ERP System Design for IMPERIAL Distribution

Investigation and Recommendation

by

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Executive Summary

Competitive advantage is what businesses always seek, something to differentiate themselves from their competitors. This is the reason why Enterprise Resource Planning (ERP) systems were designed, to help organisations have the added advantage and edge over their competitors. In the modern day, where the sharing of information has become vital, ERP systems have become the catalysts in ensuring information is always available in a timely manner to the organisation, its customers and suppliers.

One of the areas where ERP systems have become a necessity is in Supply Chain Management. ERP’s help organisations to integrate their business functions in order to ensure that the organisation functions effectively and efficiently in the supply chain. The benefits that ERP provides are what have attracted many organisations into implementing them. Some of the benefits include cost reduction, productivity improvement, customer service improvement, improved resource management and improved decision making and planning.

IMPERIAL Distribution’s (ID) legacy system was proving not to be beneficial to the organisation, as system analysis showed that a large amount of time was spent on data capturing and not on data analysis. Data is not available in a timely manner and due to the recapturing of data, data integrity is questionable.

The project covers analysis of ID’s current legacy system, a study of existing literature to gain more understanding of ERP system, research the top rated ERP systems available in the industry, as well as the associated costs and payback. The project will conclude by making a recommendation on the ERP system that will be a best fit for ID. Also, a proposed implementation plan will be given that will be used as a guideline when implementing the recommended ERP system.
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List of Abbreviations

3PL – Third party Logistics
FMCG – Fast Moving Consumer Goods
ERP – Enterprise Resource Planning
MRP – Material Requirements Planning
MRP II – Material Resource Planning
MPS – Master Production Schedule
COTS – Commercial off-the-shelf
Disman – Distribution Manager
MMAS – Manufacturing Management and Account System
SQL – Structured Query Language
CRM – Customer Relationship Management
UI – User Interface
GUI – Graphical User Interface
Chapter 1

1.1 Introduction

The following chapter discusses ID’s company background to give the reader an understanding of what the organisation does and how it fits into the logistics industry. A history on ERP systems will be discussed to place into context how ERP system came to being and how they have transformed over the years. The project aim, project scope, problem statement and project plan is also discussed in this chapter. The chapter concludes with a summary of the content which was discussed.

1.2 Company Background

IMPERIAL Distribution (ID), established in 1978, has proved itself over the years to be one of South Africa’s best expert logistics solution providers that are focused on management teams, facilities, and/or enablement technology. ID has a fleet consisting of more than 650 trucks utilised across more than 80 different contracts nationally and currently employs approximately 2,000 permanent employees. Table 1gives an overview of the contracts ID is involved with. ID is a specialist third party logistics (3PL) service provider that performs contract logistics for clients across a wide variety of industries (IMPERIAL Distribution, 2010). 3PL service providers are organisations that provide multiple logistics services for use by its customers. These services are integrated by the service provider to ensure smooth and unhindered interaction between them. These services include transportation management, warehousing, cross-docking, inventory management, packaging and freight-forwarding (Wikipedia, 2011).

ID specialises in combining business processes and technology along with the skills of the employees, to find the best solution for their customers. They believe in providing cost effective and innovative solutions to its customers. ID prides itself in providing exceptional service that will set it apart from its competitors. Apart from being goal orientated and profit driven, ID places high value in developing and empowering its people which sets them apart from its competitors. Above this, ID plays a role in contributing to fight global warming by implementing a Green strategy which is used to measure and reduce their carbon footprint.
ID is a subsidiary of IMPERIAL Logistics (IL), which is one of South Africa’s leaders in logistics and supply chain management. IL has operating companies in South Africa and employs over 17000 people. IL owns more than 5000 vehicles, subcontracting over 2000 vehicles and running cross border operations across 11 countries across Africa including South Africa, Lesotho, Swaziland, Namibia, Botswana, Zimbabwe, Angola, Mozambique, Zambia, Tanzania and Kenya. Figure 1 below shows the group structure of IMPERIAL Holdings.

Table 1: ID contracts overview (IMPERIAL Distribution, 2010)
1.3 History on Enterprise Resource Planning

In the 1960’s the primary competitive force was cost; many firms where concerned with producing goods at the minimum cost possible, which resulted in product-focused manufacturing strategies based on high-volume production, and cost minimisation, while assuming stable economic conditions (Jacobs & Weston, 2007). Newly computerised reorder point (ROP) systems were introduced which included economic order quantities and economic reorder points which were sufficient for basic manufacturing and planning.

In the early 1970’s many manufacturing organisations placed a lot of focus on inventory control and management (Villaescusa, 2001). Most of the system software was designed to handle inventory using the traditional inventory management concepts of that time. The 1970’s saw a shift in focus from traditional elementary inventory concepts to what has become to be known as Material Requirements Planning (MRP). The MRP system helped in translating the Master Production Schedule (MPS) into a planning and procurement schedule of individual units like raw material, components and sub-assemblies.

According to Inventory Solutions Logistics Corporation (2000-2007), MPS is a plan that a company develops for production, inventory and staffing. It determines the amount of an item to be completed each week, the material required and the amount of people required for that job. Ultimately, the MPS is a plan for future production of end items. The MPS requires a forecast demand, production costs, inventory costs, customer orders, inventory levels, supply, lot size, production lead time and capacity. From this, an output is generated which gives amounts to be produced, staffing levels, quantity available to promise and projected available balance. The MPS was an important input for the MRP which in later years lead to the development of ERP systems.

In 1975 IBM developed a Manufacturing Management and Account System (MMAS) which created general ledger postings and job costing plus forecasting updates from both inventory and production transactions. The MMAS could generate manufacturing orders from customer orders using either a standard bill of material or a bill of material attached to the customer order. 1978 saw the release of SAP’s version of its software, called SAP R/2. SAP R/2 allowed for interactivity between modules as well as additional capabilities such as order tracking (Jacobs & Weston, 2007).
In the 1980 the concept of Material Resource Planning (MRP II) came into existence which involved optimising the entire plant production process (Villaescusa, 2001). MRP II was a shift from material planning and control systems to a company-wide system, capable of planning and controlling all the organisations resources. In the beginning MRP II was an extension of MRP which included shop floor and management activities. During later years, MRP II was further extended to include other areas of an organisation such as Finance, Human Resources, Production and Marketing (Chen, 2001). Figure 2 gives a graphical overview of MRP II.

