

CRANFIELD UNIVERSITY



C. SHAW

**ERP SYSTEM UPGRADE: AN ANALYSIS OF THE COSTS,
BENEFITS AND REQUIREMENTS**

SCHOOL OF INDUSTRIAL & MANUFACTURING SCIENCE

MRes THESIS

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MRes THESIS

Academic Year 2001-2002

C. SHAW

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BENEFITS AND REQUIREMENTS**

Supervisor: R GREENOUGH

September 2002

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for the degree of Master of Research**

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ABSTRACT

This project looks at the feasibility of the high performance vehicle manufacturer, Ray Mallock Limited (RML), upgrading their current version of their Frontstep produced Enterprise Resource Planning (ERP) system from version 4 to the latest version 6.

The project outlines a cost benefit analysis of the upgrade so RML can see the value of the new features of the system and weigh these up with the costs that would be incurred. The project then goes on to look at the risks that RML would face if they chose to upgrade or not to upgrade the ERP system and the timescales of the upgrade process. Finally, some suggestions are made to ensure that RML can take full advantage of their current system while being in a position to upgrade effectively in the future.

After considerable analysis, this report suggests that an upgrade at this point in time for RML is not a viable option due to the high cost and high risk of the project. In addition, this project suggests that that an ERP system needs management and development on an ongoing basis to ensure that a company is in a strong position to take advantage of new versions without having to incur high risks and even higher costs.

The ongoing costs of an ERP system are significant and often misjudged by many companies during the implementation phase, especially if they want to stay on the support contracts as they become tied to an upgrade path dictated by the supplier.

Companies must also ensure that they are in a position to take advantage of the upgrades and do not lose skills within the business to manage a change of this nature and they have the business and IT infrastructure in place to support the upgrade.

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CHAPTER 1: INTRODUCTION

This project was sponsored by Ray Mallock Limited (RML), as part fulfilment of an MRes in Innovative Manufacturing (Engineering and Management of Manufacturing Systems option) and was undertaken at Cranfield University.

1.1 BACKGROUND

This project focused on evaluating the benefits and potential costs of an upgrade of an Enterprise Resource Planning (ERP) system at Ray Mallock Limited and required significant contact with the ERP system vendor Frontstep.

The following sections give some background information about this project, the companies involved, the timescales and finally the problem faced by the project sponsor.

1.1.1 Ray Mallock Limited (RML)

Since 1982, RML has grown steadily but surely in status, so that it is now one of the world's top motor racing companies. In this time, RML has grown from a small family company of three people to an organisation currently employing 100. Growth has been steady and the combination of size and need for confidentiality and security between projects, led to expansion into a second unit at the Wellingborough site in 1998, giving a total facility of 3,800 square metres. This factory is laid-out to the company's own, precise specifications, with the capability to manufacture all components, small or large, in-house.

Being close to the heart of Northamptonshire, RML is able to draw on a locally based workforce with directly relevant skills. The experienced specialists in RML's manufacturing department are masters with a wide range of materials, traditional and specialised.

Those who have entrusted their reputations to RML include Aston Martin, Nissan, and GM sister companies Vauxhall and Opel. All have won races with RML, and three of the four have won championships.

Every car designed, developed and operated by RML has:

- Won an event within its first year of competition
- Won a Championship title within 3 years

These successes are achieved through not only clever design and development, but also painstaking team management. The logistics are substantial: Ensuring that tons of equipment and tens of people are always in the right place at the right time, that they perform to their optimum level as a team and that contingency plans cover every imaginable eventuality.

1.1.2 What is ERP?

Enterprise Resource Planning (ERP) is a complex software system for integrating many areas and functions within a business, both internally and externally. It effectively means that a companies manufacturing decisions are not made without taking into account their impact upon the supply chain, both upstream and downstream.

Enterprise Resource Planning (ERP) is defined by INSYST (1998) as “software products, which are designed to be the vehicle for companies to control, monitor and co-ordinate the activities in all of their locations”

If this definition is developed further; productions decisions affect all of the other key areas within a business, including areas such as accounting, marketing and engineering. To make better decisions it is wise to take into account all of these important interactions within the business.

Computer software is the proposed medium for accomplishing this integrated decision making process since nearly every department within a business could, and probably already is automated to some extent. The ERP system is effectively a replacement to the majority of these already existing legacy systems, which allows all of the departments to talk to each other and make effective decisions about manufacturing.

Example: A customer service operator upon receiving a request from a customer would quickly locate the customers account, record the quote details, prices the quote and confirms the availability date of the product. Then, if the customer confirms the order, the operator will log it into the system triggering everything from ordering raw materials for production through to scheduling production and finally billing the customer.

Unfortunately, ERP systems have had a mixed reaction in the press primarily due to some high profile failures during the implementation or massive cost over-runs, sometimes by over five times the initial capital expenditure. Zampetakis (2001) notes that this disillusionment with ERP systems has followed the traditional technology hype curve where the technology took off with a technology trigger followed by these inflated expectations, but now however the ERP systems have moved up the slope of enlightenment and is now approaching a 'plateau of productivity'. Zampetakis (2001) also mentions that many large, blue-chip multinationals have forked out as much as \$50 million on the two-year implementation of their ERP system implementation.

A recent survey by the Meta Group looked at the total cost of ownership for an ERP system over a two-year period and included items such as hardware, software, professional services, internal staff costs and software installation costs. They used a two-year duration so the costs of maintaining the ERP system and associated costs of changing the business could be taken into account. The result of this survey of 63 small medium and large businesses was an average ERP cost of \$15 million (Payne, 2002).

Many well-known multinational software companies such as IBM and Microsoft use ERP systems to manage their business with the two example companies using a SAP system produced by a German company.

1.1.3 RML & SyteLine ERP

Ray Mallock Limited is currently using the SyteLine version 4 ERP package by Frontstep. This software solution and supplier is evaluated in the following sections.

1.1.4 Frontstep Company Profile

Frontstep (www.frontstep.com) is a large public company with revenues in excess of £83million per annum and offices around the world. Frontstep also has the following:

- Over 650 employees world-wide
- Over 4,400 customers
- 27 direct sales and support centers
- Support in 35 countries
- Software and support in 16 languages

Frontstep is broken down into regions with the European region having 500 customers and annual revenues in excess of £20million. Within this region, the UK has a client base of approximately 100 customers and annual revenue of approximately £6million.

Frontstep's target companies are businesses that produce discrete products for customers rather than flow production type systems such as sugar refining or oil refining companies. Frontstep is also focused within the midsize company market, which can also be classified as a Tier 2 company. The UK market is broken down into eight vertical markets, which are (Frontstep, 2002):

- Industrial Equipment
- Automotive
- Fabricated Metals
- Industrial Electronics
- Aerospace & Defence
- Furniture & Fixtures
- Packaging & Containers
- Speciality Vehicles

Now over 80% of Frontstep's new customers are focused within one of these eight verticals and some examples of these customers can be seen in Figure 1.

Industrial Equipment	Fabricated Metals	Industrial Electronics	Furniture & Fixtures	Packaging & Containers	Speciality Vehicles
Reda Pump	Locker	Filtronics	Desking Systems	Tenmat	Berthon Boats
Wood Group	TAP	Remsdaq	Herman	Pure	ELCB
Eagle	Blatchfords	Trumeter		Porvair	Heil Trailers

Emco Smiths Group	AIT Rootstein	AMPY Epic	Millar OEP		RML Fairline Boats
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Figure 1: Table of eight verticals and example customers (Frontstep, 2002)

1.1.5 SyteLine Software

The SyteLine ERP system provided by Frontstep is broken down into modules in line with various functions of the business (see Figure 2).

