STRATEGIC ANALYSIS FOR A FINANCIAL MANAGEMENT SYSTEM DECISION

by

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PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

In the Executive MBA Program of the Faculty of Business Administration

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SIMON FRASER UNIVERSITY

Term Spring 2011

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Abstract

A core-operating requirement of any company is that of effective and efficient financial management. This analysis paper focuses on financial management within a specific company. It attempts to answer the question of “Should we replace the financial system, and if so what approach should be taken to replace it?”

The document analyzes the current company challenges and opportunities, the external vendor market, evaluates options and alternatives, and concludes with a recommendation related to financial management at the company.

The challenges identified are primarily symptoms resulting from structural set-up of the finance software, inconsistent business rules, multiple independent financial tools, and the lack of required functionality present within the current financial software. Using qualitative and quantitative evaluation the recommendation is to standardize the financial business rules and practices across the company, and to replace the underlying procurement and financial software with a current generation product.
Executive Summary

This project provides a detailed analysis of the financial management system of a specific company. The objective of the analysis was to present a strategic recommendation in answer to the question “Should we replace the financial system, and if so what approach should be taken to replace it?”

The document begins by analyzing the internal company challenges, opportunities and potential benefits related to financial management. It then proceeds to identify potential solution options, define evaluation criteria, and evaluate the potential solution options. This is followed by a scan of the external financial software industry. The report concludes with a recommendation and associated timeline.

Internal Analysis

The first step in conducting internal analysis of financial management is to define what financial management means. Financial management generally refers to the areas of resource management and finance operations. It is a subset of the broader term of operational management. Operational management encapsulates the following business functions:

- Financial Accounting
- Human Resources
- Manufacturing
- Supply Chain Management
• Project Management
• Customer Relationship Management

For this project, the primary focus was on the financial accounting, supply chain and project management functions. The company is structured as three separate organizations that have responsibility for the vast majority of the company’s overall financial management. The three organizations include the Head Office, the Bus Company, and the Rail Company. Two financial software systems support the three organizations. After interviewing the senior financial management of the company, five key pain points and opportunities emerged.

1. *Financial Analysis and Reporting* – Substantial challenges exist in providing financial analysis and reporting. Opportunities to provide self serve reporting for department managers and the simplification of reporting would improve decision making for the organization.

2. *Multiple Non-Integrated Systems* – Operating with multiple systems revealed consolidation and data entry duplication challenges that were labour intensive and prone to entry errors. For procurement, the lack of cross organization visibility made it difficult to maximize supplier contracts and to manage vendor performance. Improving the integration of systems would result in improved productivity of Managers, and Financial department staff.

3. *Manual Work Processes and Work-Arounds* – Many of the finance work processes were labour intensive manual paper processes. The structure and complexity of the finance software had a side effect of promoting extensive data
extracts to accomplish work outside of the core software tool. Opportunities exist to streamline the supply chain process, and automate work processes.

4. **System Structure** – The original configuration and setup of the financial software does not meet the needs of a multi-company structure. Examples include different company chart of accounts, inter-company transactions, and cost centre hierarchies.

5. **Legacy Tool** – The financial products are legacy software products that are no longer receiving functional upgrades by the vendors. The main financial product used by the Head Office and the Bus Company is difficult to train and use. There is a longer-term risk that the product will cease to have vendor support.

The potential tangible benefits identified total $4.9 million annually. This benefit is associated with the core accounting system as well as the procurement function. The majority of the benefits relate to improvements in the procurement function, which accounts for approximately 80% of the total tangible benefit.

**Options Analysis**

Five solution options were identified to address the problems and opportunities. The first was to patch or modify the current system to address the structural issues having the most impact. This option would be the simplest and least costly, but it would solve only a small amount of the pain points and opportunities identified.

The second option was to extend the financial system to all three companies. This would place a single financial system into the organization and would solve many of the key consolidation issues.
The third option was to replace the financial accounting system. This solution would address the structural deficiencies and implement a proven solution for the financial challenges, but would not address the majority of benefit residing in the procurement area.

The fourth option would implement a new procurement and financial accounting solution using a phased approach. The procurement solution, having the greatest benefit potential, would be implemented in year one. The financial accounting function would continue to operate using the current software for the next three years at which point it would be replaced also.

The fifth and final option was to implement a leading industry software solution to address both the financial accounting and procurement functions. This would provide early benefits for the company in both accounting and procurement, but would also be the highest cost and risk option.

Each of the five options were evaluated based upon the criteria of how well they met the business need, how well they addressed the technical and project risks, the impact on business practices and resources, and the strength of the cost/benefit. Applying weighted scoring resulted in the highest score for the fourth option, to implement a leading industry software solution to address both the procurement and financial accounting functions.

*External Market Analysis – Financial Software Industry*

Financial management solutions are a subset of the larger enterprise resource planning (ERP) software market. The ERP market has evolved into three product tiers
based on the relative size of the customer company. The first tier is represented by very large companies, generally having revenues over $1 billion annually and over 1,000 employees. The second tier is represented by mid-sized software vendor solutions targeting mid to large sized companies. Customers in this tier have revenues in the range of $50 million to $1 billion annually, and 100-999 employees. The third tier is represented by software vendors that cater to the small business market, or those that are very industry specific.

Mapping the software industry tiers to the organization being analyzed places the organization in the second tier. This indicates potential software solutions to be those suited for the mid-sized, second tier market.

**Recommendation**

In conclusion, the answer to the question “Should we replace the financial system?” became clear. Yes, the financial system should be replaced, and the best approach would be Option 4. The Option 4 solution replaces the current financial system with a combined procurement and finance accounting solution using a phased approach. Phase 1 would implement the procurement solution, followed by Phase 2 to implement the financial accounting solution. The solution would replace the procurement and finance accounting systems currently in operation at the Head Office, Bus Company, and Rail Company, with one enterprise wide system.

The total cost of the solution is estimated to be $4.7 million, with annual benefits of $4.9 million. Applying industry indicators of implementation and support costs revealed a potential internal rate of return of 240%.
The next step would be to determine the specific software vendor solution. This requires in-depth requirements analysis and the submission of formal vendor proposals. The recommended next steps for Phase 1 would be to:

- Gather detailed requirements, specifications, and project scope.
- Issue a Request for Proposals to obtain quotations for the implementation of a Procurement solution.
- Conduct a Gap Analysis and evaluation of the proposals.
- Define detailed business rules, processes and future state model.
- Design, test and implement Procurement solution.

The project timeline for phase 1 to implement the procurement solution is completion in a period of 26 months. The project includes a second phase to implement the financial accounting solution in year 3, with full benefits beginning in year 4. The second phase would follow the same steps as the procurement solution phase, this time selecting and implementing a financial accounting system.

These steps will take the organization to a successful implementation of the required changes to achieve the expected business objectives and maximum benefits.
Dedication

To my wife Sandy, without whose untiring support I could not have reached this milestone!

To my daughter Lindsay and sons Cameron & Austin, thank you for your support and understanding as Dad spent long hours studying and writing!
Acknowledgements

Thank you to my friends and family as I disappeared for a while during this educational journey.

Thank you to the SFU Professors, staff, and classmates for an excellent learning experience.

Thank you to my employer for all their support and encouragement.

Thank you to Team Q – Lara, Ernest, Scott and Yashar. We had a great time, I’ll carry some excellent memories of our time together!
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## Glossary

<table>
<thead>
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<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COTS</td>
<td>Commercial Off The Shelf - commercially available products generally sold in volume</td>
</tr>
<tr>
<td>EDI</td>
<td>Electronic Data Interchange – structured data used to transmit data between computer systems</td>
</tr>
<tr>
<td>ERP</td>
<td>Enterprise Resource Planning - computer software used to manage business resources, information and functions</td>
</tr>
<tr>
<td>FTE</td>
<td>Full Time Equivalent – Equivalent to the work time of one full time employee</td>
</tr>
<tr>
<td>G/L</td>
<td>General Ledger – main accounting record of a business</td>
</tr>
<tr>
<td>IRR</td>
<td>Internal Rate of Return – rate of return calculation to measure the profitability of an investment</td>
</tr>
<tr>
<td>KPI</td>
<td>Key Performance Indicator – key performance measures of a business</td>
</tr>
<tr>
<td>SaaS</td>
<td>Software as a Service - computer system software operated by third party companies using secure access over the Internet.</td>
</tr>
<tr>
<td>SCM</td>
<td>Supply Chain Management – business processes involved in producing products or services for end customers</td>
</tr>
<tr>
<td>XML</td>
<td>Extensible Markup Language – data format for encoding documents</td>
</tr>
</tbody>
</table>
1: Introduction

The company analyzed is the regional transport authority, with responsibility for both the Bus Company, and the Rail Company that provide services to the region. A key component of the business is the financial management of the company. The organizations financial goals are to optimize current revenue streams, reduce costs, and to develop new sustainable funding sources to meet long-term goals. The current finance Enterprise Resource Planning (ERP) solution is nearing the end of its product life cycle and is challenged in meeting the needs of the organization. This analysis paper focuses on answering the question of “Should we replace the financial system, and if so what approach should be taken to replace it?”

To answer this question I will analyze the current company challenges and opportunities, the external vendor and customer market, evaluate options and alternatives, and conclude with a recommendation related to financial management at the company.
2: Internal Analysis

In this section, I will begin by defining the business area of financial management. I will then be providing company background, an overview of the financial management area, and a detailed analysis of the pain points and opportunities within the company.

2.1 Financial Management Business Area Definition

In looking at the financial management challenges of the company, it is important to define the scope of what we mean by financial management. Financial management is a subset of the broad common administrative functions of a company. This includes business processes and systems to administer the functions of finance, accounting, human resources, manufacturing, supply chain management, project management and customer relationship management. Although the specific functions vary between companies, the common functional components are detailed in the table below.

<table>
<thead>
<tr>
<th>Functional Area</th>
<th>Functional Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance/Accounting</td>
<td>General ledger, Accounts Payable, Accounts Receivable, Cash Management, Expense Management, Fixed Assets, Budgeting, Consolidation</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Payroll, Training, Benefits, Recruiting, Diversity Management, Tax Reporting</td>
</tr>
</tbody>
</table>
2.2 Company and Financial System Area – Current State

Financial management at the company is distributed between the head office and its operating companies. The bulk of financial activity resides in three areas; the Bus Company, the Rail Company and the Head Office. General ledger, accounts payable, budgeting and expense management occurs at all three companies, with Accounts Receivable and consolidation occurring at the Head Office. The Head Office has accountability for the financial management of the enterprise, and therefore is responsible for overall financial policy.

Two primary financial computer systems support financial management for the enterprise. Supporting the Head Office and the Bus Company is a product by Infor called
SmartStream. Both the Head Office and the Bus Company run on the same instance of SmartStream. The system is not configured to be multi-company. Management of the two separate companies is accomplished by using two series of cost centre numbers for reporting separation. Originally the same account codes were used by both companies, but over time the account codes have diverged from each other.

Supporting the Rail Company is a core financial package using a purchased product called SBT. Sage Group has since acquired SBT, the company. The system has substantial custom integration with other business functions within the Rail Company. The integration is built on FoxPro custom software.

Financial management is conducted at each operating company, with consolidation happening at the Head Office level. The consolidation is largely a manual effort due to the disparate systems and configuration.

2.3 Problems and Opportunities

In order to better understand the problems and opportunities that exist in the area of financial management, a number of interviews were conducted. The interviews captured information from the key financial management areas to determine what were the pain points, and the potential benefits.

2.3.1 Chief Financial Officer - Head Office

In February 2011, an interview with the Chief Financial Officer was conducted. The purpose of the interview was to determine the top level challenges and opportunities for the company overall.
Comparing to the earlier chart of functional areas, the CFO identified the key areas of scope to focus on. The functional components shown in green were considered key scope areas. As shown below, the primary focus areas were in finance, accounting, supply chain management, and project management.

*Table 2-2 ERP Functions*

<table>
<thead>
<tr>
<th>Functional Area</th>
<th>Functional Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance/Accounting</td>
<td>General ledger, Accounts Payable, Accounts Receivable, Cash Management, Expense Management, Fixed Assets, Budgeting, Consolidation</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Payroll, Training, Benefits, Recruiting, Diversity Management, Tax Reporting</td>
</tr>
<tr>
<td>Supply Chain Management</td>
<td>Order to Cash, Inventory, Order Entry, Purchasing, Product Configuration, Supply Chain Planning, Supplier Scheduling, Inspection of Goods, Claim Processing, Commissions</td>
</tr>
<tr>
<td>Project Management</td>
<td>Costing, Billing, Time and Expense, Performance Units</td>
</tr>
</tbody>
</table>
Challenges with the current Finance/ERP system are focused around the manual business processes required to manage the finances of the company, the lack of seamless integration, and the challenge in responding quickly to information needs.

Financial Analysis and Reporting - There is no easy way to recall financial or activity information out of the system. Answering cost and volume questions like “How much did you spend on a particular service item?”, is difficult and time consuming.

Lack of Seamless Integration - The financial system does not have any integrated drill down capability, since the disparate financial systems supply summarized and self contained information for consolidation.

Manual Work Processes - The Month End and Year End financial reporting cycles are lengthy and labour intensive. No central supplier contract and receivables view exposes the organization to potential supplier risk of defaulting on payments, or to over reliance on the performance of a single supplier. Potential exists for streamlining the supply chain process to improve the efficiency of business transactions with suppliers. The primary supply chain variable cost elements within the bus company division include labor, fuel and parts.
In considering new areas for innovation and opportunity, a new Finance/ERP system could improve the readiness of the organization to provide quick, timely budget forecasts. It would also enable improved decision-making ability related to unit and activity based costing.

