selected faculty members may be invited after negotiating that invitation with the main contact person in the organization.

Appendix-4

Case study interviews --- phase **one**: The selection of case studies

### Interview questions

Research study

**The IT strategic decision process: Exploratory case studies of enterprise systems implementations in NZ**

January 2002

#### Operationalizing the predefined criteria for the selection of case studies

This research is a multiple case study research design that aims to include four to six case studies of ES implementation that satisfy the following:

- Cases are considered **typical**, where a typical case is defined as one that illustrates what is typical, normal or average. This study's definition for a "typical" case is a typical ES implementation project within the top 1000 NZ companies where the number of employees is one hundred or more.

Cases are **different with maximum variation**. The aim is to achieve cases where ES are implemented using different vendors products and in organizations, which are in different industries.

**ES implementation in each case has already started** but for no more than one and a half years earlier, and can still be going. However, it should have no less than six months to the full implementation, and that is when the ES will be installed and operational.

This is to ensure that key informants still remember what happened in the near past and that ES implementation will be completed (in the sense that the ES is operational) within the time allocated to data collection which is between four and six months.

- ES implementations are of **similar complexities**. It is assumed that the complexity of ES implementation can be measured in either or a combination of the following measures:
  - The number of users per ES implementation
  - The number of modules implemented
  - The cost of implementation in dollars
  - The number of locations (or independent business units) where ES is implemented.

The advice of key informants is sought to identify what is a "typical," "ES implementation" in "NZ". Key informants are identified as these who are senior ES consultants or senior managers of ES vendors.

**Question:** Could you please identify what is a typical ES implementation in NZ? Please elaborate

Please elaborate

Please use the following probes

- The number of users per ES implementation
- The number of modules implemented
- The cost of implementation in dollars
- The number of locations (or independent business units) where ES is implemented.
- The size of the organization

#### The identification of organizations that fit the selection criteria

**Question:** can you possibly identify two or more ES implementations that fit the above criteria. Please provide a brief case detail and the name (s) of contact person for each case.

Appendix-5

Case study interviews ---

**Exhibit 1: Strategic decisions in the implementation of ES**

Research study

**The IT strategic decision process: Exploratory case studies of enterprise systems implementations in NZ**

February 2002

Decision #	Description
1.	Decide on the evaluation team --- steering committee, project team, process owners, etc.
2.	Decide on evaluation partners --- i.e. consultant (s)
3.	Decide on vendor(s)
4.	Decide on the key business processes and key performance indicators (KPI)
5.	Decide on the functionalities or modules needed
6.	Decide on bolt-on applications
7.	Decide on the IT infrastructure
8.	Decide on implementation team
9.	Decide on implementation partners --- i.e. consultant (s)
10.	Decide on the implementation strategy <ul style="list-style-type: none"> <li>- High customization with a business process reengineering (BPR) focus</li> <li>- Low customization with an IT focus “vanilla implementation”</li> </ul>
11.	Decide on installation or “going live” strategy <sup>2</sup> (phased, big bang or parallel)
12.	Decide on installation across multiple locations/ different business units (single ES or different versions of the same ES) and the sequence of implementation (all locations at the same time or gradual)
13.	Decide on personnel training strategy
14.	Decide on reporting needs
15.	Decide on maintenance strategy

<sup>2</sup> The pilot option is not included as an alternative to the installation strategy because it is implied that each of the three alternatives listed above would be preceded with a pilot phase.