SyteLine Customer Synchronized Resource Planning (CSRP)						
Sales	Engineering	Customer Service	Planning	Production	Finance	Service
Customer Relationship Management	Estimating	Order Processing	Forecasting	Jobs	Actual/Std. Costing	Call Center
Rules-Based Configuration	Rules-Based Configuration	Rules-Based Configuration	Master Production Scheduling	Job BOM	Accounts Payables	Service Contracts
Rules-Based Pricing	Estimate BOM	Capable to Promise	Capacity Planning	Repetitive	Accounts Receivables	Warranty Tracking
Electronic Catalogs	ECN Control/Traceability	Pricing	MRP	Finite/Infinite Scheduling	General Ledger	Service Management
Quotes & Proposals	CAD/PDM Interface	Commissions & Taxation	APS	Shop Floor Control	HR/Payroll	Dispatching
	Project Management	Return Material Authorization	Purchasing/Requisitions	Data Collection	Fixed Assets	Plant Maintenance

Figure 2: Modules of SyteLine ERP system (Frontstep, 2002)

Some example screen shots of the SyteLine system can be seen in Figure 3.

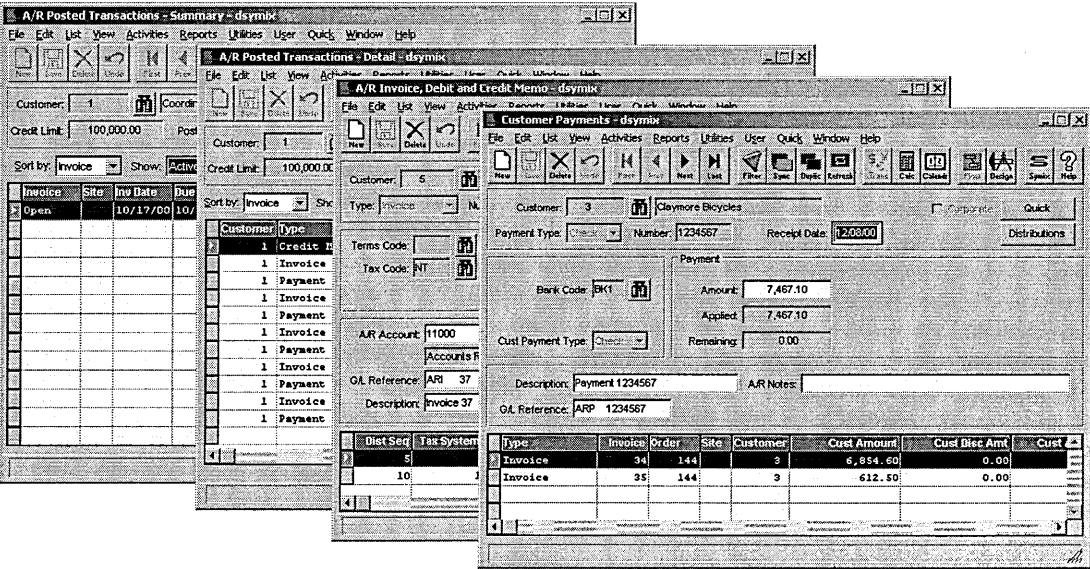


Figure 3: Sample screens from Frontstep system

1.1.6 Benefits of SyteLine to RML

The following case study of Frontstep's success (Frontstep website) outlines why RML chose the SyteLine system and the benefits they received from the system.

Chris Davies, IT manager RML explains: "Many systems we considered could support mass manufacturing environments, but were totally unsuitable for a concurrent engineering environment like ours. Unlike those other systems, Frontstep's SyteLine is focused on make-to-order products, so we were confident it would suit our needs. We felt Frontstep understood our business, and SyteLine would be able to meet them - which it has... We were pleased that SyteLine went live in good time for the start of the new racing season... Our main objectives for the system were to increase operational efficiency and reduce costs. We also wanted to be able to gain more accurate information about the business that would in turn enable us to serve our customers even better."

SyteLine has helped RML to achieve these objectives in a number of ways. RML has been pleased with the bill of manufacture it can get from SyteLine, which provides accurate lead times. Previously RML could gain a bill of materials, but unlike a bill of manufacture, this did not provide information about the processes and timescales involved. SyteLine's bill of manufacture equips RML with much greater visibility of the build process. This means that it can give customers and suppliers more precise information about delivery dates and lead times than in the past. All of which gives RML tighter control over its processes.

Unusually, the bill of manufacture can also incorporate variant parts. Chris Davis explains: "The same car will have different variants, depending on the competitions it enters. For example, a rally car will require variant parts according to the rules of a competition and whether it is racing on gravel, mud or the road. SyteLine incorporates a configurator module, which can calculate the costs and timescales for the production of the same base model with different variants. That is invaluable for us."

The new visibility and control brought by SyteLine has also given RML better control over its shop floor management, by tracking and recording the labour time spent on each project.

SyteLine has also improved RML's ability to manage project costs, which is a key requirement that RML was previously unable to do. SyteLine provides accurate costs for a project, so RML can inform a customer precisely how much a project will cost.

Paul Coleman, head of operations at RML explains: "Previously, we had little knowledge of how much it would cost to run a project. All we could do was 'guestimate', which is a problem when we have to work to fixed price contracts. Now we have accurate project costs, and this ensures that each project is profitable."

Cost reductions have also been achieved through the use of SyteLine Workflow, which has enabled RML to minimise inefficiencies. Workflow has speeded up tasks that previously stalled key processes and works by automatically prompting different departments to act upon projects as needed. For example, workflow automatically informs team managers when parts arrive so that they can prioritise parts for purchasing and manufacturing.

"Speed is almost as important in vehicle production as it is on the track. Because parts change so quickly during development, we will sometimes order a part that changes specification before the order is processed by the supplier. This is an example of where Workflow helps by automatically notifying us that we should amend the PO. The result of this is that we save on unnecessary costs, and retain maximum efficiency."

In addition to supporting the manufacture of vehicles for existing customers, SyteLine has also underpinned the end-to-end development and production of the Saleen S7, which has been built to compete in the European and American Le Mans Series. It will also be sold to the public retailing at \$375,000.

Paul Coleman, operations director concludes: "In summary, SyteLine has refined our processes and helped us to operate more efficiently. It gives us more information about our business, which enables us to better serve our customers. Now we're looking forward to even more cost savings, even greater efficiency and the ability to deliver even better customer service in the future."

1.2 THE PROBLEM

As has already been outlined, the SyteLine system has provided many benefits for RML but for the following reason RML feels it is time to look at upgrading to version 6 of the SyteLine software:

- Frontstep only officially support two versions behind the current version
- There could potentially be many advantageous and time saving features in the new version
- To overcome bugs or problems with the current version
- They are unsure of the potential costs of the upgrade

The major benefit that will be gained from this project is an accurate prediction of the options RML have available to themselves, the costs and relative benefits of these options and finally a plan for implementing the latest version of the software assuming they did go ahead with the upgrade.

1.2.1 Aims of the Project

The main aim of this project is to produce a report that will help RML make an informed decision regarding the feasibility and benefits of an upgrade of their SyteLine ERP system from their current version 4 to version 6. To do this the following deliverables will be produced:

- A cost analysis of the SyteLine upgrade requirements
- A cost analysis of the computer system options required for the upgrade
- An analysis of the benefits and disadvantages of the upgrade
- An estimated timescale for the upgrade process

1.3 TIME SCALES

Figure 4 below shows the timescales for the project and the tasks that were undertaken. The duration is shown by the horizontal shaded bar with key dates highlighted. This project started in March 2002 and was completed by the 13th of September 2002.