One question posed was whether financial management at the Head Office was a generic back office solution or if it was important to consider solutions in the context of the transportation industry. Indications from the CFO lean towards the Head Office financial management being a generic back office function. No particular solution appears to provide significant unique functionality related to the transportation industry.

### 2.3.2 Accounting – Head Office

At the Head Office, the accounting business function focuses on the general ledger, accounts payable, accounts receivable, cash management, expense management, fixed assets, and consolidation of accounts across the three companies. Discussions with the manager of accounting revealed the following findings:

**Reporting and Analysis -** Conducting analysis and reporting within the current software tool is very cumbersome. The tool also has limited reporting capability, in part due to our setup. The combination of the two has resulted in the creation of workarounds largely facilitated by capability built outside of the tool. The accountants have a need for both regular and ad hoc reporting which they have found to be very difficult to accomplish in the existing tool. Many small database extracts have spawned to compensate for this limited reporting capability. In addition, SmartStream reporting within the tool requires the assistance of IT Analysts. If a report is required, it is placed in the reporting queue, and then ran during the overnight batch run. This results in
substantial business delays for any reporting that is time sensitive. With so many reporting tools there can be inconsistencies in the data depending upon how the query is setup.

Substantial opportunity exists to facilitate self-serve online reporting with drill down capability for managers and financial administrators. This would reduce the workload on the production of reports and the volume of basic questions coming into the accounting business area. Accounting has recently used “SpreadSheet Server”, a reporting tool, to help with the reporting. Although conceptually a good product, it is prone to crashing.

To manage the large number of construction contracts, the functionality is not adequate within the tool, and therefore is managed in a separate contracts database administered in a Microsoft access database outside the system. This database contains information on the companies, the size of the contract and information related to payment schedules. Some information must then be manually entered back in the core financial system resulting in work effort duplication and risk of data entry errors.

Business Workflow Routing – the business process for sign-offs, verification and routing of financial transactions is accomplished outside of the tool. The tool for facilitating workflow approvals based on signing authority has not been explored, and therefore is completed as a largely manual paper process. This hinders timely approvals and is difficult to locate where a specific approval item is at any point in time. Opportunities exist to capture incoming invoices electronically, either through electronic data interchange or optical character recognition to reduce manual data entry and improve cycle times. Expense Report workflow is also substantially manual. Expense Reports
are entered on a spreadsheet, printed, routed through interoffice mail for approval, and then sent to accounting to manually enter into the accounting system. For projects, one full time person handles the movement of paper for project signoff work flow. This includes among others, paperwork for procurement, RFP’s, contracts, change orders, and supplier invoices.

**Tool setup** – Several challenges were identified that were related to the setup and configuration of the tool. This is believed to be a combination of issues related to improper configuration when the tool was initially setup, the fact that the tool is now an older product late in its life cycle and the fact the business has evolved over time. The chart of accounts has multiple issues.

The tool was configured with a 3 digit chart of accounts number, which we are now running out of numbers and must compensate by doing illogical actions within the tool. The financial operation between the Bus Company and the Head Office operate with different chart of accounts. This causes difficulty in any rollup, consolidation or comparison of financial accounts between the two companies.

Intercompany transactions cannot be accomplished with one transaction in one system. They must be manually input on both systems resulting in business delays, inefficiency, and risk of data input error. Cost centre hierarchies are not set up properly for how the business is structured now.

Foreign exchange function is not setup in the tool. The tool does however have capability for multi-currency functions. Any foreign currency transactions must be converted manually into Canadian funds outside the tool, and then be manually re-entered.
There is no interface between the project and general ledger (G/L) sub ledger functions. Reconciliation between the two is very time consuming.

*Usability* – Overall the tool is not user friendly and cumbersome to use. It requires specialized expertise and lengthy training to use the system. This is particularly apparent with the accounts payable function, although there is some belief this is at least in part related to our complex business processes and rules. Fixed asset functionality is lacking, and to compensate fixed assets are tracked by 30 spreadsheets in a sub ledger outside of the tool. Final numbers are then manually placed in the general ledger. This causes constant reconciliation activity, forces duplicate data entry, and prevents any drill down capability.

The project management function is reasonably adequate, with one opportunity identified to improve key performance indicator capability within the tool.

*Transaction Volumes* – Accounts payable at the Head Office processes 150 physical cheques per week, along with 20 EFT transactions. For expenses, the Head Office processes 20-25 paper expense reports every 2 weeks.

*Benefits* - From an accounting perspective, the benefit estimation is $650,000 per year. This benefit represents soft benefits that help productivity but are unlikely to translate to the bottom line. The benefit is derived by extrapolating the accounting solution enterprise-wide (the Head Office, Bus and Rail companies using the same system); and improvements in workflow related to lost invoices, duplicate copies, and expense report rekeying.
Head Office Manager and staff productivity:

\[36 \text{ Managers} \times \$45 \text{ per hr} \times 4 \text{ hours per month} \times 12 \times \frac{\text{months}}{\text{yr}} = \$77,760 \text{ per year}\]

\[58 \text{ Admin and Project mgmt} \times \$65,000 \text{ per year} \times 0.1 \text{ FTE} = \$377,000 \text{ per year}\]

Accounting Department productivity:

\[9 \text{ staff} \times \$65,000 \text{ per year} \times 0.33 \text{ FTE} = \$193,050 \text{ per year}\]

Total Head Office Accounting Benefit = $650,000 (rounded)

2.3.3 Procurement – Head Office, Bus Company, and Rail Company

The Head Office business group of enterprise procurement & supply chain management (SCM) is the authorized agent and contracting authority for all 3rd party goods, services and construction works. Procurement & SCM is responsible for the competitive bid process(es), marketplace strategies, contracting, negotiating, supplier performance management and all commercial relationship related matters\(^1\). Within the operating organizations of the Bus Company and the Rail company, Procurement functions exist to administer supply chain processes to support their unique business operations. This is focused primarily on equipment, services and parts to support daily operations. Challenges and opportunities identified in the procurement area include:

**Cross Organization Visibility** – The multiple procurement functions operate largely independently. This makes it difficult to conduct aggregation across the organization for information like contractor or supplier history.

\(^1\) Company Head Office Procurement and Supply Chain “2010 Review & 2011 Look-ahead” Report
**Multiple Systems** – Across the organization, multiple systems are used to manage the procurement and supply chain function. The Head Office uses the Infor SmartStream product, the Rail Company uses a custom FoxPro suite of applications, and the Bus Company uses a combination of Infor SmartStream and Infor EAM. Opportunities may exist for the Head Office to increase the utilization of Infor EAM for the procurement and capital management process at the Head Office. This would be dependent upon Head Office accounting also utilizing Infor EAM as well as the Rail Company. At the Bus Company, the maintenance planning and inventory management happens in Infor EAM, which then generates a work order to the procurement function. Increased integration would improve efficiency and consistency.

**Consistency** - Multiple processes and tools result in inconsistent processes and a lack of visibility across the organization. Attempts to aggregate information are hampered by the lack of quality data sources since much of the information is captured in free-form text within the information system. This incomplete and inconsistent information affects the ability for the procurement function to respond to procurement requests quickly and to maximize organization value.

**Transaction vs. Strategic Focus** – Today the business function of procurement and supply chain management is largely transactional. A request for a product or service comes into the procurement department, and is executed on a per transaction basis. For each transaction the procurement department manages the RFP process, writes and signs supplier contracts, issues purchase orders, and manages delivery. A shift to strategic sourcing is planned to improve supplier development, collaborative supply chain
management, cross-functional supplier teams, relationship design, master contracts and
supplier performance evaluation.

*Performance Measurement* – The current procurement tool is not used to
‘manage’ the process. Instead it is used to record activity and information to support
work activity. The management of the procurement process needs to be conducted
outside of the tool. Challenges exist in calculating the unit cost of products and services,
process efficiencies, and the holding cost of capital directly from within the current
system. Much of the reporting today relates to volumes, but not how well the business
function is performing.

*Transaction Volumes* – The total volume of procurement transactions across the
organization is in the order of $800 Million in purchases per year. A parts inventory of
$30 Million is carried between the Bus Company and the Rail Company operating
companies. At the Head Office roughly 1,000 purchase orders are generated each year
with a transaction time of between 20 -25 days from requisition to a signed supplier
contract. Across the organization the transaction volume breaks down as shown in the
following table:

*Table 2-3  Procurement Transaction Volume*

<table>
<thead>
<tr>
<th>Organization Entity</th>
<th>Purchase Orders / Yr</th>
<th>Contract $ Volume</th>
<th>Parts Inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Company</td>
<td></td>
<td>$171 Million</td>
<td>$20 Million</td>
</tr>
<tr>
<td>Rail Company</td>
<td></td>
<td>$47 Million</td>
<td>$10 Million</td>
</tr>
<tr>
<td>Head Office</td>
<td>1,000</td>
<td>$581 Million</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$799 Million</td>
<td>$30 Million</td>
</tr>
</tbody>
</table>

*Source: Procurement Manager, 2011.*
The associated staffing complement to support the procurement business function is itemized below. The Bus and Rail Companies have 90% of the procurement and supply chain management staffing in the company enterprise-wide.

*Table 2-4  Procurement Staffing Levels*

<table>
<thead>
<tr>
<th>Organization Entity</th>
<th>Procurement and Supply Chain Staffing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Company</td>
<td>75 (includes warehouse stock keeping)</td>
</tr>
<tr>
<td>Rail Company</td>
<td>23 (includes warehouse stock keeping)</td>
</tr>
<tr>
<td>Head Office</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>109</strong></td>
</tr>
</tbody>
</table>

*Source: Procurement Manager, 2011.*

In the future, opportunities exist for the definition and implementation of enterprise procurement standards, supplier performance tracking, and master data records for vendors and commitments. The ability to shift from transaction sourcing to strategic sourcing for enterprise capital and master contracts would position the organization for improved procurement performance.

**Benefits - Potential Savings (quantifiable benefits):**

Assuming a $799M spend a 1% savings would yield approximately $8M per year. For the purposes of evaluation and cost/benefit calculation, I will use a conservative estimate of 0.5%, which would yield $4M per year in savings. The savings are derived from:

- Cost per unit reductions
• Aggregation of demand across enterprise
• Holding costs reductions

Potential Savings (Soft Benefits):

• Reduction in duplication of effort related to data entry and consolidation.
• Standardization of processes and data would allow one standardized way of conducting procurement processes across the enterprise reducing training costs, on-boarding costs/complexities, allow for knowledge sharing, and potential workload balancing.
• Reduction in data integrity administration
• Consistent internal controls that mitigate potential financial and/or operational risk
• Improved customer service & responsiveness to internal customers
• Efficiency gains in automating the entire procurement cycle
• Efficiency gains in aggregated demand planning & master contracting. This would enable going to the market once as an enterprise, instead of multiple times for similar products or services.
• Reinvestment in efficiency/productivity gains into areas currently not being performed consistently would yield further benefits or savings:
  o Supplier Performance Management / Contract Management
  o Electronic Supplier Integration through Electronic Data Interchange (EDI), Extensible Markup Language (XML) or other methods
  o Category Management
  o Supplier & Marketplace Development
  o Market Research
  o Key Performance Indicator (KPI) & Performance Management
### 2.3.4 Finance Function – Bus Company

The finance function at the Bus Company handles the accounts payable, expense management, budgeting, and procurement functions for the bus operations. The pain points and opportunities identified by the Bus Company include:

*Foundational Structure* – The original implementation of SmartStream had a narrow focus and lacked a well designed foundational structure. At the time the company was using another financial product (Walker). The subsequent conversion to SmartStream was essentially a recreation of the configuration of the old system. One area in particular is the lack of structure to handle a multi-company operation. This results in manual workarounds to handle intercompany transactions. The lack of automation forces manual journal entries on both sides and injects timing issues and challenges with the different chart of accounts.

Additional challenges exist with the setup of cost centres. The usual method to handle cost centres is to define an entity such that each company could use the same cost centre numbers. Today the system has a limit of 999 cost centre numbers, with 1-600 allocated to the Bus Company and 601-999 allocated to the Head Office. This structure has fundamental challenges whenever cost structures change.

**Consolidation** – Consolidation of the multi-company financials is not automated and must be done manually outside of the tool.

**Multi-Currency** – An original design decision regarding currency limited the system to fields that handle only Canadian currency, in order to reduce the size of the database. To handle what was a small volume of US funds, the system was set up to handle the US exchange as a tax. This workaround forces manual paperwork outside of
the system, and does not work whenever the value of the Canadian dollar exceeds that of the US.

*Chart of Accounts* – The chart of accounts began as one set of accounts, since prior to 1999 the functions of the Head Office and the Bus Company were one company. Since the time the Head Office became a separate company, the chart of accounts has drifted apart. This creates great difficulty in mapping during consolidation of financial accounts.

*Software Tool* – Although the basic day to day financial functionality is solid, the SmartStream tool is showing its age as a software product. SmartStream is no longer sold by Infor, and is therefore on a declining customer base of installations. We are operating the latest version, however the tool hasn’t progressed since 2008. At the Bus Company, upgrades have occurred but the core functionality hasn’t changed since 2001. The training manual used by the Bus Company was created in July 1998, and is still the one used today to train new staff. Updates by Infor now are limited to keeping the linkage with new SQL database versions.