![Diagram of Material Resource Planning (MRP II) overview](Chen, 2001)

Figure 2: Material Resource Planning (MRP II) overview (Chen, 2001)
This gave birth to ERP in the 1990’s which covered the cross functional integration and coordination of the different areas of an organisation in support of the production processes. The ERP system, in contrast to its predecessors, included the entire range of a company’s activities. It is within the last decade that ERP systems have really taken the lead, proven by impressive revenue generated by software companies as well as the organisations implementing them. Although ERP systems were not used to their full potential in the past, one sees them providing countless benefits for organisations that have successfully implemented them. During this time IBM dominated the software industry but in 1999, the dominance of IBM slipped, seeing J.D. Edwards, Oracle, PeopleSoft, Baan and SAP taking control of the ERP software market.

Management has used ERP systems as a tool to gain competitive advantage over their competitors in their respective industries. The term ERP was coined by the Gartner Group of Stamford, Connecticut, USA. ERP was intended to improve resource planning by extending the scope of planning to include more of the supply chain than MRP II (Chen, 2001). Figure 3 summaries the events that lead to the development of ERP systems.

**Figure 3: Enterprise Resource Planning (ERP) timeline**

### 1.4 Project Aim

The project aim is to perform research to recommend an ERP system that integrates across ID’s functional areas. This will be done by analysing the business requirements and recommending a software solution that will meet those requirements. A cost analysis will also be done to look at the high-level costing and payback of the envisaged ERP system.
1.5 Project Scope
The project will encompass making a comparison between three potential software vendors through analysing the business requirements, to determine which vendor software will be the best fit. High level costing and payback will be determined for each vendor so that the most feasible software solution will be recommended that best meets these criteria.

1.6 Problem Statement
ID currently utilises Distribution Manager (Disman) at each of its sites. Disman is a database used to capture trip detail such as trip header (i.e. vehicle kilometres at departure and arrival), trip line (i.e. departure and arrival time of vehicles), time and attendance, fuel slips, and sundry expenses. Disman is based on a Microsoft Access database which is effective, but in the modern day a more efficient database is required to have a competitive advantage over the competition. Excel is used for data capturing and analysis of the information gathered. An investigation of the system showed that approximately 80% of all Excel and Disman capture represent waste, i.e. duplicate capturing of data. A large amount of time is spent on capturing data that is redundant or not useful, resulting in costs that could have been avoided. Below one can see the monthly capture costs associated with Disman and Excel.

Disman Costs: (Questionnaire data)
- 92 Employees spending average 42% of their time in Disman (Questionnaire)
- This amounts to a total cost of *R303 661 per month
- Majority (line items and time and attendance capture should be automated)
- Waste is apparent

Excel Costs: (Questionnaire data)
- 87 Employee spending average 34% of their time in Excel (Questionnaire)
- This amounts to a total cost of *R310 511 per month
- Cost of waste becomes apparent

*Capture costs based on time allocation x personnel cost

Three fields in Disman account for 92% of capture, i.e. trip header, trip line & attendance. Table 2 shows the Disman capture observation with these three fields highlighted. The trip line field captures truck details, i.e. number of stops, departure time, arrival time and amount
of goods delivered. The attendance field captures the number of personnel on site. Lastly, the trip header field captures vehicle kilometres at departure and arrival, number of stuff operating during the trip, and the depots the vehicles arrive at. It is evident that a lot of data that is captured is not useful. The current complexity of Disman and the associated cost are not justified by the system use.

The system is operational but adding little value to the company. Reporting is fragmented, often done off-line and the majority of reporting is Excel based. Time should be spent on report analysis in order to improve the business in decision making rather than data capturing and report creation which is where a lot of time is currently being spent.

<table>
<thead>
<tr>
<th>Contract Name</th>
<th>ATT</th>
<th>DOUCH HEADER</th>
<th>DOUNE CODE</th>
<th>BOWSER HEADER</th>
<th>BOWSER LINE</th>
<th>FUEL SUP</th>
<th>INVOCDE</th>
<th>SUNRISE TIME IN</th>
<th>SUNRISE TIME OUT</th>
<th>SUNRISE HEADING</th>
<th>SUNRISE TIME INJ</th>
<th>TRIP HEADER</th>
<th>TOTAL RECORDS</th>
</tr>
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<td>CLICKSREEF</td>
<td>21404</td>
<td>26</td>
<td>167</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3937</td>
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<td>0</td>
<td>0</td>
<td>85</td>
<td>141</td>
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<tr>
<td>METCASH</td>
<td>14938</td>
<td>13</td>
<td>175</td>
<td>35</td>
<td>250</td>
<td>2367</td>
<td>2144</td>
<td>11</td>
<td>108</td>
<td>233</td>
<td>0</td>
<td>0</td>
<td>3236</td>
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<tr>
<td>MONDICTDIS/FRIDUS</td>
<td>26369</td>
<td>43</td>
<td>744</td>
<td>6</td>
<td>564</td>
<td>7312</td>
<td>565</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>87</td>
<td>344</td>
<td>13760</td>
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<tr>
<td>NAMTISSEPTA</td>
<td>28966</td>
<td>12</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7386</td>
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<td>0</td>
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<td>17</td>
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<td>77</td>
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<td>TIGERRFIDIS</td>
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<td>3042</td>
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<td>1</td>
<td>0</td>
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<td>30</td>
<td>0</td>
<td>112</td>
<td>547</td>
<td>5133</td>
</tr>
</tbody>
</table>

Table 2: Disman capture overview
ID currently has remote databases (Disman) at each site that handles data capturing of trip and site specific information. That data is then loaded onto a Structured Query Language (SQL) database which is linked to the Master Database. The Master Database receives data from Pro IV which is a database from IMPERIAL Shared Services that handles the company finances and workshop services, VIP which handles the employee data and Contracts Admin which is based on Excel and handles the rate schedule, currents contracts and proposals.

Typically when a trip is initiated, a truck would go and deliver the line items to the different customers, i.e. Nampak, NOLA, Mondi and Megafreight. Trip line detail then has to be captured, i.e. opening vehicle kilometres, closing vehicle kilometres, vehicle departure time, arrival time and volume of the items delivered. This data is captured on Disman at the remote sites and then analysed on Excel. From this, the information is then shared with Finance which captures the data on the ledgers. Contracts Admin also receives data from the sites which is used to update and create rate schedules for the different contracts. Figure 4 shows a simple diagram of ID’s legacy system.