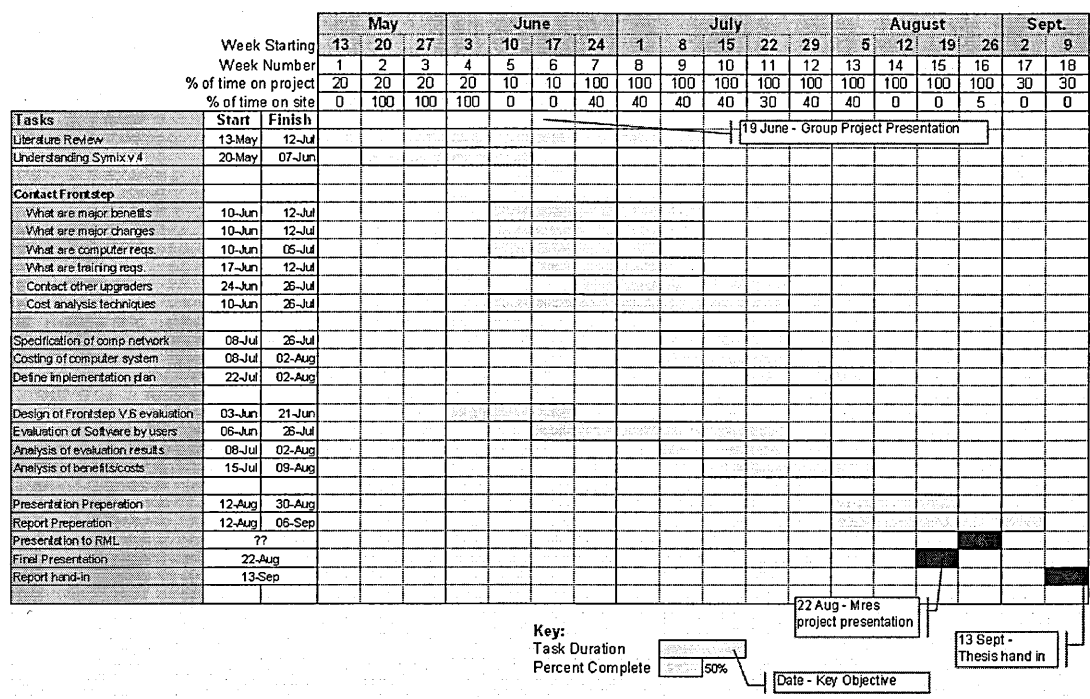


Figure 4: Gantt chart of project timescale.

1.4 STRUCTURE OF THESIS

The approach that has been taken for this dissertation is to initially gain a clear understanding of ERP. Chapter 2 therefore provides a background to ERP systems, their use and implementation by undertaking a review of the existing literature. This section forms the basis to ideas discussed in later sections.

The following sections of the report look at a cost benefit analysis, a risk analysis of the upgrade, the timescales for the upgrade process and finally some future developments as a result of this project that RML need to identify.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This section of the report is dedicated to providing an overview of the existing literature about ERP systems, their structure, history, implementation and some previous case studies.

2.1.1 History

ERP systems have been the key to many business transformation efforts during the 1990s but ERP is actually just the latest in a continual evolution of business systems that date back to the 1950s. The evolution of ERP systems can be outlined as follows (Deloitte Consulting):

- Early 1950s: Early Inventory Control systems were designed to track stock levels and their locations grew in popularity. This was one of the first applications of computer technology outside the finance business unit.
- 1950s to 1960s: The first model for manufacturing, Materials Requirements Planning (MRP), was developed. This helped companies to plan their orders for purchased materials and manufactured components but this type of system was expensive and difficult to maintain as it ran on mainframe computers.
- 1970s to 1980s: While still focused on the manufacturing industry MRP evolved into MRP II. This was *manufacturing resource* planning. This integration of financial systems closed the loop and allowed MRP II to be used as a planning tool for manufacturing.
- Mid 1980s: Automated systems markets grew rapidly due to the falling price of computer systems and the development of just-in-time type manufacturing systems. This led to islands of automation being formed within production environments making the market for automated systems grow quickly.
- Late 1980s to 1990s: Client server technology development allowed MRP II to evolve further into Enterprise Resource Planning by including other essential resources, particularly human and capital resources.

- Late 1990s: The functionality of ERP was further enhanced by complementary technologies such as supply chain optimisation and customer relationship management systems. ERP was also becoming the backbone of choice for companies wanting to realise and sustain competitive advantage.
- The Future: Companies have already begun to extend the capabilities of their ERP systems beyond their own enterprise using e-business to connect with their suppliers and customers. The next few years will see ERP systems become facilitators for corporate growth and not just resource and cost management.

2.1.2 Structure

To produce an ERP software package, a vendor has two main options. One of these options is to supply customers with a basic information system infrastructure, also known as an 'open computer environment', and then let other companies write programs that work within this system and its standards. This can result in a company getting a system that is highly customised and matches the current business practices but can be costly and time consuming to modify or upgrade.

The second option is to produce software that is effectively bundles of other companies' software which all support differing business areas. This can range from software that only uses very minor amounts of externally supplied code to software that effectively only provides the link between these external modules. The customer can then decide which of these extra modules are worth implementing. This results in a system that is easier to upgrade, but becomes more heavyweight due to the redundant code and unnecessary functionality (Deloitte Consulting 1999).

2.1.3 Why Use an ERP System

For many people within industry who have spent months developing software, evaluating software and purchasing software that they know and like, being forced to adopt a 'corporate package' would seem like a step in the wrong direction, yet the benefits of ERP systems are evident.

ERP systems greatly reduce the possible margin for errors associated with information being input into systems by different employees in many different legacy

databases (Payne, 2002). In addition, the ERP system can then make this information available throughout the whole enterprise rather than just in the specific department where the legacy databases are used.

Some of the reasons companies implement ERP systems are listed below (Smith, 1999, Deloitte Consulting 1999):

- Legacy systems did not integrate hence high inventory and lack of management control over manufacturing
- Legacy systems could not cope with year 2000 compliance
- Legacy systems were too slow and could not adapt quickly to change
- Manufacturing planning and control was poor or non-existent
- Management had to chase information for days and possibly weeks from key departments
- ERP systems could automate business practices and share common practice across business units

Deloitte Consulting in their study of ERP system users noted the reasons shown in Figure 5 and broke these factors down according to the technology motivators and operational motivators.

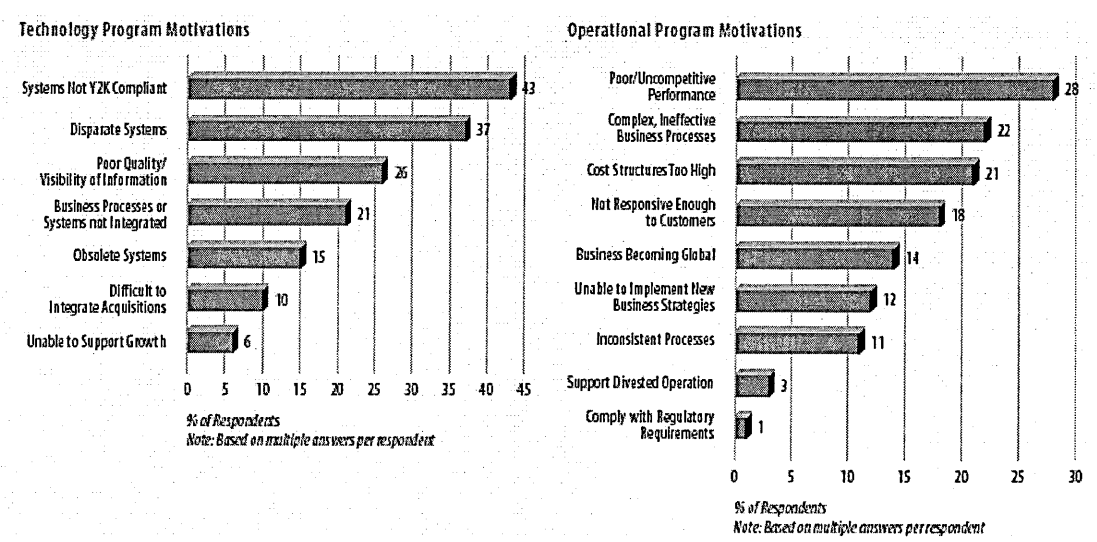


Figure 5: Motivators to implement ERP systems (left: technology factors, right: operational factors) (Deloitte Consulting)

The operational motivators towards implementing ERP systems are usually very difficult to quantify while the technological motivators are usually more tangible and can be quantified to justify the ERP decision.