*Visibility and Automation* – The tool offers minimal automation of processes. Opportunities exist to automate invoice approval, receipt settlement, payments, employee expenses, and purchasing cards. A lack of visibility into the system during procurement processes, payment commitments, and other financial processes forces the creation of compensating processes outside of the tool.

*Extracts* – In order to manage the necessary business financial reporting and analysis, many database extracts have been created. This creates additional work and difficulty in keeping the various databases in sync.
Benefits – The potential benefits associated with improvements in the financial system are categorized into two components. The first is savings related to automation and efficiency of work within the financial services area. Potential savings represent 12.5% of the work effort of the department, or 1 full time equivalent (FTE). This potential work saving would allow work to be reallocated to other work functions that would deliver improvements in financial management for the company. The second area of savings is related to improved visibility into financial management for the cost centre managers. There are currently 52 managers in the Bus Company. It is anticipated a savings of 2-3 hours per month per manager in locating, and analyzing financial information for decision making and oversight. The following formula calculates the expected Bus company benefit.

\[
\text{Total Bus Company Accounting Benefit} = \$150,000 \text{ (rounded) per year}
\]

\[
1 \text{ staff FTE } \times \$65,000 \text{ per year} = \$65,000 \text{ per year}
\]

\[
52 \text{ Managers } \times \$45 \text{ per hr} \times 3 \text{ hours per month} \times 12 \frac{\text{months}}{\text{yr}} = \$84,240 \text{ per year}
\]

2.3.5 Finance Function – Rail Company

The finance function at the Rail Company handles the accounts payable, budgeting, expense management and procurement functions for rail operations. At the Rail Company, 20 managers have financial cost centre responsibilities for budgeting, forecasting and expense management. The finance department has 11 staff and the
procurement department including stores inventory has 23 staff. The pain points and opportunities identified by the Rail Company include:

*Visibility into Financial Activity:* The lack of tools to provide good visibility of financials for managers results in the ownership of financial management primarily with the accounting department. The department managers approve payments, but accounting is responsible for analyzing statements for variances, verifying expenditures, and identifying mis-coding of invoices. The ability to provide managers self serve and drill down capability would enable increased financial management accountability directly in the hands of department managers.

*Reporting and Analytics:* The financial system does not have built in financial analytics capability. In order to perform analytics, report extracts are generated from the tool. The report is then rekeyed into Microsoft Excel for analysis purposes.

*Procurement Integration:* The current process for supply chain management is primarily manual, with minimal automation. Workflow approval processes are manual paper processes. Challenges exist in knowing what parts inventory is located where at any point in time. The specifics of warranty consignment information are cumbersome to manage. The procurement function is handled by separate FoxPro systems that are not seamlessly integrated with the financial system.

*Finance System Setup:* In order to provide financial reporting to the head office for consolidation, the Rail Company must manually map account codes. This mapping activity is caused by the difference between the chart of accounts. It would be preferable for the company to have one chart of accounts, with everyone having access to the same chart of accounts. The finance system has an addition challenge with handling contracts.
The system does not recognize contracts and therefore requires entry into the tool using a workaround method. This workaround also causes challenges with reconciliation activities.

*Foreign Exchange:* The handling of foreign exchange is challenging with accounting for the exchange rate variations between the time of receipt of the product or service and the invoice date.

*Core Finance System:* The SBT Accounting software has not been upgraded for several years. It is used to provide base accounting functionality and has not been extended through tool upgrades.

*Benefits:* Qualitative benefits include productivity savings for managers in locating, and analyzing financial information for decision-making. Calculating the number of managers along with their average hourly rate and expected productivity savings results in the following benefit.

\[
20 \text{ Managers} \times \frac{45 \text{ $}}{\text{hr}} \times 3 \text{ hr per month} \times 12 \text{ months per year} = \$32,400 \text{ per year}
\]

In addition, two FTE’s currently performing data entry functions could be reassigned to other work duties. That provides the savings associated with reassignment as calculated below.

\[
2 \text{ FTE} \times \$50,000 \text{ per year} = \$100,000 \text{ per year}
\]

**Total Rail Company Accounting Benefit** = $130,000 (rounded) per year
Qualitative benefits include savings in:

- Financial management effectiveness
- Management visibility of financial activity
- Consistency of data to aid in consolidation efforts

2.3.6 Technical Support of the Financial Systems

Technical support for the finance function is provided from two separate support departments. The Head Office technology systems support area provides technical support for the Head Office and the Bus Company. The Rail Company has its own technical support group that provides technical support to the Rail Company financial systems. The following sections describe the functions, challenges and opportunities in the two technical groups.

2.3.6.1 Head Office and Bus Company

Support of the system is divided into two categories of functional and technical support. Functional support handles business process and tool issues in administering the finance process. Technical support includes application code fixes, database support, access control and software setup. Today 2 FTE’s handle functional support on a day-to-day basis, and 1 FTE handles the technical support. In addition, a support and maintenance contract is in place with the vendor at a cost of $166,000 per year.

System support is very lean in terms of support resources. It is anticipated that if we changed the financial system we would not see any savings in work effort to support the system. We would likely need to maintain new automation and system functionality present in a new system, which would require the same or additional support resources.
Examples of this additional functionality would be financial data cubes and manager self-service tools.

The product currently in operation is the latest version offered by the vendor. Upgrades are provided, but they are released only to provide technical fixes to maintain compatibility with other manufacturer components. This includes PowerBuilder software, Microsoft SQL database, and other bolt-on software modules.

Challenges with system support are centred on the original configuration, number of databases and disparate add-ons:

*Configuration* – decisions made 10-14 years ago during setup are now causing increasing support issues. Business changes and functionality requirements cannot be accommodated easily in the tool and instead must either be illogically modified or bolt-on functionality added outside the tool.

*Database* – The configuration and extensive requirement for reporting out of the system have spawned many Microsoft Access databases out of the system. There are 35 background databases integral to the overall system, which require extensive technical database support. A minor risk exists related to system downtime in the event of a database issue. Restoring the large number of databases can result in a 2-3 hour restoration time before returning to normal business operation.

*Desktop Software* – The SmartStream financial tool is a Client/Server software product which requires additional work effort to support and maintain the software installed on each client desktop. New software tools are most often web based which operate using a standard web browser.
2.3.6.2 Rail Company

The Information Technology Services department at the Rail Company provides technical support for the Rail Company. Day-to-day support and maintenance is provided by the equivalent of 0.5 FTE. The core SBT software does not require much in the way of maintenance and support. The software has not been upgraded on a regular basis, so the work tends to be that of maintaining the software and less enhancement or extension work.

Much of the effort in providing technical support is in the FoxPro custom software that has been built and integrated over many years. Microsoft purchased Foxpro in 1992, and continued to provide software version updates until 2007. In 2007 Microsoft announced Visual FoxPro 9 would be the last version produced. The product would continue to receive compatibility updates, however the product would be sunset.

2.3.7 Financial Software

Two financial software products are in operation across all of the companies, SmartStream and SBT. SmartStream by Infor is the core financial system used by the Bus Company and the Head Office. It is the core software providing accounts payable, accounts receivable and general ledger functions. SmartStream is a Windows Client Server application, running on Microsoft SQL Server and a Windows PowerBuilder client. It is still a Client Server product that we are operating today.

The system was implemented at the Bus Company in 1994, and historically has a major version upgrade every two to three years. The system was upgraded from Sybase to SQL Server 2000 in 2002. The last major functionality upgrade was in 2008. The system includes functionality and data for:
The system has several interfaces to other software systems operating within the company:

- Interface to and from EAM, the enterprise asset management system also supplied by Infor.
- Interface to PeopleSoft HR – Finance/Chart of Accounts (Cost Centre) using the corporate database.
- Interface from PeopleSoft Payroll – To supply payroll amounts to the general ledger.
- Interface from PeopleSoft Payroll – Finance expenditures for salary employee accruals
- Interface from PeopleSoft Payroll - Finance/Expenditures for wage employee accruals

The Rail Company has a separate financial system. The system is a SBT Accounting package at the core, with extensive FoxPro custom code built around the core. Five user licenses of SBT are used to administer the accounting package. The FoxPro custom code provides interface and extract capability. Multiple modules provide accounts payable, inventory management, and procurement functions. See figure below that illustrates the financial systems supporting the company enterprise-wide:
2.3.8 Overall Finance Volumes

To understand the capacity required in the financial management area, a number of key volume statistics were gathered. This included invoice transaction volumes, payment transaction volumes, and the number of financial system users.

Transaction volumes – The invoice transaction volume for the calendar year 2010 totals as follows:
### Table 2-5 Invoice Transaction Volumes

<table>
<thead>
<tr>
<th></th>
<th>Head Office</th>
<th>Bus Company</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invoices</td>
<td>14,479</td>
<td>44,248</td>
<td>58,727</td>
</tr>
<tr>
<td>Invoice Lines</td>
<td>23,894</td>
<td>91,914</td>
<td>115,808</td>
</tr>
</tbody>
</table>

*Source: Finance Manager, 2011.*

The total payment amount issued in 2010 was $851 Million. The individual payment volumes that produced this payment amount was just over 21,000 transactions. The payment transaction volume for the year breaks down as follows:

### Table 2-6 Payment Transaction Volumes

<table>
<thead>
<tr>
<th></th>
<th>Head Office</th>
<th>Bus Company</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheques</td>
<td>7,378</td>
<td>7,480</td>
<td>14,858</td>
</tr>
<tr>
<td>Electronic Funds</td>
<td>760</td>
<td>4,141</td>
<td>4,901</td>
</tr>
<tr>
<td>Wire Transfer</td>
<td>1,251</td>
<td>297</td>
<td>1,548</td>
</tr>
<tr>
<td>Total Payments</td>
<td>9,389</td>
<td>11,918</td>
<td>21,307</td>
</tr>
</tbody>
</table>

*Source: Finance Manager, 2011.*

*User Base* – The total number of users with direct access to the SmartStream financial system is just over 100 users enterprise-wide. This includes managers who have access to the system. The allocation is broken down as follows:
Table 2-7  Financial System Users

<table>
<thead>
<tr>
<th>User Groups</th>
<th>Head Office</th>
<th>Bus Company</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting</td>
<td>9</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>Procurement</td>
<td>10</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>Financial Planning &amp; System Support</td>
<td>11</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>Projects</td>
<td>42</td>
<td>1</td>
<td>43</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>76</strong></td>
<td><strong>33</strong></td>
<td><strong>109</strong></td>
</tr>
</tbody>
</table>

*Source: Finance Manager, 2011.*

2.3.9  Summary of Pain Points and Opportunities

After interviewing and research the key financial areas of the company, five primary themes emerged.

1. *Financial Analysis and Reporting* – Challenges exist whenever financial analysis and reporting is required. This applies to both within the financial departments, and with the business managers of the broader organization. Analysis and reporting is cumbersome within the tool, and is therefore frequently done to the extent possible outside the tool. Opportunities to provide self serve reporting for department managers and the simplification of reporting would improve decision making for the organization.
2. Multiple Non-Integrated Systems – Operating with multiple systems revealed several shortcomings. Consolidation across disparate systems is challenging. The rekeying of information and duplication of data entry is labour intensive and prone to entry errors. Drill down for financial analysis is not possible. For procurement, the lack of cross organization visibility makes it difficult to maximize supplier contracts and to manage vendor performance. Improving the integration of systems can result in improved productivity of managers, and financial department staff.

3. Manual Work Processes and Work-Arounds – Many of the finance work processes are manual paper processes. The budgeting and forecasting process for the organization is lengthy and labour intensive. The structure and complexity of the tool have a side effect of extensive data extracts to accomplish work outside of the core tool. This is inefficient and causes a risk of inconsistency in reporting. Opportunities exist to streamline the supply chain process, and automate work processes.

4. System Structure – The original configuration and setup of the SmartStream software does not meet the needs of a multi-company structure. Examples include different company chart of accounts, inter-company transactions, and cost centre hierarchies. In addition, the system was not setup to handle foreign exchange or to integrate the project and G/L sub ledgers.
5.  *Legacy Tool* – the financial products are showing their age. The main financial product used by the Head Office and the Bus Company is no longer being sold. Upgrades are non-functional in nature and are targeted at keeping compatible with the underlying database and software development tools. The product uses legacy Client/Server technology and is difficult to train and use. The benefit of staying on this tool has been the extension of the original investment and the ability to focus on other organizational priorities than the financial back office function.

2.4 Tangible Benefits

The tangible benefits, also known as quantifiable benefits, are itemized in the following section. Understanding the dollar value of the benefits helps in determining what the acceptable range of cost investment would be to achieve the associated benefits. The total tangible benefits identified in the finance, accounting and procurement areas are in the order of $8.9 Million per annum. These savings and opportunities are primarily generated by improvements in automation, efficiency, consolidation tool functionality and structure.

The productivity savings would free up the equivalent of 13.7 FTE’s throughout the organization. This includes accounting staff, department managers, administrators and project managers. The breakdown of productivity saving is shown in table 2-8.
### Table 2-8 Productivity Savings

<table>
<thead>
<tr>
<th>Company</th>
<th>Department</th>
<th>Hours per year</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Head Office</strong></td>
<td>Management</td>
<td>1,728</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Admin &amp; Project Management</td>
<td></td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>Accounting Department</td>
<td></td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Bus Company</strong></td>
<td>Management</td>
<td>1,248</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>Staff - Accounting Department</td>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Rail Company</strong></td>
<td>Management</td>
<td>720</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>Staff - Accounting Department</td>
<td></td>
<td>2.0</td>
</tr>
</tbody>
</table>

**Total FTE Productivity Savings**: 13.7

*Source: Lloyd Bauer, 2011.*

Converting the FTE productivity savings to financial benefit value, and adding the procurement benefits reveals the total benefits shown in figure below. The procurement savings are generated through aggregation of demand and improved inventory management. The savings are the result of reduced inventory and the associated carrying charges.
Separating the benefits associated with the core accounting system and the procurement function displays the majority of the savings related to improvements in the procurement function. In percentage terms, it is apparent that roughly 80% of the benefits are in the procurement and supply chain management function. This is shown in the following table 2-9.