![Figure 4: ID's legacy system](image-url)
ID’s current system cannot be classified as an ERP system for the following reasons:

- No standard data capture
- Data is not available in a timely manner
- Databases serve as point of capture and are not used to generate future transactions

It is therefore evident that ID is in need of a system that will solve all the abovementioned issues and integrate the different functions of the organisation. This will lead to a reduction in the cost of data capturing, reduction of time spent in data capturing and processing, a system that will eliminate fragmentation of information, and a system that will enhance the competitiveness of ID

1.7 Project Plan
This project will follow the steps listed below to ensure that the best ERP system for ID is selected and an implementation plan will be developed.

- Detailed requirements mapping
- In-depth literature study of available ERP systems
- System selection
- High level costing and payback
- Proposed Implementation Plan
- Final system selection

1.8 Chapter Summary
ERP’s have evolved over the years from merely an inventory management tool to a necessity for any organisation that wants to be competitive in this information driven computer age. Software vendors have spent years developing a system that will allow companies to integrate its business functions and help them to cut costs in maintaining their IT systems and place more focus on improving business processes. Chapter 2 begins with a literature study on ERP systems to allow the reader to gain a better understanding of ERP’s, how ERP’s have performed in the industry and how ERP systems have benefited organisations. The benefits of the ERP systems will be discussed and the chapter will conclude with a discussion of the three possible solutions for ID from which a final selection will be made.
Chapter 2

2.1 Literature Study

2.1.1 Understanding ERP systems

The Eleventh Edition of the APICS Dictionary (Blackstone & Cox, 2005) defines ERP as a "framework for organizing, defining, and standardizing the business processes necessary to effectively plan and control an organization so the organization can use its internal knowledge to seek external advantage". ERP systems are essential in an organisation's supply chain as it allows the smooth flow of information from the supplier to the customer. It allows for information integration along the chain leading to the sharing of information between the suppliers, logistics service provider, manufacturers, retailers and the wholesalers.

ERP systems integrate all the functionalities of stand alone applications inside a single standard software application, making it compatible with different business processes. These functionalities operate with a client server architecture, meaning a single core database, located on a centralised server machine with different applications installed in it. Clients are networked with the server and required data are retrieved from the server database by the applications from time to time. Data access is controlled by different admissions levels, reducing error occurrence and granting more reliable data, i.e. ‘One version of the truth’ (Rizzi & Zamboni, 1999).

ERP systems are integrated and corporate-wide systems that automate core activities such as manufacturing, human resources, finance, and supply chain management. In such systems the fragmented information is integrated to support the decision-making process (Razmi & Sangari, 2009). Data can be uploaded remotely on the Internet thus making it available instantaneously and reducing data duplication and the issue of data which require uploading and updating. This brings about the reduction of error occurrence which might be due to non-up-to-date data or manual transferring of data between applications. This is a major problem for stand alone architectures because of the independence of each application from the other. Figure 5 and Figure 6 show the difference between an ERP system and a stand alone legacy system.
Figure 5: ERP integrated architecture (Rizzi & Zamboni, 1999)

Figure 6: Stand alone architecture (Rizzi & Zamboni, 1999)
Many organisations realise the need for an ERP system when they realise that the current business processes are incompetent for the future strategic needs (Chen, 2001). According to Rizzi & Zamboni(1999), ERP software must be suitable for firms operating in different lines of business and this software has to be very flexible and be able to adapt to the business processes of those firms. Some of the top rated ERP systems in the industry include SAP R/3, Oracle Peoplesoft, BAAN IV and JD Edwards (Helo & Szekely, 2005). SAP R/3 for instance, is a product suitable both for manufacturing and service firms; however, products like BAAN IV are typically manufacturing oriented. This is true as it will allow the ERP system to blend in with the organisational needs and be a catalyst to the growth and competitiveness of the firm.

ERP systems tend to be very complicated since these software systems have all the functionality required by the organisation. ERP systems therefore require a foremost implementation phase, where all parameters and fields are initiated. This process can be extremely cumbersome, both in terms of time and money. Roughly speaking, the larger and less structured the organisation implementing the system, the more difficult the implementation phase. Thus vendors have developed different approaches to set software parameters, varying from expert systems to enterprise modelling tools (Rizzi & Zamboni, 1999).

Organisations fine-tune their installations over time and leverage ERP information to effect improvements in areas such as inventory management and order management. Firms typically add modules that extended the ERP system beyond the enterprise to include suppliers and customers thereby integrating the organisation into the supply chain. The ongoing process of stabilising, fine-tuning, and extending ERP systems has been found to further improve operational performance (Madapusi & D'Souza, 2011).

2.1.2 Facts about ERP systems

In today's dynamic and unpredictable business environment, companies face the tremendous challenge of expanding markets and rising customer expectations (Razmi & Sangari, 2009). As much as ERP systems are beneficial, ERP systems have proved to be detrimental to some organisations due to the incorrect implementation and operation of the ERP. FoxMeyer Drug, a $5 Billion pharmaceutical company, filed for bankruptcy because they argued that problems were caused by a failed ERP system. FoxMeyer state that the ERP system created excess shipment resulting from incorrect orders, costing FoxMeyer millions of dollars (Chen, 2001).
On the other hand, Dell Computers spent millions of dollars on an ERP system only to scrap it because it was too rigid for their expanding global operations. Other organisations that have had failures with their ERP systems include Kellogg’s, Mobil Europe, Applied Materials, Boeing and Dow Chemicals (Chen, 2001).

ERP systems have seen significant growth in the last two decades. The global ERP market’s revenues were estimated at $65 billion in 2008, $61 billion in 2009 and $65 billion in 2010 (Madapusi & D'Souza, 2011).

2.1.3 Reasons for ERP adoption
Organisations will always look for justification on why an ERP system should be implemented into an organisation since a lot of capital is invested into the ERP system. According to Chand et al (2005) some reasons which justify ERP application are listed below:

2.1.3.1 Technical reasons:
- Integrate the organisation and improve communication between departments
- Cut costs spent on maintaining independent databases and interfaces
- Eliminate redundant data entry
- Reduce data errors
- Decrease computer operating costs
- Integrate software applications across different business departments
- Reduce software maintenance burden through outsourcing

2.1.3.2 Business reasons:
- Accommodate business growth
- Improve inefficient business processes
- Reduce business administrative and operating expenses
- Reduce inventory carrying costs and stock outs
- Eliminate delays and errors in filling customer orders
- Provide integrated IT support
- Standardise procedures across the organisation
- Facilitate integration into the supply chain
2.1.4 The benefits of ERP systems

One can attribute the success of ERP systems to the benefits that they offer to organisations who aim at gaining an advantage over their competitors. By using ERP systems companies can achieve many benefits. Some of the main benefits include easier access to reliable information in a timely manner, elimination of redundant operations or data, reduction of cycle times, reduction of inventory levels, automation or speeding up of business processes, simplified reporting, improvement in supply chain management, improvement in quality and competitiveness, higher efficiency and as a result lower costs (Razmi & Sangari, 2009). Some of the benefits are listed below and are grouped according to dimensions.