Typically, firms that are trying to implement ERP systems are looking for a few key benefits (see Figure 6):

- High order *effectiveness* benefits which lead to more informed decision making as is shown by the top bar in Figure 6 in the left chart
- *Efficiency* benefits in terms of faster less costly processes (2nd and 3rd bars of left chart in Figure 6
- Other transformation and capability benefits

Together these benefits lead to a higher order of ability to perform transformation and fundamentally transform the way a company does business. This can include the rapid development of new product lines in response to customer and market demands or targeting new markets or even improving supplier relationships.

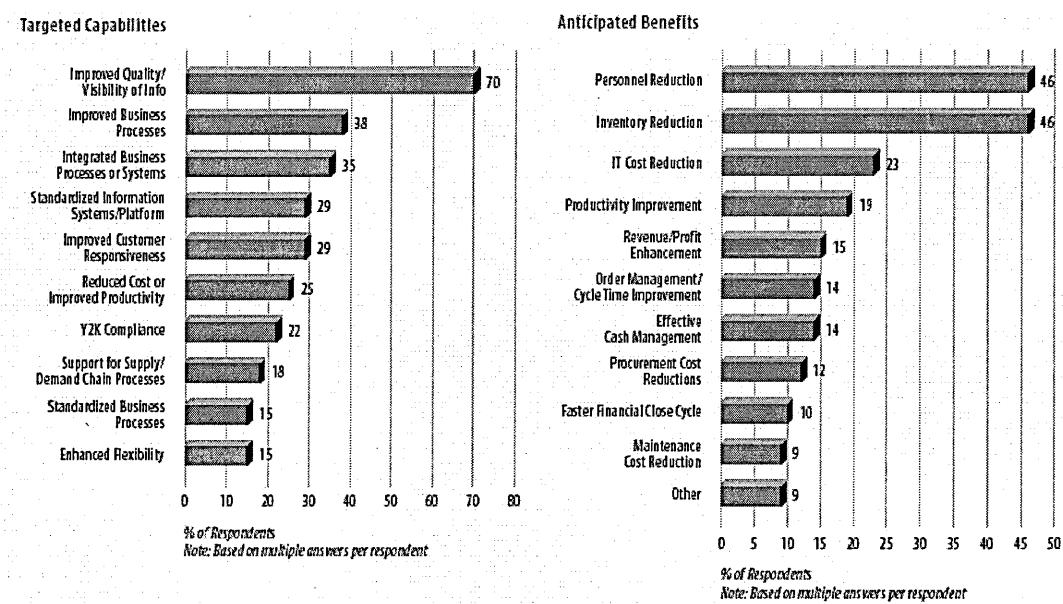


Figure 6: What are organisations trying to accomplish with ERP (Deloitte Consulting)

As is shown by the right chart in Figure 6 the anticipated benefits of an ERP system are usually quite simply cost reduction as the top bars indicate, leading to the improved profitability nearly all companies strive for.

2.1.4 Limitations of ERP systems

The many wide-ranging benefits of ERP systems has been explained in previous sections, but as with many systems of this nature there is bound to be limitations and problems associated with their use.

ERP systems are often industry specific and many were written for the construction industry and are not applicable to a process or flow industry.

ERP systems are large systems, which are relatively inflexible to cultural and industrial differences. Many of the ERP systems were written for a specific target market such as the construction industry and therefore do not provide a comfortable fit with other processes such as flow manufacture and therefore can not provide the expected benefits.

In addition, some ERP systems have had problems when they have been applied in different cultures and countries where management processes, social practices and even simple things such as someone's name can cause serious problems with an ERP system (Soh *et al*, 2000).

Example: In hospitals in Singapore, patients have the option of choosing a bed class (single room to six beds per room) and this denotes the subsidy from the government. The hospital therefore needs to produce many specific reports to be submitted to the government to receive the remainder of treatment payment. In this case, the hospital had to pay significant amounts of money to have custom reports produced. Also names of patients could not be filed in the ERP system correctly as there was only two fields (forename and surname) and most names did not conform to this standard (e.g. Sia Siew Kien). (Soh et al, 2002)

Due to the size and complexity of ERP systems, it is not possible for the designers to implement best in class technologies throughout their system often meaning that the ERP system that was sold as the answer to all a businesses problems may not perfectly suit the problem it is addressing. This is most noticeable where companies

do not implement all of the modules of the ERP system and only use a few key modules, which turn out to be not as good as cheaper off the shelf packages.

2.1.5 The ERP Market

Currently the ERP market is experiencing a slight downturn after the millennium as many companies upgraded, or installed ERP systems as a precautionary measure in response to the fear of the 'millennium bug'.

The ERP market is rather difficult to predict and the following points give a couple of ideas of the approximate size of the ERP market:

- Oliver (1999) valued the market at around \$14 billion with projections of \$52 billion in 2002.
- A recent survey on spending in the ERP market suggests that the market will increase from \$21.02 billion in 1998 to \$72.63 billion in 2002. These figures reflect approximately 2.7% to 6.4% of spending respectively during this period.

Smith (1999) states that with additional implementation costs of hardware, networks and consultancy, these figures might reasonably be inflated by at least a factor of three. Even this does not take into account all of the hidden costs within a company of internal resource usage and consequent loss of focus on the business.

Until recently, many ERP vendors had focused on the high-end Tier 1 companies but as this market comes close to saturation, the ERP vendors are looking towards the midsize market. This market is estimated to easily top \$50 billion per year in Europe alone (Everdingen, 2000).

2.2 IMPLEMENTATION OF ERP SYSTEMS

As has already been noted MRP systems have a massive potential for improving business performance and building strong competitive advantages but the potential risks of implementing these systems can be great.

There are three main ways to implement software systems and most importantly ERP systems, the 'big-bang' method, the phased method and parallel implementation. Of these three methods, the most favoured is the big bang method where the business

implements the whole ERP system in one go, but the limitation of this is that it is not possible to break down the problem and ensure the ERP system fully matches the business processes.

A phased implementation uses just the modules that are critical to operations and then extra modules or functionality is added in one or more later stages allowing for a more tailored system.

Finally, the parallel method is least favoured and no cases of this implementation were found but this is where the ERP system is run in parallel with the legacy systems, and requires a significant amount of information duplication and double entry.