Source: Lloyd Bauer, 2011.
<table>
<thead>
<tr>
<th>Business Area</th>
<th>Finance Accounting Only</th>
<th>Procurement Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Office Accounting</td>
<td>$650K per year</td>
<td></td>
</tr>
<tr>
<td>Bus Company Accounting</td>
<td>$150K per year</td>
<td></td>
</tr>
<tr>
<td>Rail Company Accounting</td>
<td>$130K per year</td>
<td></td>
</tr>
<tr>
<td>Head Office / Bus/ Rail Procurement</td>
<td></td>
<td>$4M per year</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$930K per year</strong></td>
<td><strong>$4M per year</strong></td>
</tr>
</tbody>
</table>

Source: Lloyd Bauer, 2011.
3: Options Analysis

In this section, I will be analyzing the solution options to address the problems and opportunities identified in the previous section. I will identify the solution options, define the evaluation criteria, and then evaluate the options using the defined criteria. Included in this section is information related to corporate social responsibility.

3.1 Solution Options

Five primary options exist to address the challenges and opportunities identified in section 1.0. They range from leaving the systems as they are with some modification patches, all the way to replacing the current systems with a broad ERP solution. The five options include:

*Figure 3-1 Solution Options*
**Option 1: Modify Current Systems**

This option would extend the life of the current systems by performing simple modification to the current processes, and configuration. Moving to a common set of account codes would simplify consolidation and intercompany transfers. Some workflow could be provisioned outside of the tool to reduce the manual paper flow of reviews and approvals. The current software products would remain in place.

**Option 2: Extend Current System to Rail Company**

Moving to a single product would reduce the consolidation efforts and improve enterprise visibility of financial management. The current SmartStream tool would be extended for use out to the Rail Company. This would replace the Rail Company financial software, and reduce the overall organization cost of maintaining two financial systems.

**Option 3: Replace System (Accounting Only)**

This option replaces the existing financial software solutions with a new commercial off the shelf (COTS) software solution. The solution would be expected to address the structural deficiencies of the current software, and be able to accommodate a multi-company business environment. Given the financial requirements of the Head Office enterprise are believed to be generic, it is reasonable to expect a matching product could provide the required functionality. This solution would address the financial accounting business function only. The Procurement function would not be addressed with this option.
Option 4: Replace System (Procurement First)

This option would implement a new procurement and financial accounting solution using a phased approach. The procurement solution would be implemented in year 1, with benefits beginning in year 2. The financial accounting function would continue to operate using the current software for the next three years. In year 4 the financial accounting software would be replaced, with accounting benefits beginning in year 4.

Option 5: Replace System In-house (ERP)

This option replaces the existing financial software solutions and the broader ERP functions with a new commercial off the shelf (COTS) software ERP solution. The solution would be expected to address the broad requirements including core financial, human resources, supply chain management, project management, and activity based costing.

When evaluating Option 5, it is recommended to also investigate Software as a Service (SaaS) solutions. SaaS solutions offer computer system software operated by third party companies using secure access over the Internet. They hold the promise of decreasing the time to implement and lower the capital cost of implementation. The privacy legislation and organizational risk associated with contractor responsibility for the organizations financial transactions and system would need to be carefully considered.

A sixth option to custom build the financial software solution was briefly considered. This option was rejected because of two reasons. The first was financial software is readily available in the marketplace for the company’s generic financial requirements. The second was the total cost of ownership resulted in a negative internal rate of return.

Refer to Appendix A for the evaluation of this sixth option.
3.2 Evaluation Criteria

Prior to evaluating the five options, the criteria for evaluation needed to be defined. Four criteria were defined to evaluate the solution options:

1. **Business Needs**: How well does the solution address the pain points and opportunities identified by the business areas?

2. **Project Risk Management**: What technology risks exist in terms of technology maturity, integration, support, and architecture impact. What project management risks exist related to project size, duration, and effort?

3. **Business Viability**: How significant is the change to business processes and practices. How significant is the change to the business organization model? How critical are the business resources to the delivery of the project? How viable is the solution in terms of disruption risk to business operations?

4. **Cost / Benefit**: What is the total cost of ownership (TCO) of the various options over a five year period?

Each criteria was applied a weighting and each solution was scored on a scale of 1 to 5 in order to compare the solution options. One is the lowest score with five being the highest score. The weighting distribution is as follows:

- **Business Need**: 30%
- **Project Risk Management**: 20%
- **Business Viability**: 20%
- **Cost / Benefit**: 30%
- **Total**: 100%
3.3 Evaluation of Alternatives

This section provides the evaluation results for each solution option with the evaluation criteria applied. Each option provides information on how well they support the business need, risk management, viability, and the strength of the cost/benefit. I have used the internal rate of return over a five year period as the comparative measure. Each criteria factor is scored based upon the predefined weighting and one to five scoring range.

3.3.1 Option 1: Modify Current Systems

Business Needs: This option would extend the life of the current system by performing simple modification to the current processes and configurations. Moving to a common set of account codes would simplify consolidation and intercompany transfers. By revisiting the fundamental structure of the current system the most significant issues related to integration and consolidation would be addressed. Some workflow could be provisioned outside of the tool to reduce the manual paper flow of reviews and approvals. This option does not address the financial analysis and reporting, and automation of workflow processes that are manually handled outside of the finance software.
**Table 3-1 Option 1: Modify Current Systems**

<table>
<thead>
<tr>
<th>Business Need</th>
<th>How well the solution Addresses the Business Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Analysis &amp; Reporting</td>
<td>✗</td>
</tr>
<tr>
<td>Integration &amp; Consolidation</td>
<td>✓</td>
</tr>
<tr>
<td>Manual Work Processes</td>
<td>✗</td>
</tr>
<tr>
<td>Procurement Improvements</td>
<td>✗</td>
</tr>
<tr>
<td>System Structure</td>
<td>✓</td>
</tr>
</tbody>
</table>

**LEGEND**
- ✓ ✓ Fully addresses
- ✓ Partially addresses
- ✗ Does not address

**Overall Rating:** 1 out of 5

*Source: Lloyd Bauer, 2011.*

**Project Risk Management:** The downside of this approach is the tool is still on a declining path from the vendor since it no longer benefits from functionality improvement upgrades. This option delays a necessary platform change in 2-3 years as the risk of continuing on an unsupported product increases. Caution would have to be exercised to not invest too much in a solution that will require replacement in the near future. In addition to the future software support risk it is more difficult for the organization to ensure financial audit compliance.

Overall Project Risk Management Rating = 2 out of 5

**Business Viability:** This is a viable option in terms of the probability of implementation success. The amount of change to business process practices and the business organization model is small relative to the other solution options. The business issues are well known, and this option requires the least intensity of effort from the business resources.
Overall Business Viability Rating = 5 out of 5

Cost/Benefit: The benefits of improved efficiency related to integration and consolidation are achievable with this solution. Since this option only focuses on key changes, the benefits are calculated at 25% of the total benefits for Head Office and Bus Company accounting. It is estimated that a cost of $250,000 would be required for structuring of the underlying configuration of the existing finance software. No incremental increase in support costs is expected. See detailed assumptions in Appendix B. The resulting Internal Rate of Return is 71%.

Overall Cost/Benefit Rating = 3 out of 5
3.3.2 Option 2: Extend Current System to Rail Company

Business Needs: Moving to a single product would reduce the consolidation efforts and improve enterprise visibility of financial management. The current SmartStream tool would be extended for use out to the Rail Company. This would replace the Rail Company financial software, and reduce the overall organization cost of maintaining two financial systems. Prior to extending the system to the Rail Company, it would be
necessary to revisit the fundamental structure of the current system as described in Option 1. This option does not address the financial analysis and reporting, and automation of workflow processes that are manually handled outside of the finance software.

Table 3-3 Option 2: Extend Current System to Rail Company

<table>
<thead>
<tr>
<th>Business Need</th>
<th>How well the solution Addresses the Business Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Analysis &amp; Reporting</td>
<td>✗</td>
</tr>
<tr>
<td>Integration &amp; Consolidation</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Manual Work Processes</td>
<td>✗</td>
</tr>
<tr>
<td>Procurement Improvements</td>
<td>✗</td>
</tr>
<tr>
<td>System Structure</td>
<td>✓</td>
</tr>
</tbody>
</table>

**LEGEND**

✓ ✓  Fully addresses
✓  Partially addresses
✗  Does not address

**Overall Rating:**
2 out of 5

*Source: Lloyd Bauer, 2011.*

**Project Risk Management:** This option has similar risks to that of option 1. Like option 1, the downside of this approach is the tool is still on a declining path from the vendor since it no longer benefits from functionality improvement upgrades. This option delays a necessary platform change in 2-3 years as the risk of continuing on an unsupported product increases. Risk of this option is higher however since we have added additional finance business functions onto a tool that will be unsupported and require replacement in the near future. Caution would have to be exercised to not invest too much in a solution that will soon require replacement. In addition to the future software product risk, it is
more difficult for the organization to ensure financial audit compliance with the current product. The amount of work effort is higher than option 1 due to the need to consolidate accounting practices between the Head Office and the Rail Company.

Overall Project Risk Management Rating = 1 out of 5

**Business Viability:** For option 2 the amount of business change is higher than option 1 due to the need to consolidate accounting practices between the Head Office and the Rail Company. This reduces the viability of the option since the issues are less understood and will bring complexity to business process implementation of the option.

Overall Business Viability Rating = 3 out of 5

**Cost/Benefit:** This option includes the cost of restructuring the existing accounting software. It does not include costs or benefits associated with the procurement function. The benefits of improved efficiency related to integration and consolidation are achievable with this solution, and extended to the Rail Company. The benefits are calculated at 25% of the total benefits for Head Office, Bus and Rail Company Accounting. It is estimated that a cost of $450,000 would be required for structuring of the underlying configuration of the existing finance software. No incremental increase in support costs is expected. See detailed assumptions in Appendix C. The resulting internal rate of return is 37%.

Overall Cost/Benefit Rating = 2 out of 5
### Table 3-4 Cost Benefit for Option 2

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPITAL COSTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour</td>
<td>$450,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL CAPITAL</strong></td>
<td>$450,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ongoing Operating / Support Costs</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>SUB-TOTAL OTHER</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT COSTS / OUTFLOW</strong></td>
<td>$450,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Benefits: Head Office Accounting</td>
<td>-</td>
<td>$162,500</td>
<td>$162,500</td>
<td>$162,500</td>
<td>$162,500</td>
</tr>
<tr>
<td>Benefits - Bus Accounting</td>
<td>$37,500</td>
<td>$37,500</td>
<td>$37,500</td>
<td>$37,500</td>
<td>$37,500</td>
</tr>
<tr>
<td>Benefits - Rail Accounting</td>
<td>$32,500</td>
<td>$32,500</td>
<td>$32,500</td>
<td>$32,500</td>
<td>$32,500</td>
</tr>
<tr>
<td>Benefits - Procurement</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT BENEFITS / INFLOW</strong></td>
<td>-</td>
<td>$232,500</td>
<td>$232,500</td>
<td>$232,500</td>
<td>$232,500</td>
</tr>
<tr>
<td><strong>NET CASH FLOW</strong></td>
<td>-$450,000</td>
<td>$232,500</td>
<td>$232,500</td>
<td>$232,500</td>
<td>$232,500</td>
</tr>
<tr>
<td><strong>CUMULATIVE CASH FLOW</strong></td>
<td>-$450,000</td>
<td>-$217,500</td>
<td>$15,000</td>
<td>$247,500</td>
<td>$480,000</td>
</tr>
<tr>
<td><strong>INTERNAL RATE OF RETURN (IRR)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>37%</td>
</tr>
</tbody>
</table>

**Source:** Lloyd Bauer, 2011.

#### 3.3.3 Option 3: Replace System (Accounting Only)

**Business Needs:** This option replaces the existing financial software solutions with a new commercial off the shelf (COTS) software solution. The solution would be expected to address the structural deficiencies of the current software, and be able to accommodate a multi-company business environment. Given the financial requirements of the Head
Office enterprise are generic in nature, it is reasonable to expect a matching product could provide the required functionality.

The financial software industry has a wide range of product offerings to serve small, medium, and large companies. The financial reporting and analysis functions would be able to be performed within the tool. Many products come with self-serve capability to enable business Managers to have visibility into budgets, expenses and forecasts. This option still does not address the procurement needs and challenges of the company. Although many of the manual work processes would be automated with this option, the automation of procurement workflow would not be addressed.