2.1.4.1 Operational
- Cost reduction
- Cycle time reduction
- Productivity improvement
- Customer service improvement

2.1.4.2 Managerial
- Better resource management
- Improved decision making and planning
- Performance improvement

2.1.4.3 Strategic
- Support business growth
- Build external linkages (suppliers and customers)
- Build cost leadership

2.1.4.4 IT Infrastructure
- Build business flexibility for current and future changes
- IT cost reduction
- Increased IT infrastructure capabilities

2.1.4.5 Organisational
- Support organisational changes
- Facilitate business learning
- Empowerment
- Build common vision
2.2 Candidate solutions

Normally ERP vendors would be classified according to three tiers, Tier I, Tier II and Tier III (Panorama Consulting Group, 2009). The figure below shows these classifications and how the different vendors fit under each classification. Most organisations often implement Tier I solutions because of their broad functionality and benefits.

<table>
<thead>
<tr>
<th>Vendors</th>
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<tbody>
<tr>
<td>Tier I</td>
</tr>
<tr>
<td>SAP</td>
</tr>
<tr>
<td>Oracle</td>
</tr>
<tr>
<td>Oracle E-Business Suite</td>
</tr>
<tr>
<td>Oracle JD Edwards</td>
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<tr>
<td>Oracle Peoplesoft</td>
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<td>Microsoft Dynamics</td>
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2.3 Justification for short-listing Microsoft Dynamics AX, SAP and Oracle

Panorama Consulting Group conducted a study to determine which ERP systems were short-listed by many organisations when looking at implementing an ERP system. According to Panorama Consulting Group (2009), Microsoft Dynamics, Oracle and SAP gained the greatest market share in the industry, with the latter gaining the highest market share and the former having the lowest market share of the three vendors. Figure 7 below shows the proportions of the market share for each vendor.
One can see that the top three vendors that are considered the most when short-listing by organisations are SAP, Oracle and Microsoft Dynamics. Table 3 shown below shows the vendor market share per revenue class. This table provide data on the selection rate of major Tier I vendors, Tier II vendors, and Tier III vendors categorized by the revenue size of the companies they service. The analysis indicates that SAP and Oracle compete both for small companies (less than $25 million revenue) and large companies (more than $500 million revenue), but SAP clearly is more popular with companies with revenues between $25 million and $500 million. Therefore on this basis it was decided to research SAP, Oracle and Microsoft Dynamics.

<table>
<thead>
<tr>
<th>Revenue ($)</th>
<th>SAP</th>
<th>Oracle</th>
<th>Microsoft</th>
<th>Tier II</th>
<th>Tier III and others</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25 mil</td>
<td>22.2%</td>
<td>23%</td>
<td>16.3%</td>
<td>11.9%</td>
<td>26.6%</td>
</tr>
<tr>
<td>25-50 mil</td>
<td>24.5%</td>
<td>13.7%</td>
<td>15.7%</td>
<td>17.6%</td>
<td>28.4%</td>
</tr>
<tr>
<td>50-100 mil</td>
<td>32.1%</td>
<td>16.7%</td>
<td>11.5%</td>
<td>16.7%</td>
<td>23.1%</td>
</tr>
<tr>
<td>100-500 mil</td>
<td>31.2%</td>
<td>15.3%</td>
<td>16.8%</td>
<td>16.8%</td>
<td>19.8%</td>
</tr>
<tr>
<td>500-1 bil</td>
<td>33.3%</td>
<td>31.3%</td>
<td>4.2%</td>
<td>16.7%</td>
<td>14.6%</td>
</tr>
<tr>
<td>&gt;1 bil</td>
<td>47%</td>
<td>31.8%</td>
<td>4.0%</td>
<td>8.6%</td>
<td>8.6%</td>
</tr>
</tbody>
</table>

Table 3: Market Share by Client Revenue (Panorama Consulting Group, 2009)
2.4 Short List

2.4.1 Microsoft Dynamics AX

Microsoft Dynamics AX 2012 is a single, powerful enterprise resource planning (ERP) solution that is simple to learn and use. It allows businesses to deliver value faster, take advantage of business opportunities, and drive user involvement and innovation across the entire organisation. Distribution companies today face real challenges in a rapidly changing industry. Global competition and intense price pressure at the retail level are eroding margins. Shorter product lifecycles require businesses to adapt quickly to new circumstances and Microsoft Dynamics aims at helping businesses achieve this (Microsoft Dynamics, 2011).

Microsoft Dynamics AX connects people, operations, and partners with a single solution to help you manage global complexity and make the most of the opportunities the organisation has. The organisation can streamline business processes across the extended supply chain with unified natural models that deliver operational visibility. Microsoft Dynamics AX supports rapidly changing conditions in a demand-driven environment using easy-to-implement workflows. The organisation can use self-service business intelligence to improve demand planning and respond to unique customer requests. Microsoft Dynamics AX also allows the organisation to scale its global business quickly with multi-site capabilities and flexible deployment options that reduce risk. According to Microsoft Dynamics (2011), Microsoft Dynamics AX is designed to transform the organisation supply chain with powerful connectivity that enables the organisation to:

- **Simplify** food and beverage management with batch traceability, shelf-life tracking, and weight recordings.

- **Streamline** product management with multi-site capabilities, advanced WMS, service management, and multi-site planning.

- **Manage** consumer goods with item dimensions; freight integration; and pricing, rebate, and multi-channel management.

- **Drive** productivity with the familiar Microsoft products and technologies that distributors use worldwide
2.4.2 SAP

SAP is one of the most reliable ERP system providers and the popular versions of SAP ERP’s are SAP R/3, Business One and Business All-in-One. The two versions are extremely different in their architecture and functionalities, and one of the identifiable differences is that R/3 is suitable for large companies and SAP Business One is best suited to small and medium-sized companies (SAP, 2011).

SAP R/3 has undergone a number of changes from the time it was developed. It has been designed on three-tier architecture whereas SAP Business One is based on two tier architecture. The three tiers of SAP R/3 are user interface (UI), business logic and database. The presentation server provides the interface to the user to communicate, and this is called SAP Graphical User Interface (GUI), and at the application server the business logic and the database is kept (Mutt, 2011).