Deloitte Consulting identified that the implementation process comes in two waves, the first wave is when the system is implemented and the tangible benefits are realised, and the second wave is when the ERP system brings together all areas of the business realising many non-tangible soft benefits. In addition, they noted that there are three distinct stages to each wave after the go-live date and these are:

- *Stage 1: Stabilise* – secure and sustain the core ERP systems functionality
- *Stage 2: Synthesize* – build for the future by adding still more capabilities, often non-ERP applications to the mix
- *Stage 3: Synergise* – achieve value in use through mastering those capabilities

ERP implementations are normally very technically complex especially in the first wave identified by Deloitte Consulting. In this stage, many functional areas of a business are brought together as is shown in Figure 7; software has to be configured and tested, integrated with other business systems all of which result in a company where time and resources are stretched to the limits.

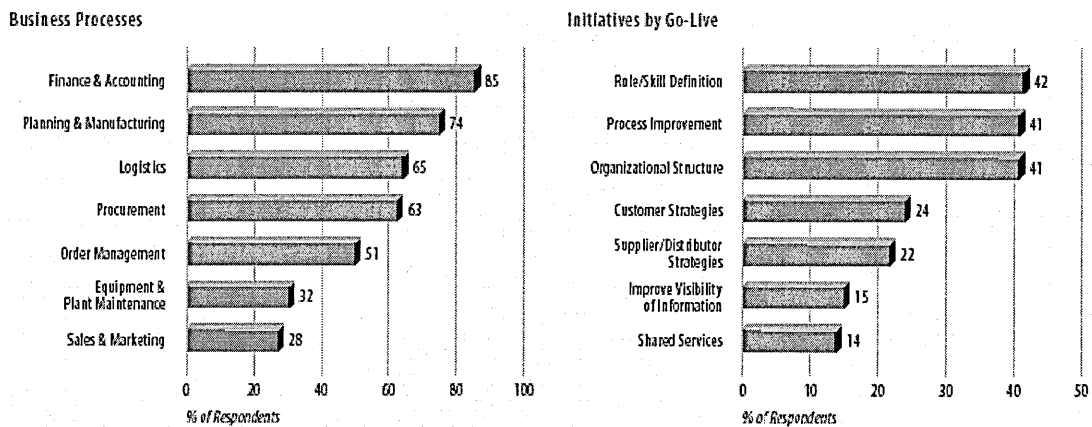


Figure 7: What does implementation entail? (Deloitte Consulting)

As has already been shown ERP implementations are very complex resource-consuming activities therefore the following sections outline some critical factors for avoiding this risk and some methods of undertaking the implementation.

2.2.1 Critical Success Factors (CSF's)

To ensure that ERP implementations are a success providing a positive Return-On-Investment (ROI) the company implementing the software must take into account the strategic and tactical issues of how the ERP system can support improvements within the business. Positive ROI can only come from changing the way business was performed in the past towards a more streamlined, faster cost efficient process that will better serve the needs of the customer.

In a paper by Nah *et al* (2001), eleven critical success factors were identified from a literature survey of previous work on ERP system implementations and these were:

- ERP teamwork & composition
- Change management program and culture
- Top management support
- Business plan and vision
- BPR and minimum customisation
- Effective communication
- Project management

- Software development, testing and troubleshooting
- Monitoring and evaluation of performance
- Project champion
- Appropriate business and IT legacy systems

The following sections highlight some of the most often-mentioned critical success factors that are noted in the literature.

2.2.1.1 ERP Teamwork and Composition

The team selected for the implementation must have a solid mix of technical acumen and business knowledge and have a diverse background so the team can accurately represent the whole business. The team should also consist of internal staff and external consultants so that it is possible to gain technical knowledge from the consultants that will help develop the system on an on-going basis.

Nah (2001) also mentions that to further motivate employees the implementation should be their only task and be manageable with rewards for successful implementation.

2.2.1.2 Testing

During the literature survey it has been noted that many people believe that testing and evaluation of the ERP system to be implemented or upgraded to will take up a significant amount of time and is usually essential (Lucas, 2002). This is not just to check the software operates as expected but also to ensure that the supplier is willing and able to help you before and after you implement the ERP software.

2.2.1.3 Top Management Support

Top management support of the project is essential not just throughout the implementation, but into the future of the system to ensure the ERP system is always in line with business processes. The ERP system should be seen as 'the fabric of a company and not something which is distant and does things' (Zampetakis, 2001) by

the top management, and they should be willing to make the system a 'top priority' making as many top resources available as necessary (Nah, 2001)

2.2.1.4 Business Plan and Vision

A clear business plan is necessary when undertaking a project of this nature to steer and direct employees towards a common goal. The business plan should outline the proposed strategic and tangible benefits, resources required, costs, risks and the timescale (Wee, 2000).

The business plan should justify the investment based on a problems and the change to the ERP system directly justified to the strategic direction of the company. From this, the goals can be identified, fully described and tracked to ensure success and proper direction (Nah, 2001).

2.2.1.5 Effective Communication

Communication is 'key' during an ERP system implementation as expectations at every level have to be communicated to key decision makers within the ERP implementation team. User input should be managed in acquiring their requirements, comments, reactions and approval. This will also help to dissolve internal politics where employees are resistant to change within the organisation. The communication will also need to include the promotion of the project team and the advertisement of their progress to the rest of the implementation team (Nah, 2001).

Effective communication

2.2.2 Difficulties

One significant issue that Oliver (1999) identifies is that managers often feel that ERP implementations never end, but this is due to a never-ending list of 'nice to haves' suggested by managers which ends up in an extremely customised and costly system.

2.2.3 Consultants

Almost half of all project managers use consultants at some point in their ERP implementation with their role ranging from minor to technical and pivotal roles. The main benefit of using a consultant is that they provide a service that you will only need once at a fraction of the time and cost required to invent it yourself. The consultant will be operating in a specialist niche area, will keep up with current trends, and can complete the job much quicker and cheaper than you can. Consultants are a good way to fill the knowledge gap and provide expertise on a temporary basis.

The main limitation of using consultants is that they need to bill as many hours as possible and therefore escalate the cost as they move through the project through taking longer to complete the project, using larger teams or implementing unnecessary features.

2.2.4 Business Process Reengineering (BPR) and ERP

Both ERP and Business Process Reengineering (BPR) have been central to corporate change over the years and Koch (2001) identifies that ERP is a strong tool for undertaking BPR in manufacturing. Koch (2001) identifies that there are various methods of undertaking BPR with ERP; the BPR can be undertaken before, during or after the ERP implementation. Koch (2001) identified that the BPR process should be undertaken in all of these areas rather than just being undertaken before or after an ERP implementation. This is because the business processes should change all the way through the ERP implementation, not just at the end when the system becomes less flexible, or before when the business cannot identify the process changes required.

2.3 POST-ERP IMPLEMENTATION

In a paper by Deloitte Consulting, they recognise the post implementation phase as the *end of the beginning* for the company as the ERP system is not just an item to use but something to be developed further and built upon to provide more benefits to an organisation.

“Implementation simply means we have the tool. Now we have to optimise and build on it. Building the foundation was fun – but the carpets and furniture will be even more fun!” – Executive, Process Industry (Deloitte Consulting)

In the Deloitte Consulting paper, they note that the most significant benefits of an ERP implementation will come after the go-live date because the ‘second-wave’ occurs when the primary focus of the ERP enabled enterprise come together. The technology, redesigned processes, the strategy re-design and finally the people who operate the system all come together to provide a significant improvement to the benefit of the ERP system. The problem with the benefits coming after the go-live date is that many of the benefits come from this synergy of all the areas of the business and are normally intangible and many companies ignore them as they take time to achieve.

2.4 SUCCESSFULLY SUSTAINING THE ERP JOURNEY

Deloitte brought forward 12 best practices from their surveys which they feel maximise and accelerate the ERP journey ensuring that organisations can reap all of the capabilities and rewards of ERP-enabled systems and processes.