*Table 3-5 Option 3: Replace System (Accounting Only)*

<table>
<thead>
<tr>
<th>Business Need</th>
<th>How well the solution Addresses the Business Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Analysis &amp; Reporting</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Integration &amp; Consolidation</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Manual Work Processes</td>
<td>✓</td>
</tr>
<tr>
<td>Procurement Improvements</td>
<td>✗</td>
</tr>
<tr>
<td>System Structure</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>

**LEGEND**

✓ ✓ Fully addresses
✓ Partially addresses
✗ Does not address

**Overall Rating:**
4 out of 5

*Source: Lloyd Bauer, 2011.*

**Project Risk Management:** The proven technology of this option reduces the risk of an unsuccessful implementation. With a standard off the shelf product, the risk of knowledge retention is reduced greatly over that of a custom built solution. This option
reduces the risk of obsolescence and future support risk of the current software solution. It will be important to understand the size, capacity, and technical requirements in order to select the appropriate vendor solution.

The pre-packaged software provides high technical and implementation viability of this solution option. With proven, field tested implementations in production at other organizations, the viability of meeting business objectives and delivering the solution on time and on budget has a high confidence rating.

Overall Project Risk Management Rating = 5 out of 5

**Business Viability:** The proven functionality of this pre-packaged software provides high business model viability. With proven, field tested implementations in production at other organizations, the disruption to business operations is reduced. Pre-packaged software does require the company’s financial business practices, processes and rules to be modified to fit the software. These are often industry proven solutions however, so modifying to industry standards is preferred.

Overall Business Viability Rating = 5 out of 5

**Cost/Benefit:** This option includes the $600,000 acquisition cost of accounting software, along with the 100% of the associated accounting related benefits. This option does not include costs or benefits of the procurement software. Implementation costs are calculated at a ratio of 3 times the software cost. Annual support costs are comparable to the current software, so there is no incremental increase in support cost. See detailed assumptions in Appendix D. The resulting internal rate of return is 20%.
Overall Cost/Benefit Rating = 1 out of 5

Table 3-6 Cost Benefit for Option 3

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPITAL COSTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour</td>
<td>$1,800,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>$600,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL CAPITAL</strong></td>
<td>$2,400,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ongoing Operating / Support Costs</td>
<td></td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>SUB-TOTAL OTHER</strong></td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT COSTS / OUTFLOW</strong></td>
<td>$2,400,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Benefits: Head Office Accounting</td>
<td>$ -</td>
<td>$ 650,000</td>
<td>$ 650,000</td>
<td>$ 650,000</td>
<td>$ 650,000</td>
</tr>
<tr>
<td>Benefits - Bus Accounting</td>
<td>$ 150,000</td>
<td>$ 150,000</td>
<td>$ 150,000</td>
<td>$ 150,000</td>
<td>$ 150,000</td>
</tr>
<tr>
<td>Benefits - Rail Accounting</td>
<td>$ 130,000</td>
<td>$ 130,000</td>
<td>$ 130,000</td>
<td>$ 130,000</td>
<td>$ 130,000</td>
</tr>
<tr>
<td>Benefits - Procurement</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT BENEFITS / INFLOW</strong></td>
<td>$ -</td>
<td>$ 930,000</td>
<td>$ 930,000</td>
<td>$ 930,000</td>
<td>$ 930,000</td>
</tr>
<tr>
<td><strong>NET CASH FLOW</strong></td>
<td>-$2,400,000</td>
<td>$ 930,000</td>
<td>$ 930,000</td>
<td>$ 930,000</td>
<td>$ 930,000</td>
</tr>
<tr>
<td><strong>CUMULATIVE CASH FLOW</strong></td>
<td>-$2,400,000</td>
<td>-$1,470,000</td>
<td>-$540,000</td>
<td>$390,000</td>
<td>$1,320,000</td>
</tr>
<tr>
<td><strong>INTERNAL RATE OF RETURN (IRR)</strong></td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Lloyd Bauer, 2011.
3.3.4 **Option 4: Replace System (Procurement First)**

**Business Needs:** This option would implement a new procurement and financial accounting solution using a phased approach. It replaces the existing procurement and financial accounting software with new commercial off the shelf (COTS) solutions. Along with option 5, this solution option provides the broadest range of business functionality to meet the challenges and opportunities identified from the business areas.

<table>
<thead>
<tr>
<th>Business Need</th>
<th>How well the solution Addresses the Business Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Analysis &amp; Reporting</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>Integration &amp; Consolidation</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>Manual Work Processes</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>Procurement Improvements</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>System Structure</td>
<td>✔ ✔</td>
</tr>
</tbody>
</table>

**Table 3-7 Option 4: Replace System (Procurement First)**

**Legend**
- ✔ ✔ Fully addresses
- ✔ Partially addresses
- ✗ Does not address

**Overall Rating:**
5 out of 5

*Source: Lloyd Bauer, 2011.*

**Project Risk Management:** Like solution option 3, the proven technology of this option reduces the risk of an unsuccessful implementation. The risk of this option is higher however due to the increased complexity and technical integration of the project. Project risk increases with the size and complexity of the project. Implementing the solution
using a phased approach reduces the project risk by breaking the design, build, and implementation into two phases.

**Overall Project Risk Management Rating = 4 out of 5**

**Business Viability:** Similar to solution option 3, the pre-packaged software provides business model viability of this solution option. With proven, field tested implementations in production at other organizations, the disruption to business operations is reduced. This option does have a higher business resource requirement than option 3, as well as an increase in the amount of change required to business processes. This is offset however by applying a phased approach to implementation, which spreads the resource requirement out over a longer period.

**Overall Business Viability Rating = 5 out of 5**

**Cost/Benefit:** This option includes the full cost of the accounting and procurement software, along with the 100% of the associated benefits, using a phased in approach. A ten percent uplift in the software cost is added due to the separation of software purchases and reduced negotiating leverage. This results in a software cost of $935,000. Included is the incremental annual ongoing software support cost of 20% of the cost of the procurement software. Implementation costs are calculated at a ratio of 4 times the software cost. Procurement software, having the greatest financial benefit impact, would be implemented first with the benefits beginning in the second year. The financial accounting software would continue to be used for an additional three years at which time it would be replaced. Benefits of the financial accounting software would begin in year
4. See detailed assumptions in Appendix E. This option has the highest internal rate of return of all the options coming in at 240%.

Overall Cost/Benefit Rating = 5 out of 5

Table 3-8 Cost Benefit for Option 4

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPITAL COSTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour</td>
<td>$1,100,000</td>
<td>$2,640,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>$275,000</td>
<td>$660,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL CAPITAL</strong></td>
<td>$1,375,000</td>
<td></td>
<td>$3,300,000</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT COSTS / OUTFLOW</strong></td>
<td>$1,375,000</td>
<td>$55,000</td>
<td>$3,355,000</td>
<td>$55,000</td>
<td>$55,000</td>
</tr>
<tr>
<td>Benefits: Head Office Accounting</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$650,000</td>
<td>$650,000</td>
</tr>
<tr>
<td>Benefits - Bus Accounting</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$150,000</td>
<td>$150,000</td>
</tr>
<tr>
<td>Benefits - Rail Accounting</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$130,000</td>
<td>$130,000</td>
</tr>
<tr>
<td>Benefits - Procurement</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT BENEFITS / INFLOW</strong></td>
<td>$ -</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
<td>$4,930,000</td>
<td>$4,930,000</td>
</tr>
<tr>
<td><strong>NET CASH FLOW</strong></td>
<td>$1,375,000</td>
<td>$3,945,000</td>
<td>$645,000</td>
<td>$4,875,000</td>
<td>$4,875,000</td>
</tr>
<tr>
<td><strong>CUMULATIVE CASH FLOW</strong></td>
<td>$1,375,000</td>
<td>$2,570,000</td>
<td>$3,215,000</td>
<td>$8,090,000</td>
<td>$12,965,000</td>
</tr>
<tr>
<td><strong>INTERNAL RATE OF RETURN (IRR)</strong></td>
<td>240%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Lloyd Bauer, 2011.
3.3.5 Option 5: Replace System In-house (ERP)

**Business Needs:** This option replaces the existing financial software and procurement solutions with a new commercial off the shelf (COTS) software ERP solution. The solution would address the broad requirements including core financial, supply chain management, project management, and activity based costing. This solution option provides the broadest range of business functionality to meet the challenges and opportunities identified from the business areas.

<table>
<thead>
<tr>
<th>Business Need</th>
<th>How well the solution Addresses the Business Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Analysis &amp; Reporting</td>
<td>☑ ☑</td>
</tr>
<tr>
<td>Integration &amp; Consolidation</td>
<td>☑ ☑</td>
</tr>
<tr>
<td>Manual Work Processes</td>
<td>☑ ☑</td>
</tr>
<tr>
<td>Procurement Improvements</td>
<td>☑ ☑</td>
</tr>
<tr>
<td>System Structure</td>
<td>☑ ☑</td>
</tr>
</tbody>
</table>

**Table 3-9 Option 5: Replace System In-house (ERP)**

<table>
<thead>
<tr>
<th>LEGEND</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ ☑</td>
</tr>
<tr>
<td>☑</td>
</tr>
<tr>
<td>✗</td>
</tr>
</tbody>
</table>

**Overall Rating:**
5 out of 5

*Source: Lloyd Bauer, 2011.*

**Project Risk Management:** Like solution option 4, the proven technology of this option reduces the risk of an unsuccessful implementation. The risk of this option is higher however due to the increased complexity and technical integration of the project. Project risk increases with the size and complexity of the project. Careful analysis of the integration issues across the broad ERP business process would be necessary. During
product selection process the question of whether best of breed point solutions would provide a better, more cost effective solution will need evaluation.

   Overall Project Risk Management Rating = 3 out of 5

**Business Viability:** Similar to solution option 4, the pre-packaged software provides business model viability of this solution option. With proven, field tested implementations in production at other organizations, the impact to business operations is reduced over that of custom-built solutions. This option does have a higher business resource requirement than option 4, as well as an increase in the amount of change required to business processes.

   Overall Business Viability Rating = 4 out of 5

**Cost/Benefit:** This option includes the full cost ($850,000) of the accounting and procurement software, along with the 100% of the associated benefits. Implementation costs are calculated at a ratio of 3 times the software cost. This option includes incremental annual ongoing software support cost of 20% of the cost of the procurement software. See detailed assumptions in Appendix F. The resulting internal rate of return is 139%.

   Overall Cost/Benefit Rating = 4 out of 5
Table 3-10 Cost Benefit for Option 5

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPITAL COSTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour</td>
<td></td>
<td>$2,550,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td></td>
<td>$850,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL CAPITAL</strong></td>
<td>$3,400,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ongoing Operating / Support Costs</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td><strong>SUB-TOTAL OTHER</strong></td>
<td>$ -</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT COSTS / OUTFLOW</strong></td>
<td>$3,400,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Benefits: Head Office Accounting</td>
<td>$ -</td>
<td>$650,000</td>
<td>$650,000</td>
<td>$650,000</td>
<td>$650,000</td>
</tr>
<tr>
<td>Benefits - Bus Accounting</td>
<td>$150,000</td>
<td>$150,000</td>
<td>$150,000</td>
<td>$150,000</td>
<td>$150,000</td>
</tr>
<tr>
<td>Benefits - Rail Accounting</td>
<td>$130,000</td>
<td>$130,000</td>
<td>$130,000</td>
<td>$130,000</td>
<td>$130,000</td>
</tr>
<tr>
<td>Benefits - Procurement</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT BENEFITS / INFLOW</strong></td>
<td>$ -</td>
<td>$4,930,000</td>
<td>$4,930,000</td>
<td>$4,930,000</td>
<td>$4,930,000</td>
</tr>
<tr>
<td><strong>NET CASH FLOW</strong></td>
<td>$-3,400,000</td>
<td>$4,880,000</td>
<td>$4,880,000</td>
<td>$4,880,000</td>
<td>$4,880,000</td>
</tr>
<tr>
<td><strong>CUMULATIVE CASH FLOW</strong></td>
<td>$-3,400,000</td>
<td>$1,480,000</td>
<td>$6,360,000</td>
<td>$11,240,000</td>
<td>$16,120,000</td>
</tr>
<tr>
<td><strong>INTERNAL RATE OF RETURN (IRR)</strong></td>
<td>139%</td>
<td>139%</td>
<td>139%</td>
<td>139%</td>
<td>139%</td>
</tr>
</tbody>
</table>

Source: Lloyd Bauer, 2011.

3.4 Evaluation of Alternatives - Summary

This section summarizes the evaluation results and scoring for the options and evaluation criteria. Also in this section is a sensitivity analysis of the options. The analysis will determine the sensitivity to the overall scoring of a change in the weighting to place a higher emphasis on the business viability of the solution.
3.4.1 Evaluation Summary

The Internal Rate of Return (IRR) calculation indicates the options with the highest returns are Option 4 – Replace System (Procurement First) and Option 5 – Replace System In-house (ERP).