In case of SAP Business One, the system has one or more presentation servers and a database server. SAP R/3 is an integrated software solution suitable for organisations having millions of transactions everyday. It can provide distributed open systems which can serve organisations having two to three users to multi-user transactions although it is considered more suitable for large organisations. It is highly scalable and provides much scope for customisation. SAP R/3 can run on different types of database servers and applications (Mutt, 2011).

The various modules are integrated in a way to provide speedy and accurate transactions. The SAP R/3 modules can be used as a standalone system or integrated with the complete system. Some of the common modules of SAP R/3 are Materials Management, Production Planning and Control, Sales and Distribution, Financial Accounting, Controlling, Payroll Accounting and Organisational Management (SAP, 2011).
2.4.3 ORACLE

Oracle developed an ERP suite on Oracle apps framework which was expected to be the best, since the company claims to be one of the largest enterprise solution providers. The Oracle business suite uses the Oracle database which in turn gives the buyer the best database and its benefits. The user interface of the suite is in two types, which are Oracle forms and self service applications which are HTML based solutions. Data security is highly reliable and data interaction is exceptionally fast which makes this suite very reliable and convenient. Another advantage of the Oracle business suite is that it makes provisions for companies who prefer to switch to ERP by taking one step after another rather than immediately switching to the full system at one go (Mutt, 2011).

Oracle offers back-office applications for human capital management, financial management, governance risk, and compliance so that logistics service providers can comply with global labour, financial, security and trade regulations in a cost effective way (Oracle, 2011).

Oracle’s CRM is composed of sales force automation, marketing and customer support functions. The biggest advantage of Oracle CRM is that it comes from a company which understands back office automation. Therefore it translates into the best integration of CRM with other core ERP applications (Mutt, 2011).

Oracle provides pre built integration systems to Oracle ERP and an integration engine that allows its users to build their own integration with non Oracle systems. The sales force automation system is solid and improves productivity of sale representatives by providing data linked to any account like account status, contact, leads and sales orders.

One of the disadvantages of Oracle is the difficulty of use. Oracle does not have an ability to provide easy to use, proper windows user interface (UI) with facilities of drag and drop and multi windows.
Chapter 3

3.1 Requirements

3.1.1 Basic ERP requirements for IMPERIAL Distribution
The requirements stated below are the basic ERP requirements that should be met by the proposed solution. More requirements will be developed as the project progresses but the requirements stated below form the basis on which the ERP functionality should comprise off.

Financials

- Multiple companies (E)
- Multiple currency (E)
- General Ledger & Cashbook
  - Multiple cashbooks
- Integrated financial reporting
  - Integrated income statements
  - Integrated balance
  - Integrated Cash flow
- Invoicing & Billing
- Accounts Receivable
  - Debtors (Accounts Receivable) (E)
  - Collections (Integrated ageing and reporting)
  - Automated escalations based on duration of funds outstanding
  - Automated penalties on outstanding/arrears balances
- Accounts Payable
  - Creditors (Accounts Payable) (E)
  - Purchase Orders – including accruals/commitment accounting
  - Delivery/Goods Received Note Entry
  - Invoice Entry
  - Credit Note & Adjustments
  - Creditor Reconciliation
  - Accruals
- Returns Process (claims/debit notes)
- Automated Journals – with configurable pro-rata/allocation rules.
• Sales Order Entry
• Bank Reconciliation (E)
• Cash Management
• Fixed Asset Management
  ➢ Depreciation / Amortisation – asset specific depreciation rules
  ➢ Replacement of assets
  ➢ Disposal/ Sale/Write-off

• Budgeting
  ➢ Budget/Planning Management (Profitability analysis and activity based costing)
  ➢ Multiple budget models
  ➢ Live budget process and enquiries to compare actuals + accruals do not exceed budget
  ➢ Budget warnings
  ➢ Forecasting

• Financial Report Writer/Modelling
  ➢ Basic + business customisable reporting (reporting functions)

• B.I. Integration
  ➢ Visibility from report to source document or base costs

• Consumable Stock Control (is this a mini stock room/warehouse)
• Fleet Maintenance
• Cost Driver Management
• Vendor and Procurement Management
• Procurement Analysis
• Petty Cash Management
• Salaries & Wages (Payroll)
  ➢ Integrated with site based time and attendance
Procurement

- System must enable strategic procurement
- BEEEEE scoring.
- Vendor selection & ranking
- Procurement and spend analysis
- Vendor analysis, daily reporting of non approved vendors & exceptional items
- Contract Purchases - Fixed & Variable (e.g. Fleet Hire, Hire Purchase, Lease, Copiers, cell phones etc.)

CRM

- (CRM) Customer Relationship Management (prospects & customer queries)
  - System must facilitate a call centre for sales as well as admin & vehicle monitoring

Human resources

- Integrated Payroll, Leave & full HR function
  - HR & EE Reporting
  - Integrated leave sick leave – online with workflow’s

Contract administration

- Contract and Escalation Admin
  - Full & integrated contract management
- Automated price adjustments at a contract level
  - Based on key inputs i.e. Labour and fuel price changes
DATA Warehouse

- Selected system must have integration functionality embedded
  - To enable multiple inputs being consolidated in a single data warehouse
    (system must enable dynamic cubing)

Warehouse Management

- System should have the ability to rollout simple warehouse management on selected sites

*Note: (E) Essential requirements
### 3.2 Comparison between candidate solutions

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Candidate 1: SAP Business All-in-One</th>
<th>Candidate 2: Oracle E Business Suite</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Portion of System Computerised</strong></td>
<td>COTS package SAP Business One from SAP would be purchased and customised to satisfy IMPERIAL Distribution required functionality.</td>
<td>COTS package from Oracle would be purchased and customised to satisfy IMPERIAL Distribution required functionality.</td>
</tr>
<tr>
<td>Benefits</td>
<td>This solution can be quickly implemented because it is a purchased solution.</td>
<td>Same as candidate 1</td>
</tr>
<tr>
<td><strong>Servers and Workstations</strong></td>
<td>See Appendix A</td>
<td>Application Server 10g/11g</td>
</tr>
<tr>
<td><strong>Software tools needed</strong></td>
<td>Package solution</td>
<td>Package solution</td>
</tr>
<tr>
<td><strong>Application Software</strong></td>
<td>Packaged solution</td>
<td>Same as candidate 1</td>
</tr>
<tr>
<td><strong>Method of data processing</strong></td>
<td>Online</td>
<td>Online</td>
</tr>
<tr>
<td><strong>Output devices and implications</strong></td>
<td>LAN laser Printers, high resolution monitors</td>
<td>Same as candidate 1</td>
</tr>
<tr>
<td><strong>Input devices and implications</strong></td>
<td>Keyboard, mouse, scanner and DVD rom</td>
<td>Same as candidate 1</td>
</tr>
</tbody>
</table>