- Focus on capabilities and benefits
- Align organisation on true destination
- Achieve balanced people, process and technology changes
- Apply planning and program management practices
- Extend capabilities beyond the ERP platform
- Teach the organisation to use new capabilities
- Use the business case as a management tool
- Transition project roles to a way of life
- Build and leverage process expertise
- Promote post-implementation commonality

- Assign clear ownership of benefits
- Define metrics and manage to them

If companies try to follow these pointers, they can ensure they reap all of the benefits of their ERP system and maximise its potential when implementing the system.

2.5 MIGRATION OF ERP SYSTEMS

ERP systems are finally being recognised by senior management as part of the businesses core strategy, understanding that the system is not just a bit of IT kit but a total enterprise facilitator that needs to be constantly evolved to match changing business dynamics. This means that at some point an upgrade to their core system may need to be performed to realise the best practice for the business. The literature regarding upgrades is scarce and there is no concrete definition of an upgrade as this could range from bug fixes through to upgrades and version releases and the terminology often varies according to the companies involved.

2.5.1 Providers Perspective on Upgrades

Over the last few years, ERP providers have undergone some large changes due to a change in their market. Initially the providers of ERP system were focusing on building their market share as much as possible to soak up the development costs of the software through economies of scale but they were neglecting the service aspect of their business. Now this has changed due to a slowing in the ERP market, the ERP providers are now focusing on the service aspect of their business, and hence they concentrate on leveraging their existing customer base to generate a more stable cash flow (Kramers, 2000).

Upgrades (migrations) are seen as key for many ERP system providers as this intensifies the customer 'lock-in' effect. This is due to the flat learning curve of ERP systems resulting in companies having to train users and accumulate experience over time so that they can work with the system effectively. Companies do not want to move to other systems as the cost of this change is constantly rising as their current system gets older (Kramers, 2000).

ERP providers are also looking to reduce their service costs by providing upgrades to customers so that they do not have to support a wide range of versions of the software and customer support personnel can spend more time on issues that add value for the customer.

Finally, the last benefit to the providers of ERP systems are increased revenues through sales of more seats for the software solution due to increased functionality and extra revenue through add-on products supported in the new version. It is this last source that is becoming increasingly important as these add-on modules are the 'stars' and future 'cash-cows' of the ERP industry (Kramers, 2000).

2.5.2 Company Benefits of Migrating an ERP System

After the trauma of implementing an ERP system, why would a company want to upgrade their complex and costly ERP system? The following points are the usual motivators for the upgrade process:

- The software does not perform to the companies expectations
- Functionality of the current system is not as good as new systems
- Bugs within the existing system
- Supplier will not support all of their back versions of software
- Poor performance of current system (too slow or too many manual operations)
- Upgrades to take account of legislative changes (accounting practices or reporting systems)
- Lack of training or knowledge of functions of previous version

AMR Research surveyed 109 companies with the majority having revenues of over \$1 billion and found that 85% of the respondents listed the following benefits realised due to their ERP system upgrade (Surmacz, 2002):

- Improved ease of use
- Additional functionality
- Improved collaboration

Of these respondents only 13% listed cost savings as the main motivator (Surmacz, 2002). Half of the companies surveyed added an average of three new functional areas to their ERP systems, with the most popular being portals, internet based procurement applications, self-service HR and business intelligence modules.

2.5.3 Upgrade Process

Surmacz (2002) notes that justifying the upgrade will require more than just cost-saving arguments, as many upgrades will be significantly more difficult to evaluate compared to an ERP implementation due to the complexity of ERP systems. The study also found that on average the total upgrade cost was around 18% of the cost of the initial ERP implementation.

The survey by Surmacz (2002) produced a startling result, suggesting that small incremental ERP upgrades drove the cost higher while larger upgrades (that affect more users) provided a better economy.

Of the many points highlighted by Surmacz (2002), is that if the upgrade is to be successful the company must have some competency 'in-house', preferably from the initial implementation, as this experience will prove beneficial with the upgrade. Of the respondents, approximately 65% handled the ERP upgrade primarily on their own only really requiring some external training.

Of the companies surveyed by Surmacz (2002), the average upgrade time was seven months from initial planning to the go-live date. The following figures give an indication as to the approximate times for the upgrade:

- Planning consumed 24% of total time
- Testing takes another 22% of the time

The respondents when asked about the difficulty of the stages of upgrade provided the following information:

- 29% of respondents felt testing was the most difficult
- 22% of respondents felt said data conversion/migration was the most difficult

The key item noted by Surmacz (2002) is that planning is the key to the ultimate success of the upgrade.

Many ERP companies develop tools to quickly and effectively migrate a company to a new version of their software so this can help to reduce many of the fears companies have that the upgrade process would be as difficult as the implementation was.

2.6 IT INVESTMENTS

Figuring out the potential cost of IT investments used to be relatively easy. To install a new application for instance, was just a case of costing out a bit of extra hardware, some developer time and finally some software licences. In these times, the price tag was usually bigger than you would have liked but at least it was tangible.

Nowadays evaluating both the cost and benefits of the software can be an almost impossible task. This is highlighted by the sheer number of cases where the cost of an ERP system upgrade spiralled out of control resulting in costs in some cases of over 10 times the initial investment. IT investments should be made like other business decisions, based on value. This means that the “softer” qualitative benefits need to be properly evaluated and factored into the decision making process. The IT investment needs to be analysed in terms of the total value of ownership that the IT system may represent.

On management information system software selection: “It is like trying to find the ROI on a pair of shoes. You need shoes, and you want them to be good ones, and of course you do not want to overspend or under spend” (J. Carlton Collins – CPA) (Smith, 1999)

2.6.1 IT investment or New Venture?

Cliffe, (1999) notes that many companies now treat ERP investment as a large scale IT project which means they attempt to pin down all of the requirements at the start of the project and try not to make any changes at later stages of the implementation.

Analysis by Cliffe (1999) also identified that anyone who reviews the initial preparation documentation for large-scale ERP systems will see that the ultimate system is shaped by unanticipated late breaking circumstances.

A much more viable alternative would be to look at the implementation as a 'new business venture' as this shares many of the qualities of ERP implementations, such as diverse teams, high risks, high costs and a constantly evolving nature.

2.6.2 Total Cost of Ownership (TCO)

Many companies have responded to the challenge of deciding on IT investments by falling back on the "total-cost-of-ownership" method to determine the return on their investment. This methodology was designed to identify and measure components of IT expense beyond the initial cost of implementation. While TCO can be a useful tool to reduce ongoing costs by improving management practices, it is not a sound basis for decision-making (Dempsey *et al*, 1998).

TCO analyses often neglect important cost categories such as complexity costs, strategic factors and ignore IT benefits altogether. TCO also has problems evaluating lifecycle costs and lack a well-defined base for comparisons. When implementing or upgrading an ERP system the majority of the benefits can be defined as 'complex' as they rely heavily on integration and relationships that cannot be taken into account by the TCO method therefore it is not a suitable method for evaluating the costs and benefits of such a decision.

Example: Company X is contemplating a major investment to upgrade its ageing network with a higher capacity network to link its stores. The IT manager believes that investment is essential as the current network is running out of capacity but he cannot make the figures add up as finance only want positive NPV projects.

He knows that when the business managers want to implement a new business package the network will be unsuitable and will require a costly, time-consuming upgrade delaying the business package deployment. – This shows the problem with evaluating IT only on cost.

2.6.3 Total Value of Ownership (TVO)

Dempsey *et al* (1998) believe that the TVO method more realistically matches the required process to evaluate a new application to support business activities. This method asks the question “is it worth it?” and tries to put qualitative values onto the business decisions.