Figure 3-2 Internal Rate of Return of Options

![Internal Rate of Return](image)

*Source: Lloyd Bauer, 2011.*

Applying the scoring criteria to the five criteria factors results in the scoring results shown below in table 3.6. Option 4 – Replace System (Procurement First) has the highest score, with Option 5 “Replace System In-House (ERP)” receiving the second highest score.
### Table 3-11 Option Scoring Summary

<table>
<thead>
<tr>
<th>Option</th>
<th>Business Needs Score</th>
<th>Weighting</th>
<th>Weighted Score</th>
<th>Risk Management Score</th>
<th>Weighting</th>
<th>Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>1</td>
<td>30%</td>
<td>0.3</td>
<td>2</td>
<td>20%</td>
<td>0.4</td>
</tr>
<tr>
<td>Option 2</td>
<td>2</td>
<td>30%</td>
<td>0.6</td>
<td>1</td>
<td>20%</td>
<td>0.2</td>
</tr>
<tr>
<td>Option 3</td>
<td>4</td>
<td>30%</td>
<td>1.2</td>
<td>5</td>
<td>20%</td>
<td>1</td>
</tr>
<tr>
<td>Option 4</td>
<td>5</td>
<td>30%</td>
<td>1.5</td>
<td>4</td>
<td>20%</td>
<td>0.8</td>
</tr>
<tr>
<td>Option 5</td>
<td>5</td>
<td>30%</td>
<td>1.5</td>
<td>3</td>
<td>20%</td>
<td>0.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option</th>
<th>Viability Score</th>
<th>Weighting</th>
<th>Weighted Score</th>
<th>Cost/Benefit Score</th>
<th>Weighting</th>
<th>Weighted Score</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>5</td>
<td>20%</td>
<td>1</td>
<td>3</td>
<td>30%</td>
<td>0.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Option 2</td>
<td>3</td>
<td>20%</td>
<td>0.6</td>
<td>2</td>
<td>30%</td>
<td>0.6</td>
<td>2</td>
</tr>
<tr>
<td>Option 3</td>
<td>5</td>
<td>20%</td>
<td>1</td>
<td>1</td>
<td>30%</td>
<td>0.3</td>
<td>3.5</td>
</tr>
<tr>
<td>Option 4</td>
<td>5</td>
<td>20%</td>
<td>1</td>
<td>5</td>
<td>30%</td>
<td>1.5</td>
<td>4.8</td>
</tr>
<tr>
<td>Option 5</td>
<td>4</td>
<td>20%</td>
<td>0.8</td>
<td>4</td>
<td>30%</td>
<td>1.2</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Source: Lloyd Bauer, 2011.

#### 3.4.2 Cost / Benefit Sensitivity Analysis

At the Head Office, we have a hurdle rate of 6% (IRR), for investments requiring a financial return. The cost of capital (interest payment on borrowing) varies depending on the timeline. Usually IT projects would have a 5 -10 year life. The cost of capital is
currently in the order of 4.5% over a 10-year period. All five options exceeded the 6% hurdle rate for the company.

Checking the sensitivity of costs and benefits with the option with the highest return (Option 4) indicates a variation down to 131% IRR in the case of 25% higher costs, and down to 159% IRR in the case of benefits being 25% lower than expected. Refer to Appendix G – “Increased Cost Estimates”, and Appendix H – “Benefits Lower Than Expected”, for the scenario calculations.

Table 3-12. IRR Calculations

| Scenario                        | Description                                                                 | IRR  |
|---------------------------------|----------------------------------------------------------------------------|
| Expected Costs and Benefits     | Includes expected costs and benefits. Ongoing support costs 20% of software purchase price. | 240% |
| Increased Cost Estimates        | Cost of software, implementation and ongoing support higher by 25%          | 131% |
| Benefits Lower Than Expected    | Benefits realized are 75% of expected benefit                              | 159% |

Source: Lloyd Bauer, 2011.

When evaluating alternatives to come up with a final recommendation the sensitivity of the scoring to a change in the weighting was also analyzed. The risk of disruption to business operations is an important consideration. This risk was an element of the “Business Viability” scoring criteria. Changing the “Business Viability” weighting from 20% o 50% revealed the results shown in Table 3-13. The recommended Option 4 – Replace System (Procurement First) still received the highest overall scoring. The
second highest score did switch from Option 5 – Replace System In-house (ERP), to Option 3 – Replace System (Accounting Only). This is due to the increased business disruption of replacing both the procurement and financial accounting functions both within a short period of time in Option 5.

*Table 3-13 Sensitivity Analysis - Business Viability 50%*

<table>
<thead>
<tr>
<th>Option</th>
<th>Business Needs Score</th>
<th>Weighting</th>
<th>Weighted Score</th>
<th>Risk Management Score</th>
<th>Weighting</th>
<th>Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>1</td>
<td>15%</td>
<td>0.15</td>
<td>2</td>
<td>15%</td>
<td>0.3</td>
</tr>
<tr>
<td>Option 2</td>
<td>2</td>
<td>15%</td>
<td>0.3</td>
<td>1</td>
<td>15%</td>
<td>0.15</td>
</tr>
<tr>
<td>Option 3</td>
<td>4</td>
<td>15%</td>
<td>0.6</td>
<td>5</td>
<td>15%</td>
<td>0.75</td>
</tr>
<tr>
<td>Option 4</td>
<td>5</td>
<td>15%</td>
<td>0.75</td>
<td>4</td>
<td>15%</td>
<td>0.6</td>
</tr>
<tr>
<td>Option 5</td>
<td>5</td>
<td>15%</td>
<td>0.75</td>
<td>3</td>
<td>15%</td>
<td>0.45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option</th>
<th>Viability Score</th>
<th>Weighting</th>
<th>Weighted Score</th>
<th>Cost/ Benefit Score</th>
<th>Weighting</th>
<th>Weighted Score</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>5</td>
<td>50%</td>
<td>2.5</td>
<td>3</td>
<td>20%</td>
<td>0.6</td>
<td>3.55</td>
</tr>
<tr>
<td>Option 2</td>
<td>3</td>
<td>50%</td>
<td>1.5</td>
<td>2</td>
<td>20%</td>
<td>0.4</td>
<td>2.35</td>
</tr>
<tr>
<td>Option 3</td>
<td>5</td>
<td>50%</td>
<td>2.5</td>
<td>1</td>
<td>20%</td>
<td>0.2</td>
<td>4.05</td>
</tr>
<tr>
<td>Option 4</td>
<td>5</td>
<td>50%</td>
<td>2.5</td>
<td>5</td>
<td>20%</td>
<td>1</td>
<td>4.85</td>
</tr>
<tr>
<td>Option 5</td>
<td>4</td>
<td>50%</td>
<td>2</td>
<td>4</td>
<td>20%</td>
<td>0.8</td>
<td>4</td>
</tr>
</tbody>
</table>

*Source: Lloyd Bauer, 2011.*
When considering the options that require the acquisition of products and services it is important to consider the impact related to corporate social responsibility. In the following section 3.5, I will discuss corporate social responsibility related to fair purchasing practices and protection of private information. Since all three of the leading options require financial ERP software, I will follow the corporate social responsibility section with a scan of the external financial software industry in section 4.

3.5 Corporate Social Responsibility

To ensure Corporate Social Responsibility (CSR), it will be important to underscore two areas in particular. The first is to ensure fair and equitable vendor selection process. The second is to ensure appropriate measures are taken to address the protection of personal information.

The fair and equitable vendor selection relates to the process by which a final solution and the associated contract is provisioned. Adhering to a rigorous request for proposal (RFP) process will ensure companies with potential solution options all have the same information, terms and conditions to provide equality of the proposal process. To ensure equity during the proposal evaluation process it will be important to define evaluation and scoring criteria upfront. The final vendor solution decision will be based on a defendable and transparent scoring result.

The second area of CSR is addressing the protection of personal information. Computer technology has been increasingly trending towards “software as a service”, where computer systems are provided and operated by third party companies using secure access over the Internet. In order to access the most efficient, cost effective, high
performance online services, one often finds service offerings outside of Canada, and often residing in the United States.

In 2001, the United States introduced the US Patriot Act, officially known as the “Public Law 107-56 - Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (USA PATRIOT ACT) Act of 2001”. This act increases the ability of US law enforcement agencies to search telephone, e-mail communications, medical, financial, and other records, without the owner’s or the occupant’s permission or knowledge.

In practical terms, the impact of this ACT means if a Canadian company engaged a US based company to provide computing services, the US Government has the legal right to request the US company to hand over information on systems they are operating for the Canadian company. This could be done without the Canadian company’s approval or knowledge.

In British Columbia, under the office of the Information and Privacy Commissioner, the BC Provincial Government legislated the Freedom of Information and Protection of Privacy Act (FOIPP Act). The FOIPP Act covers all provincial government public bodies, including government ministries and most government agencies, boards, commissions and Crown corporations. The Act has two main purposes, the first, to make public bodies more open and accountable, and the second, to protect citizens’ right to personal privacy by prohibiting unauthorized collection, use or disclosure of personal information by public bodies. Personal information is recorded information about an identifiable individual. Personal information includes such things as an individual's name, address, birth date, e-mail address and phone number.
Before entering into a SaaS solution with a provider it will be important to engage in political and legal risk analysis, and continue to monitor for changes on an ongoing basis.
4: External Market Analysis – Finance Software Industry

This section will describe the industry commonly referred to as enterprise resource planning (ERP) software. I will begin with a definition of ERP, followed by the market segmentation, and a description of the dominant software companies in this industry.

4.1 Industry Definition

Financial management solutions are a subset of the larger enterprise resource planning (ERP) software market for business solutions. Forrester Research, a global IT Advisory firm, defines enterprise resource planning as:

“ERP applications represent a major IT investment for most companies — these backbone applications support common administrative functions of finance and procurement in most cases and often also support the main operations and assets, revenue-generating activities, supply chain, and distribution channels.”

Although the industry and vendors differ widely on what specific functions make up an ERP solution, the common business functions considered to be part of ERP include:
I will focus on the business requirements for ERP functions and the associated software industry market.

4.2 Market Segmentation

Forrester Research estimated the worldwide ERP market to be $43.5 Billion in 2008. This is primarily made up of license revenues, maintenance revenues and professional services. Oracle and SAP are the market leaders in terms of revenue, together representing the majority of ERP market share. The following figure shows the worldwide market share of leading ERP companies.
ERP software vendors provide a broad range of solutions to a broad range of customers. The ERP software vendors can be positioned into strategic groups based upon the size of customer and the type of solutions provided for.

The ERP market has evolved into three main tiers. The first tier is represented by the very large enterprise markets and is dominated by two vendors, SAP and Oracle. For the prime larger enterprise markets, where Oracle competes with SAP, Oracle has focused more on services, government, telecom and utilities. SAP has focused more on capital intensive manufacturing, including oil & gas and chemicals. They do however still compete vigorously in most industries including retail, government, manufacturing and banking. Often these products are positioned for multi-national or global companies.
The first tier is considered for those companies with revenues exceeding $1 Billion annually, and over 1,000 employees. Both SAP and Oracle also have distinct product offerings targeted at mid-sized companies.

The **second tier** is made of mid-size vendors providing solutions to the mid to large company market. These vendors tend to provide more specific industry functionality. Companies in this tier include Infor, Lawson, Microsoft, Sage, and Epicor. Gartner defines customers in the mid-market segment as those with between 100 and 999 employees and revenues between $50 million to $1 Billion in revenue.

The **third tier** includes vendors that cater to the small business market, or those that are very industry specific. Examples of companies in this tier include Intuit, the makers of the QuickBooks accounting software product for small businesses, and IBS, who specialise in the distribution resource management market.

The following figure 4-3 illustrates the industry mapping of the three product tiers to customer revenue and number of employees.
For this report, I will be focusing on the mid and top tier product vendors and solutions. In 2009 The Head Office and its operating companies had revenues of $1.18 billion, and approximately 6,500 employees. Referring to Gartner’s definition of mid-market companies, this places The company at the top end of second tier products, and at the bottom end of tier one products.

Gartner created their magic quadrant in December 2010 for ERP Mid-market companies. Gartner placed Microsoft Dynamics AX and SAP’s Business All-in-One products in the upper leader-visionary quadrant.
4.3 Competitor Overview of Financial Software Companies

This section provides a brief overview of the main software producers in the mid to large tier market based upon Forrester Research study in 2009. In looking deeper into the range of competitor companies, it is apparent they are very diverse in the broad industries in which they compete. There is a large variation in the financial resources of

Source: Gartner, 2011.
the companies. The main ERP software producers along with their categorization are described below:

- **Oracle** – Top tier
- **SAP** – Top tier
- **Epicor** – middle tier
- **Infor** - middle tier
- **Lawson** – middle tier, “Intentia”
- **Microsoft**- middle tier
- **Sage Group**- middle tier
- **Unit 4 (Agresso)** – middle tier

### 4.3.1 Oracle


Oracle is the world’s largest enterprise software company. Oracle’s Enterprise Resource Planning (ERP) applications are used to automate and integrate a variety business processes, including: supply chain planning, manufacturing, logistics, order fulfillment, asset lifecycle management, purchasing, accounts receivable and payable, general ledger, cash and treasury management, travel and expense management, human resources, payroll, benefits, and talent management.


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2 Oracle 2010 annual report
As of May 31, 2010, Oracle employed approximately 105,000 full-time employees.

Revenue for year ending May 31, 2010 = $26.8 billion\(^3\) US (\$20.6 Billion of which is software related)


In 2010, software represented 77\% of Oracle’s total revenue.

Oracle has four main product lines for the category of financial management:

- Oracle E-Business Suite Financials
- JD Edwards EnterpriseOne Financial Management
- Oracle Fusion Financials
- Peoplesoft Enterprise Financials

Of these four product lines, Oracle states its mid-size company solutions to be the Oracle E-Business Suite financials, the “JD Edwards EnterpriseOne Financials” or the “Peoplesoft Enterprise Financials”\(^4\). The JD Edwards EnterpriseOne Financials product is designed to help companies respond to changing environments. It is targeted at the key industries of Engineering and Construction, Consumer Goods, Manufacturing and Distribution, Energy, Natural Resources, and Real Estate. The Peoplesoft Enterprise Financials product is designed to automate, centralize and standardize global transaction processes. This is often through a shared services arrangement. The key industries for the PeopleSoft Enterprise Financials product includes Education and Research, Financial Services, HealthCare, professional Services, and Public Sector.