Table 4: Comparison between candidate solutions
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Candidate 3: Microsoft Dynamics AX</th>
<th>Candidate 5: In-house System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portion of System Computerised</td>
<td>Brief description of that portion of the system that would be computerised in this candidate.</td>
<td></td>
</tr>
<tr>
<td>COTS package Microsoft Dynamics AX from Microsoft would be purchased and customised to satisfy IMPERIAL Distribution required functionality.</td>
<td></td>
<td>An in-house system will be built and all functionality will be computerised.</td>
</tr>
<tr>
<td>Benefits</td>
<td>Brief description of the business benefits that would be realised for this candidate.</td>
<td>A system that fully supports user-required business processes for IMPERIAL Distribution. Little or no customisation required.</td>
</tr>
<tr>
<td>Same as candidate 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Servers and Workstations</td>
<td>A description of the servers and workstations needed to support this candidate.</td>
<td></td>
</tr>
<tr>
<td>Simple Mail Transfer Protocol (SMTP)</td>
<td></td>
<td>To be determined</td>
</tr>
<tr>
<td>Software tools needed</td>
<td>Software tools needed to design and build the candidate (e.g. database management system, emulators, operating system, languages). Not generally applicable if applications software packages are to be purchased.</td>
<td>Package solution</td>
</tr>
<tr>
<td>Application Software</td>
<td>A description of the software to be purchased, built, accessed, or some combination of these techniques.</td>
<td>Same as candidate 1</td>
</tr>
<tr>
<td>Online</td>
<td></td>
<td>To be determined</td>
</tr>
<tr>
<td>Method of data processing</td>
<td>Generally some combinations of online, batch, deferred batch, remote batch, and real time.</td>
<td></td>
</tr>
<tr>
<td>Same as candidate 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output devices and implications</td>
<td>A description of output devices that would be used, special output requirements (e.g. network, pre-printed forms, etc.), and output considerations (e.g. timing constraints).</td>
<td>Same as candidate 1</td>
</tr>
<tr>
<td>Input devices and implications</td>
<td>A description of input methods to be used, input devices (e.g. keyboard, mouse, etc.), special input requirements (e.g. new or revised forms from which data would be input), and input considerations (e.g. timing of actual inputs).</td>
<td>Same as candidate 1</td>
</tr>
<tr>
<td>Storage devices and implications</td>
<td>Brief descriptions of what data would be accessed from existing stores, what storage media would be used, how much storage capacity would be needed, and how data would be organised.</td>
<td>Microsoft SQL Server® 2008, Standard or Enterprise editions, with Service Pack 1 or Microsoft SQL Server 2008 R2, Standard, Enterprise, or Data centre editions</td>
</tr>
</tbody>
</table>

Table 5: Comparison between candidate solutions continued
### 3.3 Cost Analysis and Payback

#### 3.3.1 SAP Business All-in-One

<table>
<thead>
<tr>
<th>Cash flow description</th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
<th>Year 10</th>
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<td>Discount factor for 7.00%:</td>
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<td>0.935</td>
<td>0.873</td>
<td>0.816</td>
<td>0.763</td>
<td>0.713</td>
<td>0.666</td>
<td>0.623</td>
<td>0.582</td>
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<td>-280374</td>
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<td>-231157</td>
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<td>-178677</td>
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<td>-157080</td>
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<tr>
<td>Cumulative time adjusted costs:</td>
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<td>6700000</td>
<td>6700000</td>
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<td>Discount factor for 7.00%:</td>
<td>1.000</td>
<td>0.935</td>
<td>0.873</td>
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<td>0.763</td>
<td>0.713</td>
<td>0.666</td>
<td>0.623</td>
<td>0.582</td>
<td>0.544</td>
<td>0.508</td>
</tr>
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Table 6: Payback Analysis for SAP Business All-in-One
Figure 8: Graph showing the payback period for SAP Business All-in-One
### 3.3.2 Oracle

#### Payback Analysis

<table>
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<tr>
<th>Cash flow description</th>
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<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
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<tr>
<td>Discount factor for 7.00%:</td>
<td>1.000</td>
<td>0.935</td>
<td>0.873</td>
<td>0.816</td>
<td>0.763</td>
<td>0.713</td>
<td>0.666</td>
<td>0.623</td>
<td>0.582</td>
<td>0.544</td>
<td>0.508</td>
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<td>Benefits derived from operation of new system:</td>
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</table>

Table 7: Payback analysis for Oracle E-Business Suite
Figure 9: Graph showing the payback period for Oracle E-Business Suite
### 3.3.3 Microsoft Dynamic AX

#### Table 8: Payback analysis for Microsoft Dynamics AX

<table>
<thead>
<tr>
<th>Cash flow description</th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
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<td>Discount factor for 7.00%:</td>
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</tr>
<tr>
<td>Time adjusted costs (adjusted to present value):</td>
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<td>-14134790</td>
</tr>
<tr>
<td>Benefits derived from operation of new system:</td>
<td>0</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
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<tr>
<td>Discount factor for 7.00%:</td>
<td>1.000</td>
<td>0.935</td>
<td>0.873</td>
<td>0.816</td>
<td>0.763</td>
<td>0.713</td>
<td>0.666</td>
<td>0.623</td>
<td>0.582</td>
<td>0.544</td>
<td>0.508</td>
</tr>
<tr>
<td>Time adjusted costs (adjusted to present value):</td>
<td>0</td>
<td>6261682</td>
<td>5852039</td>
<td>5469196</td>
<td>5111398</td>
<td>4777007</td>
<td>4464493</td>
<td>4172423</td>
<td>3899461</td>
<td>3644356</td>
<td>3405940</td>
</tr>
<tr>
<td>Cumulative time adjusted costs:</td>
<td>0</td>
<td>6261682</td>
<td>12113722</td>
<td>17582917</td>
<td>22694315</td>
<td>27471323</td>
<td>31935816</td>
<td>36108239</td>
<td>40007700</td>
<td>43652056</td>
<td>47057996</td>
</tr>
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<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Cumulative time adjusted costs + benefits:</td>
<td>-12000000</td>
<td>-6018692</td>
<td>-429557</td>
<td>4793117</td>
<td>9673357</td>
<td>14233617</td>
<td>18494875</td>
<td>22476737</td>
<td>26197522</td>
<td>29674346</td>
<td>32923206</td>
</tr>
<tr>
<td>Net Present Value for this candidate:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td>18788416</td>
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</table>