The cost/benefit methodology associated with TVO analysis divides the costs and benefits into categories covering the one-off costs involved in the decision, the ongoing costs associated with the decision and finally the incremental business revenue generated because of the decision. The categories are then classified according to their impact. Hard impact categories are easily quantifiable and usually include items such as hardware costs. Soft impact categories are items such as market share or productivity gains and depend on uncontrollable factors but can possibly be quantified. Finally, unquantifiable impacts such as improved customer satisfaction are uncertain and difficult to quantify but must be described and debated if companies are to make the right decision.

2.6.4 IS Project Appraisal Methodology

Serafeimidis *et al* (1999) proposed a new methodology for evaluating Information System (IS) appraisal with its theoretical foundations established around information economics. This system addressed the issue that many of the existing IS evaluation approaches suffer from a number of weaknesses as they originated in the functional/technical or economic/financial paradigms. Their problems are all related to the limited importance placed upon understanding the complete context of the IS system to be implemented.

A leading British Insurance Company developed this system and it has been used successfully by them, and other companies to evaluate the costs and benefits of complex, interdependent information systems.

This methodology is significantly limited as it bases judgments on qualitative answers to key questions that would be open to significant bias by the person conducting the appraisal as was highlighted by the two cases used in this paper (Serafeimidis *et al*, 1999).

CHAPTER 3: METHODOLOGY

During this project, five areas were investigated in detail so that RML could make a realistic decision regarding the possible upgrade of the SyteLine software from the current version 4 to version 6. These four areas were:

- The costs of upgrading the system as these will be key to any decision on the feasibility of the ERP system upgrade.
- The benefits of upgrading the system to RML as it would be pointless upgrading the ERP system if there was negligible benefit.
- The risks associated with the upgrade option. As the ERP system runs many areas of the business there is a potential risk associated with the upgrade and of the choice not to upgrade the system.
- The timescales of the implementation process are necessary so that RML could plan when and how they could upgrade if they take this option.

To gain an initial understanding of the problems RML face some preliminary background research was done to familiarise the author with the software and project requirements.

3.1 PROJECT FAMILIARISATION

To gain an initial understanding of ERP systems, their use within business, implementations and upgrades the author undertook a literature review focusing on the three areas of general ERP background, implementations or upgrades and information system appraisal.

To gain a clear understanding of the system some familiarisation was required by the author. This was done in two ways:

- Firstly, the author worked through many of the training manuals RML held on the SyteLine software
- Secondly the author visited Frontstep Plc who sell and support the software in the UK to understand the features of the current version, the features of the latest version 6 and also to understand a little about how the software functions

During the project, the author also contacted a variety of companies that had already upgraded their Frontstep, or as it was formerly known, Symix, ERP system. All of the information from the companies who responded is located in Appendix 1 with two case companies explained in Appendix 2. This information was used to validate some of the results of this work and provide a reality check for some of the speculation and sales hype regarding new software and computer systems.

These companies were contacted through two different means. The first was a contact given to the author by Frontstep UK at a company who had recently upgraded their SyteLine ERP system from version 4 to version 6. The second method was by using a discussion board on the internet (<http://www.peg.com>). This discussion board was used by IT managers around the world to share information regarding their SyteLine system and help each other with issues such as modifying their system, upgrading their system and overcoming difficulties with the software.

3.2 THE COST OF UPGRADING THE SYSTEM

To gain a clear picture of the size of the investment necessary for RML in the new version of SyteLine a full cost analysis was performed. This was done by providing two options for RML for the computer system for the SyteLine ERP system to run on.

3.3 THE BENEFITS OF UPGRADING THE SYSTEM

To analyse the benefits of the new version of the SyteLine software three techniques were used:

- QFD (Quality Function Deployment) type analysis of the problems and 'like-to-have' features for the new version
- A test system was set up for review by all main departments within the business
- The evaluation of other case companies who have performed the same or a similar upgrade to the one proposed by RML

These techniques were used to try overcoming the problems associated with the complexity of placing a monetary value on the new features, as they are so complex and interdependent with many other areas of the business.

3.3.1 QFD Analysis

The QFD methodology required questioning all of the departments who use the SyteLine software so it was possible to understand their exact role within the company, how they performed each activity and finally to understand the problems they had with the current version of the software.

The questionnaire used to collect the information about the problems faced by the users of the system was left very open for two reasons and can be found in Appendix 3. Firstly, this allowed the users to suggest a wide range of problems without prompting secondly the form did not require the users to classify the problems according to areas such as graphical issues or inefficiency issues that had been pre-selected by the author.

The main problem with this was that many of the users had grown so used to the system that they did not really notice a problem anymore. This was particularly evident in the accounts department where one new person to the system managed to suggest many problems with the system that the other users who had used the system for years agreed with but had overlooked. The only real solution to this would be to get someone else familiar with the software to review other departments screens but this would not be feasible for this project due to the immense amount of time required.

The scale of the problem was identified by a numbered scale corresponding to how significant the problem was. The scale ranged from 1 being a necessary feature that the users could not live without through to 5 being a 'nice to have' feature that would make no real difference to productivity. To ensure that the responses from users were consistent with each other, the author filled in the questionnaires gauging the users attitude to the problem and their opinion of the severity of the problem to select the appropriate number from the scale.

The completed questionnaires are in Appendix 4.

3.3.2 Test System Evaluation

The tests system evaluation was to be performed for two main reasons. Firstly, it would allow the users to gain a feel for the software with the intention of reducing

the possibility of resistance to the change of the software as is often faced in companies upgrading or implementing new software systems or upgraded versions as was mentioned previously in the literature review. Secondly, the test would help to establish the relative change in the new version compared to the current version hence giving an idea of the scale of benefits that can be realised by upgrading the software.

The methodology that it was intended to employ for this testing was to allow users to familiarise themselves with the system with a list of the changes in front of them. This would allow them to investigate the new features that they feel would be relevant to their usage of the system before they went on to evaluate the system fully.

The next step was to ask the test subject to go through each screen and rate its performance relative to the current screen or system of screens used by the employee. In addition, the test subject was asked to review any reports they would use normally.

The test subjects were given an open questionnaire (Appendix 5) where they could write the screen or report name and then rate it on a scale between '1' and '9', with '5' being the median value. The scale ranged from '1' being that the screen was a massive improvement over the current screen or method, '5' meaning the screen was the same as the previous version and finally '9' meaning that the new screen was much worse than the current version.

The test subjects were then asked to complete a set of 10 questions about the system based around the problems identified from the QFD analysis and information from the discussion groups on the internet (www.peg.com). The questions were:

- The screens are clearly laid out (Graphical screens are better?)

Many users felt the screens were difficult to read or needed to be GUI (Graphical User Interface) screens

- Information can be entered quickly and efficiently

Generally, users found the screens were difficult to use when entering some data

- Information and screens can be found quickly and efficiently

User found some reports and screens were difficult to locate and extract information from

- Appropriate information is on the screens/reports

Some users could not find appropriate information on screens or reports without having to go through many menu systems

- Reports are better or worse than current version

A variety of users felt the reports were poorly laid out and had poor information

- System automates more repetitive tasks hence saving time

The old system did some functions automatically but the new version promises more automated systems so this question aims to see the value of this claim

- The system addresses the problems identified previously

This question tries to encompass the other problems that had been identified from the QFD analysis, and if the QFD result is correct should show that only a few problems have been solved

- New features provide a benefit to me (1=Yes, 9=No)

This question was a general question to gauge the users' response to the system and provide a general overview of the new features of the software

- Overall understanding of use of system

This question was an indicator to bias the results of the other questions as if someone has poor understanding of the system then they will not be capable of making concrete conclusions about the function of the new version. In addition, this may indicate potential areas of training requirement

- Overall impression of the new system

This question would give a general view of how well the new version of the system would be accepted and possibly an indication of the training requirement

The questions were also designed to give an indication of the potential level of training required by RML in the various business areas; therefore, to gain a clear business-wide view of the potential upgrade benefits users representing all areas of the business were selected.