\(^3\) Oracle 2010 annual report, page 90
\(^4\) Oracle Website
The E-Business Suite is positioned to operate as a shared service across businesses and regions. The key industries include Aerospace and Defense, Communications, Financial Services, Healthcare, High Technology, Industrial Manufacturing, Media and entertainment, Oil and Gas, Public sector, Retail and Utilities.

Oracle also has an On-Demand product based on their E-Business Suite product line. On-Demand is Oracle’s software and hardware management and maintenance services for customers. The service is hosted at Oracle’s data centre facilities, or selected partner data centres.

Product Consideration:

The Oracle products positioned for mid-sized companies closest to our requirements include the JD Edwards Financial Management and the Peoplesoft Financial product. The PeopleSoft Financial product would have integration and support benefits associated with the currently installed Peoplesoft Human Resource product.

4.3.2 SAP

Website: http://www.sap.com/canada/index.epx

SAP is a global provider of enterprise software applications and support. SAP is headquartered in Waldorf Germany. Following is the company statistics:

- Revenue for FY 2010 = 12.4 Billion Euros
- Operating Profit (IFRS) FY 2010 = 2.6 billion Euros
- Number of employees globally = 53,513 as of Dec 31, 2010. (14,783 in the Americas)

SAP has enterprise software solutions in Finance, Human Resources, Information Technology, Sustainability, Product Development, Procurement, Supply Chain, Manufacturing, Sales, Marketing, and Service. SAP’s flagship financial product is “SAP ERP Financials”. It offers core accounting and reporting capability, financial supply chain management, and treasury functionality. SAP is generally considered a top tier product for very large enterprises. SAP does however offer business management solutions for small to medium sized businesses. They offer three solutions in the small to medium sized business category:

- **SAP Business One** – for companies with 10 – 100 employees
- **SAP Business By Design** – for companies with 100 – 500 employees, this is a SaaS deployment offering but is not currently available in Canada. (available in US, Germany, France, UK, China, India)
- **SAP Business All in One** – for companies with 100- 2500 employees, on-premise solution with an option for hosting

**Product Consideration:**

Utilizing SAP’s Best Fit Solution Advisor tool which considers several factors including company size, growth projections, operational goals and deployment preferences, our requirements lead to a recommendation of the SAP “Business All in One” solution as the best fit of the three SAP options. This basic assessment would require more analysis to be verified.
4.3.3 Epicor


Epicor is a publicly traded company specializing in business software solutions. They provide integrated enterprise resource planning, customer relationship management, supply chain management, human capital management, and enterprise retail software solutions. Their flagship ERP product is called “Epicor 9”. Epicor offers both an in-house software package and a SaaS offering. Both products are built using a second generation Service Oriented Architecture (SOA) and Web 2.0 technologies. The SaaS product is delivered exclusively by Epicor, although they are also aligned with Microsoft to provide a cloud ERP offering. The SaaS product offering is specifically targeted at small manufacturing companies. Following is the company statistics:

- Founded: 1984
- Revenue: $440.3 million (FY 2010)
- Employees: 2,800
- Headquarters: Irvine, California, USA
- Customers: 20,000+
- Countries operating: over 150 countries

*Product Consideration:*

Epicor’s close alignment with Microsoft products provides integration and support benefits due to the Microsoft standard operating system and office software that is
standard within the company. The ERP product called “Epicor 9”, either as an in-house software package or SaaS offering should be considered.

4.3.4 Infor Global Solutions

Website: http://www.infor.com/solutions/fms/

Infor is a privately held software company. Infor acquired Baan in 2006. Infor’s flagship product is called Infor ERP LN and their financial management product is called Infor FMS. Infor claims to have more than 20,000 customers in over 180 countries for its Info FMS product. Infor offers products for both on-premise and SaaS solutions. Following is the company statistics:

- Revenue: $1.8 Billion USD in FY 2010.
- Employees: 8,000
- Direct offices in 30 countries
- Implementation and support in over 100 countries
- Headquarters: Alpharetta, Georgia, USA
- Founded: 2002
- Customers: 70,000+
- Global company: Americas, Asia Pacific, Europe, Middle East, Africa

Infor Financial solutions include the following business functions:

- Financial Accounting

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5 Infor Website
Infor’s financial accounting solutions include the following specific functions:

- **General Ledger**
- **Accounts Receivable** - credit, cash, and customer management
- **Accounts Payable** - payables processing, invoicing, processing payments, and integration with purchasing and financial systems.
- **Purchasing**
- **Inventory** - inventory operations, warehouse management
- **Fixed Assets** - tracking and maintenance of information needed for financial and tax accounting, property control, and depreciation forecasting

**Product Consideration:**

Infor’s enterprise asset management product is currently installed and operating within the company. The integration between financial accounting, procurement and the current asset management product may have benefits of integration and support. The Infor product called Infor FMS, within their Infor ERP LN line, should be considered either as an in-house software package or SaaS offering.

**4.3.5 Lawson**

*Website:* http://www.lawson.com/
Lawson is an international ERP software company. Their flagship product is called Lawson M3. They have a long history in the manufacturing and distribution markets. Recently they have also been targeting the fashion and textile, food and beverage, and equipment service and rental industries. Following is the company statistics:

- Headquarters: Minneapolis, Minnesota, USA
- Publicly traded company
- Revenue: $750 Million US in 2007
- Customers: 4,000 in 33 countries
- Employees 3,800

*Product Consideration:*

Lawson is a significant company in the mid-size ERP market with their product called Lawson M3. The product should be considered as an in-house software package solution.

4.3.6 Sage


Sage is a global enterprise software company. AMR Research reported that Sage was the world’s third largest supplier of ERP software, and the largest supplier to small business. Following is the company statistics:

- Headquarters: Newcastle, UK
- Customers: 6.1 Million
• Offices in 24 countries and products & services in 160 countries
• Publicly traded company on the London Stock Exchange
• Founded: 1981
• Revenue: 1.44 Billion British Pounds in 2009
• Profit: 190 Million British Pounds in 2009
• Employees: 13,400 (in 2010)

Product Consideration:

Sage is a significant company in the mid-size ERP market with their product called Sage ERP. The Sage ERP X3 and Sage ERP Accpac products should be considered as in-house software package solutions.

4.3.7 Microsoft Dynamics

Website: http://www.microsoft.com/en-us/dynamics/compare.aspx

Microsoft offers an ERP product called Dynamics. The core functionality includes financial management, supply chain management, HR Management, Collaboration, Business Intelligence, and Project Management. Microsoft Dynamics is offered in 4 product Lines:

• Microsoft Dynamics AX – for mid-size and larger organizations, and multinationals
• Microsoft Dynamics GP – basic financial and operations product
• Microsoft Dynamics NAV – suited for subsidiaries of global organizations
• Microsoft Dynamics SL – specialized vertical industries
Product Consideration:

Using Microsoft’s online product selector tool, and questions related to our industry, the country we operate in, and the number of employees, the tool directed us towards Microsoft Dynamics GP out of the 4 product lines. The requirement for multi-company functionality, and multi-currency would be factors in considering the Microsoft Dynamics AX product as a possible alternative as well. This basic assessment would require more analysis for verification. The close alignment with other Microsoft products provides integration and support benefits due to the Microsoft standard operating system and office software that is standard within the company today.

4.3.8 Unit 4 Business Software – previously Agresso

Website: http://www.unit4software.com/

UNIT4 Business Software is a Dutch software company with their head office in Sliedrecht, Netherlands. It has subsidiaries and offices in 24 countries across Europe, North America, the Asia-Pacific region and Africa. Unit4 claims to be one of the top five providers of enterprise resource planning (ERP) solutions for mid-market professional services and public sector organizations around the world. In 2008, IDC ranked Unit4 as a top six ERP vendor in the mid-market segment. Following is the company statistics:

- Original company was founded in 1980
- Revenues in 2009 - $517 Million US
- Employees – over 4,100 employees
• Customers – 6,000 customers

• Deployments – over 10,000 software deployments

• Users – 1.8 Million users of their software products

• Countries - 100

Unit4’s main products are the “Agresso Business World ERP suite” and the “Coda Financials accounting software”. The Coda Financials accounting software is a separate operating entity within Unit4, and is a lower tier product. The Coda software product is targeted at the small business market, and therefore not suitable for large or mid-size companies. In 2000, Unit4 merged with Agresso Group, and the company name has since been changed to Unit4 Business Software.

The Unit4 software “Business World ERP suite” is a fully integrated ERP product. The ERP suite includes: financial management, human resources and payroll, procurement management, project costing and billing, reporting and analytics, business process automation, field services and asset maintenance, and customer relationship management (CRM).

The product can be roughly sized to the target market based on the number of full time employees, and the size of the revenue or operating budget. The company has indicated the product is suited for a company size of between 200 to 250 employees, with an upper range of 10,000 employees. In terms of revenue, the product is suited for companies over $50 Million per year up to $1 Billion per year.
Product Consideration:

Unit4 is a significant company in the mid-size ERP market with their product called “Agresso Business World ERP suite”. The Unit4 product should be considered as an in-house software package solution.

4.4 Summary of Financial Software Companies

Our high level functional requirements and company size places us in the zone for products suited for the upper mid-tier ERP market. A cursory market scan revealed the following product offerings best suited for further consideration.

- *SAP* - SAP “Business All in One” product
- *Epicor* - Epicor 9 ERP product
- *Infor* - Infor FMS, within their Infor ERP LN line
- *Lawson* - Lawson M3 product
- *Microsoft* - Microsoft Dynamics GP and the Microsoft Dynamics AX product
- *Sage Group* - Sage ERP X3 and Sage ERP Adccpac products
- *Unit 4 (Agresso)* - Agresso Business World ERP suite

In order to refine the specific product selection, detailed requirement specifications need to be complied and a request for proposals (RFP) prepared. The results of the evaluation of the RFP submissions would point to a specific product and vendor solution based upon the proposals received.
4.5 Software As A Service - Alternative

Many of the vendor products identified are based on a purchase and install of the software in-house. Some however offer hosted solutions. Although quite new in the marketplace, there is an increase in considering hosted Software As A Service (SaaS) as the delivery method for ERP implementations. A study by the Aberdeen Group in June 2010 indicated there was a” 70% increase in the percentage of respondents willing to consider SaaS as a delivery method. At the same time, the willingness to consider other options has decreased or remained about the same.”6 Two of the common barriers to entry of implementing ERP solutions is the effort to implement and the upfront cost. The promise of SaaS solutions is to reduce both those barriers of entry. A key issue associated with SaaS offerings for Canadian companies is the regulatory environment regarding the protection of privacy. Most SaaS offerings are hosted in the US, where the Patriot Act has broad implications related to Canadian, and in particular, British Columbia privacy laws.

When looking at solutions, it will be important to consider the option of a hosted SaaS solution when going to the market for solution proposals.

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6 Aberdeen Group, “Epicor Express Aims to Take ERP Mainstream”, June 2010
5: Recommendation and Conclusion

After analyzing the current situation, identifying solution options, evaluating the alternatives, and conducting external market analysis, the solution option with the top score was Option 4. The Option 4 solution replaces the current financial system and replaces it with a combined procurement and finance accounting solution using a phased approach. The solution would replace the systems currently in operation at the Head Office, Bus Company, and Rail Company, with one enterprise wide system. The preceding analysis determined the largest benefit opportunity was in the area of procurement and supply chain management. Addressing both the procurement and the core accounting functions provided the greatest overall benefit to the organization.

The specific software vendor solution requires detailed requirements analysis and formal vendor proposals to arrive at a specific vendor solution. I recommend the following approach for the next steps. These steps will take the organization to a successful implementation of the required changes to achieve the expected business objectives and benefits.

- Gather detailed requirements, specifications, and scope in preparation for tendering a request for proposals to the market.
- Issue a request for proposals to obtain quotations for the implementation of a Procurement solution. Include both the software purchase and Software-as-a-Service solution options.
- Conduct a gap analysis and evaluation of the proposals to determine the best solution to address the business problem and opportunities.

- Define detailed business rules, processes and future state model.

- Design, test and implement solution using thorough project and change management practices.

The project implementation timeline for phase 1 to implement the procurement solution is shown in the figure 5-1 below. The phase 1 of the project is expected to be completed in a period of 26 months.

![Figure 5-1 Implementation Timeline – Procurement Phase 1](image)

The project includes a second phase to implement the financial accounting solution in year 3. The second phase would follow the same steps as the procurement solution.
phase, this time selecting and implementing a financial accounting system. The timing of the two phases is shown in the figure below.

*Figure 5-2 Overall Project Phase Timeline*

![Phase Timeline Diagram]

The above project timelines assume the organizational priority supports proceeding with a replacement of the finance accounting and procurement systems. If however, the organizational resource and capital finance capacity is not able to provide the resources to fund the replacement of the finance and procurement systems in the near term, then Option 1 – “Modify Current Systems” should be strongly considered. This option could function as an interim solution for up to 3 years. Modifying the current system would address the fundamental structural deficiencies and provide the third highest internal rate of return results, while extending the life of the current finance system investment.
Having analyzed the pain points and opportunities along with the possible solutions it is apparent there is substantial positive internal rate of return potential. The answer to the research question of “Should we replace the financial system?” is yes. This warrants proceeding with the gathering of in-depth requirements, along with new system investment in addressing the challenges of procurement and financial management across the organization.
Appendices
Appendix A – Custom Build Option

A sixth option was considered to custom build a new financial system in-house. The low overall scoring, combined with a negative IRR removed the option from consideration. The evaluation is included here for reference only.