Payback Analysis
Figure 10: Graph showing the payback period for Microsoft Dynamics
### 3.3.4 In-house system

#### Table 9: Cost and payback analysis for an in-house system

<table>
<thead>
<tr>
<th>Cash flow description</th>
<th>Year 0</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
<th>Year 10</th>
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<tbody>
<tr>
<td>Development:</td>
<td>-4500000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Operation and Maintenance cost:</td>
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<td>-101000</td>
<td>-102000</td>
<td>-103000</td>
<td>-104000</td>
<td>-105000</td>
<td>-106000</td>
<td>-107000</td>
<td>-108000</td>
<td>-109000</td>
<td></td>
</tr>
<tr>
<td>Discount factor for 7.00%:</td>
<td>1.000</td>
<td>0.935</td>
<td>0.873</td>
<td>0.816</td>
<td>0.763</td>
<td>0.713</td>
<td>0.666</td>
<td>0.623</td>
<td>0.582</td>
<td>0.544</td>
<td>0.508</td>
</tr>
<tr>
<td>Time adjusted costs (adjusted to present value):</td>
<td>-4500000</td>
<td>-93458</td>
<td>-88217</td>
<td>-83262</td>
<td>-78578</td>
<td>-74151</td>
<td>-69966</td>
<td>-66011</td>
<td>-62275</td>
<td>-58745</td>
<td>-55410</td>
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<tr>
<td>Cumulative time adjusted costs:</td>
<td>-4500000</td>
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<td>-4681675</td>
<td>-4764938</td>
<td>-4843516</td>
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<td>-4987632</td>
<td>-5053644</td>
<td>-5115919</td>
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<td>-5230074</td>
</tr>
<tr>
<td>Benefits derived from operation of new system:</td>
<td>0</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
<td>6700000</td>
</tr>
<tr>
<td>Discount factor for 7.00%:</td>
<td>1.000</td>
<td>0.935</td>
<td>0.873</td>
<td>0.816</td>
<td>0.763</td>
<td>0.713</td>
<td>0.666</td>
<td>0.623</td>
<td>0.582</td>
<td>0.544</td>
<td>0.508</td>
</tr>
<tr>
<td>Time adjusted costs (adjusted to present value):</td>
<td>0</td>
<td>6261682</td>
<td>5852039</td>
<td>5469196</td>
<td>5113398</td>
<td>4777007</td>
<td>4464493</td>
<td>4172423</td>
<td>3899461</td>
<td>3644356</td>
<td>3405940</td>
</tr>
<tr>
<td>Cumulative time adjusted costs:</td>
<td>0</td>
<td>6261682</td>
<td>12113722</td>
<td>17582917</td>
<td>22694315</td>
<td>27471323</td>
<td>31935816</td>
<td>36108239</td>
<td>40007700</td>
<td>43652056</td>
<td>47057996</td>
</tr>
<tr>
<td>Cumulative time adjusted costs + benefits:</td>
<td>-4500000</td>
<td>1668224</td>
<td>7432046</td>
<td>12817980</td>
<td>17850800</td>
<td>22553656</td>
<td>26948183</td>
<td>31054959</td>
<td>34891781</td>
<td>38477392</td>
<td>41827923</td>
</tr>
</tbody>
</table>

#### Payback Analysis

| Cumulative time adjusted costs + benefits: | 36597849 |

Table 9: Cost and payback analysis for an in-house system
Figure 11: Graph showing the payback period

Note: The values in the tables are estimations and thus inaccurate. Therefore they are for demonstration purposes only. Real values are still being determined and confirmed.
### 3.4 Feasibility Analysis

<table>
<thead>
<tr>
<th></th>
<th>Candidate 1: SAP Business All-in-One</th>
<th>Candidate 2: Oracle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Purchase commercial off-the-shelf package for member services.</td>
<td>Purchase commercial off-the-shelf package for member services.</td>
</tr>
<tr>
<td><strong>Cultural Feasibility</strong></td>
<td>Possible user resistance to non-standard user interface of proposed package solution.</td>
<td>Possible user resistance to non-standard user interface of proposed package solution.</td>
</tr>
<tr>
<td></td>
<td><strong>Score:</strong> 60</td>
<td><strong>Score:</strong> 60</td>
</tr>
<tr>
<td><strong>Technical Feasibility</strong></td>
<td>Current production release is SAP Business All-in-One. The product is mature and been in the industry for a while. Might possibly require customisation and expertise to maintain.</td>
<td>Current production release is Oracle E Business Suite version 12.1 and has been recently released. Updated version of Oracle E Business Suite version 12. Might possibly require customisation.</td>
</tr>
<tr>
<td></td>
<td><strong>Score:</strong> 95</td>
<td><strong>Score:</strong> 75</td>
</tr>
<tr>
<td><strong>Economic Feasibility</strong></td>
<td>Cost to develop: Approx. R16 000 000&lt;br&gt;Payback (discounted): Approx. 2.9 years&lt;br&gt;NPV: Approx. R 9 988 416</td>
<td>Cost to develop: Approx. R14 000 000&lt;br&gt;Payback (discounted): Approx. 2.5 years&lt;br&gt;NPV: Approx. R 14 788 416</td>
</tr>
<tr>
<td></td>
<td><strong>Score:</strong> 70</td>
<td><strong>Score:</strong> 75</td>
</tr>
<tr>
<td><strong>Schedule Feasibility:</strong></td>
<td><strong>Score:</strong> 90</td>
<td><strong>Score:</strong> 80</td>
</tr>
<tr>
<td></td>
<td><strong>Score:</strong> 75</td>
<td><strong>Score:</strong> 80</td>
</tr>
<tr>
<td><strong>Legal Feasibility</strong></td>
<td>No foreseeable problems</td>
<td>No foreseeable problems</td>
</tr>
<tr>
<td></td>
<td><strong>Score:</strong> 100</td>
<td><strong>Score:</strong> 100</td>
</tr>
<tr>
<td><strong>Weighted score</strong></td>
<td>80.5</td>
<td>77.25</td>
</tr>
</tbody>
</table>