Option: Custom build a New System (Financial)

Business Needs: This option would replace the existing financial software solutions with a new custom built software solution. The solution would be built to address the structural deficiencies of the current products, and be designed to accommodate a multi-company business environment. It would be built to the specifications of the Head Office, Bus Company and Rail Company.

Strong review of this option needs to be considered given the financial requirements of the enterprise are believed to be quite generic. There is no unique advantage to the financial system at Head Office, and the requirements could easily be accommodated by an off the shelf financial package.
**Table 5-1  Option: Custom Build a New System (Financial)**

<table>
<thead>
<tr>
<th>Business Need</th>
<th>How well the solution Addresses the Business Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Analysis &amp; Reporting</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>Integration &amp; Consolidation</td>
<td>✔ ✔</td>
</tr>
<tr>
<td>Manual Work Processes</td>
<td>✔</td>
</tr>
<tr>
<td>Procurement Improvements</td>
<td>✗</td>
</tr>
<tr>
<td>System Structure</td>
<td>✔ ✔</td>
</tr>
</tbody>
</table>

**LEGEND**

- ✔ ✔ Fully addresses
- ✔ Partially addresses
- ✗ Does not address

**Overall Rating:**
4 out of 5

*Source: Lloyd Bauer, 2011.*

**Project Risk Management:** This option has the highest risk associated with successful implementation and coming in on target for the project budget. There is also an on-going support risk associated with custom built software, since the software will have been custom built by a small group of software design and programming experts. Project risk is high due to the need to form a large project team of analysts and programmers. Good system documentation will be critical to ensure loss of knowledge should the team members leave the organization. Extensive testing of the application will be required since it will not be field proven at other implementations.

Overall Project Risk Management Rating = 2 out of 5

**Business Viability:** This option gathers the financial business requirements for the overall company, and then custom builds a system to meet the business requirements. It is in the best position to meet the business requirements of finance, since it is custom
built and does not require modification of business practices to meet the pre-packaged software functionality. The benefits of this heavy customization however are overshadowed by the resource intensity required by the business areas, and their ability to articulate precise design specifications. This option requires the business area to be well versed in the leading practices and organizational models of financial systems and structures. Alternatively, financial accounting packages are standard products that can easily be obtained in the market place without investing in a unique custom-built software development project.

Overall Business Viability Rating = 1 out of 5

Cost/Benefit: This option includes the cost to custom build our own accounting software, along with the 80% of the associated accounting related benefits. This option does not include costs or benefits of procurement software. The resulting internal rate of return is a negative return of -13%. Assumptions are itemized below.

Assumptions:
Achieve 80% of benefits
Head Office, Bus and Rail Accounting only

Benefits:
Head Office Accounting $ 650,000
Bus Accounting $ 150,000
Rail Accounting $ 130,000
Procurement $ 800,000

Costs - Acquisition:
Software - Accounting $750,000
Software - Procurement $250,000
Implementation (ratio is 1-3 for ERP)

Costs - Ongoing:
License & support cost @ 20% of software
Cost to build software $4,250,000
$85,000 per year x36 months x 20 FTE

Source: Lloyd Bauer, 2011.

Table 5-2 Cost Benefit for Option

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPITAL COSTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour</td>
<td>$4,250,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>$ -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>$ -</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL CAPITAL</strong></td>
<td>$4,250,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ongoing Operating / Support Costs</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>SUB-TOTAL OTHER</strong></td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT COSTS / OUTFLOW</strong></td>
<td>$4,250,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Benefits: Head Office Accounting</td>
<td>$ -</td>
<td>$ 520,000</td>
<td>$ 520,000</td>
<td>$ 520,000</td>
<td>$ 520,000</td>
</tr>
<tr>
<td>Benefits - Bus Accounting</td>
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<td>$ 120,000</td>
<td>$ 120,000</td>
<td>$ 120,000</td>
<td>$ 120,000</td>
</tr>
<tr>
<td>Benefits - Rail Accounting</td>
<td>$ 104,000</td>
<td>$ 104,000</td>
<td>$ 104,000</td>
<td>$ 104,000</td>
<td>$ 104,000</td>
</tr>
<tr>
<td>Benefits - Procurement</td>
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<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT BENEFITS / INFLOW</strong></td>
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<td>$ 744,000</td>
<td>$ 744,000</td>
<td>$ 744,000</td>
<td>$ 744,000</td>
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<tr>
<td><strong>NET CASH FLOW</strong></td>
<td>$ -4,250,000</td>
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<td>$ 744,000</td>
<td>$ 744,000</td>
<td>$ 744,000</td>
</tr>
<tr>
<td><strong>CUMULATIVE CASH FLOW</strong></td>
<td>-$4,250,000</td>
<td>-$3,506,000</td>
<td>-$2,762,000</td>
<td>-$2,018,000</td>
<td>-$1,274,000</td>
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<tr>
<td><strong>INTERNAL RATE OF RETURN (IRR)</strong></td>
<td>-13%</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Lloyd Bauer, 2011.
Appendix B: Option 1 - Cost/Benefit Assumptions

Assumptions:
Achieve 25% of benefits for option 1
Head Office and Bus Accounting only for option 1

Benefits:
<table>
<thead>
<tr>
<th></th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Office Accounting</td>
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<tr>
<td>Bus Accounting</td>
<td>150,000</td>
</tr>
<tr>
<td>Rail Accounting</td>
<td>na</td>
</tr>
<tr>
<td>Procurement</td>
<td>na</td>
</tr>
</tbody>
</table>

Costs - Acquisition:
<table>
<thead>
<tr>
<th></th>
<th>na</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software - Accounting</td>
<td>na</td>
</tr>
<tr>
<td>Software - Procurement</td>
<td>na</td>
</tr>
<tr>
<td>Implementation (ratio is 1-3 for ERP)</td>
<td>na</td>
</tr>
</tbody>
</table>

Costs - Ongoing:
License & support cost @ 20% of software
No incremental increase

Cost to Restructure software in option 1
$85,000 per yr x 6 months x 6 FTE
$ 255,000
### Appendix C: Option 2 - Cost/Benefit Assumptions

**Assumptions:**
Achieve 25% of benefits for option 2
Head Office, Bus and Rail Accounting only for option 2

**Benefits:**
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Office Accounting</td>
<td>$ 650,000</td>
</tr>
<tr>
<td>Bus Accounting</td>
<td>$ 150,000</td>
</tr>
<tr>
<td>Rail Accounting</td>
<td>$ 130,000</td>
</tr>
<tr>
<td>Procurement</td>
<td>na</td>
</tr>
</tbody>
</table>

**Costs - Acquisition:**
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Software - Accounting</td>
<td>na</td>
</tr>
<tr>
<td>Software - Procurement</td>
<td>na</td>
</tr>
<tr>
<td>Implementation (ratio is 1-3 for ERP)</td>
<td>na</td>
</tr>
</tbody>
</table>

**Costs - Ongoing:**
|                        |       |
| License & support cost @ 20% of software | No incremental costs |

**Cost to Restructure software in option 1**
|                        | $ 453,333 |
| $85,000 per yr x 8months x 8 FTE |       |
Appendix D: Option 3 - Cost/Benefit Assumptions

Assumptions:
Achieve 100% of benefits for option 3
Head Office, Bus and Rail Accounting only for option 4
Support cost would be same as today so
no incremental increase

Benefits:
Head Office Accounting $ 650,000
Bus Accounting $ 150,000
Rail Accounting $ 130,000
Procurement na

Costs - Acquisition:
Software - Accounting $600,000
Software - Procurement na
Implementation (ratio is 1-3 for ERP) $1,800,000

Costs - Ongoing:
License & support cost @ 20% of software
No incremental increase in cost
Appendix E: Option 4 - Cost/Benefit Assumptions

Assumptions:
Achieve 100% of benefits for option 4
Procurement implemented in year 1, benefits begin year 2
Accounting implemented in year 3, benefits begin year 4

Benefits:
Head Office Accounting $ 650,000
Bus Accounting $ 150,000
Rail Accounting $ 130,000
Procurement $ 4,000,000

Costs - Acquisition:
Software - Accounting $600,000
Software - Procurement $250,000
Implementation (ratio 1-4 for separating into 2 phases) $ 3,400,000
Software cost increase by 10% due to separating into 2 phases

Costs - Ongoing:
License & support cost @ 20% of Procurement software $55,000
No incremental support cost for Accounting Software
Appendix F: Option 5 - Cost/Benefit Assumptions

Assumptions:
Achieve 100% of benefits for option 5

Support cost would increase for
procurement portion @ 20% of
procurement software

Benefits:
Head Office Accounting $650,000
Bus Accounting $150,000
Rail Accounting $130,000
Procurement $4,000,000

Costs - Acquisition:
Software – Accounting $600,000
Software – Procurement $250,000
Implementation (ratio is 1-3 for ERP) $2,550,000

Costs - Ongoing:
License & support cost @ 20% of software $50,000
Appendix G: Option 5 – Sensitivity Analysis of Cost Increase

## Option 5: Increase in costs of 25%

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPITAL COSTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour</td>
<td>$3,984,375</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>$1,062,500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL CAPITAL</strong></td>
<td>$5,046,875</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ongoing Operating / Support Costs</td>
<td>$62,500</td>
<td>$62,500</td>
<td>$62,500</td>
<td>$62,500</td>
<td>$62,500</td>
</tr>
<tr>
<td><strong>SUB-TOTAL OTHER</strong></td>
<td>$ -</td>
<td>$62,500</td>
<td>$62,500</td>
<td>$62,500</td>
<td>$62,500</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT COSTS / OUTFLOW</strong></td>
<td>$5,046,875</td>
<td>$62,500</td>
<td>$62,500</td>
<td>$62,500</td>
<td>$62,500</td>
</tr>
<tr>
<td>Benefits: Head Office Accounting</td>
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<td>$650,000</td>
<td>$650,000</td>
<td>$650,000</td>
<td>$650,000</td>
</tr>
<tr>
<td>Benefits - Bus Accounting</td>
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<td>$150,000</td>
<td>$150,000</td>
<td>$150,000</td>
<td>$150,000</td>
</tr>
<tr>
<td>Benefits - Rail Accounting</td>
<td>$130,000</td>
<td>$130,000</td>
<td>$130,000</td>
<td>$130,000</td>
<td>$130,000</td>
</tr>
<tr>
<td>Benefits - Procurement</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
<td>$4,000,000</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT BENEFITS / INFLOW</strong></td>
<td>$ -</td>
<td>$4,930,000</td>
<td>$4,930,000</td>
<td>$4,930,000</td>
<td>$4,930,000</td>
</tr>
<tr>
<td><strong>NET CASH FLOW</strong></td>
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<td>$4,867,500</td>
<td>$4,867,500</td>
<td>$4,867,500</td>
</tr>
<tr>
<td><strong>CUMULATIVE CASH FLOW</strong></td>
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<td>$4,688,125</td>
<td>$9,555,625</td>
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<tr>
<td><strong>INTERNAL RATE OF RETURN (IRR)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>89%</td>
</tr>
</tbody>
</table>
# Appendix H: Option 5 – Sensitivity Analysis of Lower Benefits

## Option 5: Benefits Lower by 25%

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAPITAL COSTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour</td>
<td>$ 2,550,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>$ 850,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUB-TOTAL CAPITAL</strong></td>
<td>$ 3,400,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td><strong>OTHER</strong></td>
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<tr>
<td>Ongoing Operating / Support Costs</td>
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<td>$ 50,000</td>
<td>$ 50,000</td>
<td>$ 50,000</td>
</tr>
<tr>
<td><strong>SUB-TOTAL OTHER</strong></td>
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<td>$ 50,000</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT COSTS / OUTFLOW</strong></td>
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<td>$ 50,000</td>
<td>$ 50,000</td>
<td>$ 50,000</td>
</tr>
<tr>
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<td>$ 487,500</td>
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<tr>
<td>Benefits - Bus Accounting</td>
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<td>$ 112,500</td>
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<tr>
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<td>$ 97,500</td>
<td>$ 97,500</td>
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<tr>
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<td>$ 3,000,000</td>
<td>$ 3,000,000</td>
<td>$ 3,000,000</td>
</tr>
<tr>
<td><strong>TOTAL PROJECT BENEFITS / INFLOW</strong></td>
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<td>$ 3,697,500</td>
<td>$ 3,697,500</td>
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<tr>
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<td>$ 3,647,500</td>
<td>$ 3,647,500</td>
<td>$ 3,647,500</td>
</tr>
<tr>
<td><strong>CUMULATIVE CASH FLOW</strong></td>
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Bibliography

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Reich, B. (2010). Information Technology and Organizational Transformation – BUS 621, Presented at Simon Fraser University Executive MBA Course, Vancouver, B.C.


Vollmer, K., Lawrie, G., Gilpin, M., (May 2010) It’s Time to Tame the ERP Integration Beast. Cambridge, MA. *Forrester Research*.


**Interviews**

Chief Financial Officer – Head Office

Accounting Manager – Head Office

Finance Manager – Bus Company

Finance Manager – Rail Company
Procurement Manager – Head Office

Enterprise Systems Technical Support Manager – Head Office

**Websites Reviewed**


*SAP*: Website: http://www.sap.com/canada/index.epx

*Epicor*: Website: http://www.epicor.com/pages/default.aspx

*Infor global solutions*: Website: http://www.infor.com/solutions/fms/

*Lawson*: Website: http://www.lawson.com/

*Sage*: Website: http://www.sageproerp.com/products/accounting/


*Unit 4 Business software*: Website: http://www.unit4software.com/