Table 10: Feasibility analysis of candidate solutions
<table>
<thead>
<tr>
<th></th>
<th>Weight</th>
<th><strong>Candidate 3: Microsoft Dynamics AX</strong></th>
<th><strong>Candidate 4: In-house system</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td></td>
<td>Purchase commercial off-the-shelf package for member services.</td>
<td>In-house built solution</td>
</tr>
<tr>
<td><strong>Cultural Feasibility</strong></td>
<td></td>
<td>Possible user resistance to non-standard user interface of proposed package solution.</td>
<td>No foreseeable problems</td>
</tr>
<tr>
<td></td>
<td>10%</td>
<td><strong>Score: 60</strong></td>
<td><strong>Score: 100</strong></td>
</tr>
<tr>
<td><strong>Technical Feasibility</strong></td>
<td></td>
<td>Current production release is Microsoft Dynamics version 12.1 and has been recently released. Updated version of Microsoft Dynamics version 12. Might possibly require customisation.</td>
<td>System will be built to meet the requirements. Required to hire expertise to integrate system into the organisation. No guarantee that selected platform will “play well” with current Microsoft SQL server.</td>
</tr>
<tr>
<td></td>
<td>20%</td>
<td><strong>Score: 80</strong></td>
<td><strong>Score: 70</strong></td>
</tr>
<tr>
<td><strong>Economic Feasibility</strong></td>
<td>35%</td>
<td>Approx. R12 000 000</td>
<td>Approx. R4 500 000</td>
</tr>
<tr>
<td>Cost to develop:</td>
<td></td>
<td>Approx. 2.1 years</td>
<td>Approx. 0.8 years</td>
</tr>
<tr>
<td>Payback (discounted):</td>
<td></td>
<td>Approx. R 18 788 416</td>
<td>Approx. R 36 597 849</td>
</tr>
<tr>
<td>NPV:</td>
<td></td>
<td><strong>Score: 70</strong></td>
<td><strong>Score: 85</strong></td>
</tr>
<tr>
<td>*Industry Market Share:</td>
<td>15%</td>
<td>23.8%</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td><strong>Score: 70</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Schedule Feasibility:</strong></td>
<td>10%</td>
<td>18.0 months</td>
<td>12 months</td>
</tr>
<tr>
<td>(Full Implementation)</td>
<td></td>
<td><strong>Score: 85</strong></td>
<td><strong>Score: 90</strong></td>
</tr>
<tr>
<td><strong>Legal Feasibility</strong></td>
<td>10%</td>
<td>No foreseeable problems</td>
<td>No foreseeable problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Score: 100</strong></td>
<td><strong>Score: 100</strong></td>
</tr>
<tr>
<td><strong>Weighted score</strong></td>
<td>100%</td>
<td>75.5</td>
<td>72.75</td>
</tr>
</tbody>
</table>

Table 11: Feasibility analysis of candidate solutions continued

*Based on a study done by Panorama Consulting group in ERP Vendor Analysis 2011

### 3.5 Proposed implementation plan

Every ERP project includes multiple stages and each stage consists of several diverse activities. Implementing an ERP system requires a clear understanding of strategic goals for ERP, full dedication from management and support from all stakeholders (Motwani, Subramanian, & Gopalakrishna, 2005). Figure 12 shows an ERP implementation framework.
The process of implementing an ERP system requires months of research and analysis of what the company is doing, which software packages are available in the market and which package would be a best fit for that company.

To supplement the abovementioned implementation framework, Ehie & Madsen (2005) proposed a five step implementation plan to use as a guideline when implementing an ERP system. The five-stage ERP implementation process attempts to bring together the most useful aspects such as literature reviews and interviews conducted with experienced ERP consultants (Ehie & Madsen, 2005).
Figure 13: Five step implementation plan (Ehie & Madsen, 2005)
3.6 Critical Success Factors

The Panorama Consulting Group (2009) observed key critical success factors for best-in-class ERP implementation. These factors are stated below:

1. Focus on business processes and requirements first.
2. Focus on achieving a healthy ERP ROI, including post-implementation performance measurement.
3. Commit strong project management and resources to the project.
4. Gain commitment from company executives.
5. Take time to plan up front.
6. Focus on data.
7. Ensure adequate training and change management.
8. Understand the purpose of ERP.

Taking these factors into account when planning and implementing an ERP system will ensure that all areas of planning and implementation are covered and there’s full commitment from the company executives.
Chapter 4

4.1 Recommended solution
At this point it seems as if SAP Business All-in-One is the best solution based on the criteria used to evaluate the different vendors. Many organisations in the transportation and distribution industry have selected SAP because of its well developed functionality in CRM, ERP and SCM. The licensing cost will be around R 16 million for about 350 users for IMPERIAL Distribution. According to the conducted research the payback is at about 5-6 years but according to Panorama Consulting Group (2010), SAP’s average payback period is about 2.9 years with a variance of 3.23 years. The difference is due to the fact that the cost projections used in this report are just estimates and do not accurately represent the exact values, thus there are inaccuracies.

4.2 Conclusion
In this report, ERP systems were defined and studied to give the reader insight on what ERP systems are and how they have become important in the corporate world. If implemented correctly, an ERP system can give an organisation great advantage over its competitors and bring about the culture of excellence within an organisation. Organisations have realised that, in the modern day technology plays a vital role in the growth of the world economy. ERP systems have developed tremendously over the years to allow businesses to do business “right”. Processes have become automated to make it easier to capture data and analyse. ERP’s have made reporting simplified and easier to perform and this is what managers so desire.

Three ERP vendors were studied, i.e. SAP, Oracle and Microsoft Dynamics, to determine which vendor will be more suitable and a best fit for IMPERIAL Distribution. These vendors were short-listed based on their popularity and market share in the industry. SAP has enjoyed a greater proportion of the market share because of the well developed solutions they offer that meet user requirements over many industries.

The document was concluded with a recommendation of the best fit ERP system for IMPERIAL Distribution.
Appendix
Appendix A

SAP Servers

- Microsoft Windows Server 2008 R2 Standard/Enterprise (64-bit)
- Microsoft Windows Small Business Server 2008 Standard/Premium (64-bit)
- Microsoft Windows Server 2008 Standard/Enterprise (32-bit/64-bit)
- Microsoft Windows Server 2003 R2 Standard/Enterprise (32-bit/64-bit)
- Microsoft Windows Small Business Server 2003 R2 Standard/Premium (32-bit)
- Microsoft Windows 7 Professional/Enterprise/Ultimate (32-bit/64-bit)
- Microsoft Windows Vista Business/Enterprise/Ultimate (32-bit/64-bit)
- Microsoft Windows XP Professional (32-bit)

SAP Workstations

- Microsoft Windows 7 Professional/Enterprise/Ultimate (32-bit/64-bit)
- Microsoft Windows Vista Business/Enterprise/Ultimate (32-bit/64-bit)
- Microsoft Windows XP Professional (32-bit)
Bibliography