3.4 THE RISK ASSOCIATED WITH THE UPGRADE

Further to the previous sections, the project used the methodology suggested by Serafeimidis *et al* (1999) and looked at the potential risks that faced RML if they did or did not choose to upgrade their ERP system and tried to place a qualitative or quantitative value on these risks.

3.5 THE PROPOSED TIMESCALE FOR THE UPGRADE PROCESS

This was analysed so that RML could plan when they would want to upgrade the system while also giving them an idea of the resource requirement such as personnel for the upgrade process. The planning stage would also give RML an outline so that they can ensure they do not lag behind the schedule significantly and allow sufficient resources for the upgrade without leaving the business short for its day-to-day running.

3.6 FUTURE DEVELOPMENTS

This section of the report outlines some critical success factors that RML would need to address if they chose to upgrade their ERP system and gives some further suggestions based on literature and company analysis.

CHAPTER 4: UPGRADE BENEFIT ANALYSIS

Management Information System software such as the MRP system by Frontstep have to not just add value to the business but support and facilitate the day to day running and management of the business. There are so many cases where items are not designed with the ultimate user in mind (Neilsen, www.useit.com) especially in the field of computer software systems, as most computer users will undoubtedly know.

Three out of four computer users cannot get their machines to do what they want and a minority hit them in sheer frustration...

The Sunday Times, 22 February 1998

Many of RML's users use the ERP system almost all of the time and therefore a system, which proves to be powerful, automating as much as possible of the routine tasks, while remaining simplistic and useable, is the key. Therefore, to understand if the new version of the SyteLine software is a definite improvement over the current version some benefit analysis was required. This analysis will be explained in further detail within the following sections of the report.

4.1 NEW FEATURES OF SYTELINE V. 6

The new features of version 6 of the SyteLine software are described below with a short description of their potential benefit to RML. These new features were obtained from each new version of the software's help file since the current version 4 right up to version 6 and were looked at in detail to ensure no features had been superseded by another feature in a later version of the software.

- Accounts screens are all now Graphical User Interface (GUI) – this provides a more intuitive, user-friendly interface for the users. This would hopefully allow faster and easier data entry and analysis of accounts information.
- New buttons
 - Apply Button – this button allows the user to make one transaction for applying open credits, payments, and invoices.

- Auto-Refresh Windows button - When this field on the Window List screen is selected and you save changes on a screen, all screens which access the same data table are refreshed with new data.
 - DUP – The duplicate (DUP) button has allows you to launch multiple copies of the same screen that is currently open.
 - Synchronise button – The synchronize (SYNC) button allows you to synchronize all open screens to the key of the screen where the SYNC button is activated.
 - Translate – Where appropriate, the translate button allows a user to toggle views between the home currency and the translated currency.
 - Refresh button – button brings up the latest information on the database without requiring you to toggle on and off the screen being viewed.
- Cached Screens – A user can cache as many screens as their RAM will permit simply by exiting the screen. The screen will be cached so that the next time the user wants access to the screen, they will simply access it through their normal means and it will instantaneously appear which would save on load times per screen of approximately 20 seconds per screen use.
 - Planners Workbench – allows "One stop shopping" for production, purchasing and material planners. After running MRP and processing the planners' workbench, the planner can launch job orders, create purchase orders, select suppliers, consolidate orders, etc. from one location. This feature should prove to be a considerable time saving for the planners at RML.
 - By-Product Costing – This would allow RML to add costs for by products produced during the manufacture of components. An example of this would be the residual value of removed material from a component.
 - CTP capabilities - When invoking the CTP option at the time of order, the salesperson does not simply get a no or yes back, he gets an answer of what can be done. Therefore, if a user's customer would like to have 300 pieces by next Tuesday but there are only 75 capable to promise, the user sees what is capable rather than simply a NO. This would permit RML to provide a higher level of

customer service by saying "I can't get you 300 by next Tuesday but I can get you 75 and deliver the rest by Thursday ..." In addition, the new capability shows the user the source of the 75 (i.e. 30 from stock, 25 from purchase orders and 20 from production).

- APS analyser - Enhancements have been made to allow the user to see where the bottleneck sources that are causing production deficiencies are. These sources can then be used to develop "What-If" scenarios in APS that will now be tracked and saved so that once the best combination of capacity changes is developed, they can be placed into SyteLine.
- APS now allows different operations to be performed on the same job order at the same time. If operation 20 can begin directly after operation 10 but before the job order is complete for operation 10, APS plans for that. This would ensure the BOM matches RML's actual production methods.
- User Extendible Tables (UET) - This allows a user to add their own fields to the database that will carry forward to future upgrades of the software. In addition, these fields can be replicated to multiple sites. This would help RML as they use extended fields for various items.
- User Extendible Tables and GUI – There is the ability to add additional tabs to GUI screens. This will allow RML to set up specific areas that they can go to and enter only the information that they need for specific purposes.
- Telescope super search - Press the telescope button to access a SuperFind browser with filter capability. This will allow much quicker locating of information within the system.
- Consolidated invoices, vouchers, shipments and receipts – This would allow significant timesavings as many items can be received, shipped or invoiced at one time.

Adapters: (1) Customer Order Confirmation, (2) P.O. Acknowledgement, (3) Inventory Availability Check, (4) Reserve Inventory, (5) Print Pick List, (6) Automatic Ship Notification, (7) Invoicing at Shipment, (8) Customer Item Pricing and (9) Credit Check - Adapters

- Allow you to remove keyboards and route activities from your organization permitting RML's valuable human resources to think rather than to perform mindless activities.
- Delivery Orders - Frontstep has added the ability to ship multiple customer lines and/or multiple customer orders on one control document. This allows you to fill containers with product and to control the contents of the entire container rather than worrying about the specific customer order. This flows through to the customer invoice too. You can send the customer one invoice for the entire shipment rather than multiple invoices and packing lists and advanced ship notices can be produced.
- Goods Receiving Notes (GRN's) – There is the ability to receive items from multiple purchase orders or purchase order lines onto one control number permitting that control number to carry forward to the vouchering process which would allow significantly less time spent inputting data into the system.
- Consolidated Invoices – RML could consolidate an invoice for multiple lines, customer orders, or delivery orders, sending your customer the invoice the way he/she wants it when they want it (e.g. monthly).
- Work Centre Sequencing - Work Centre Sequencing would allow RML to establish buffers at specific work centres that the SyteLine Global Scheduler uses to attach additional time to the operation going through the work centre. By doing this, you have the flexibility to sequence items through a work centre within the buffer without disrupting other schedules within your operations. For example, RML may sequence items through their paint shop according to the colour to minimise downtime cleaning spray equipment between items.
- Workflow – This would allow RML to pass information to users to authorise or add information to the SyteLine databases through the use of e-mails and would not require the user to log into the system to enter the information. This way procedures can be enforced within various areas of the business.
- Enhanced Project Controls - Work breakdown structuring and invoicing of tasks/resources would allow much more efficient running of RML's projects.

- RF devices - RF store and forward data collection capability using Antares devices would allow RML to issue, stock take and receive goods much more quickly and efficiently by just scanning a barcode on each item or its storeroom location.
- A/P adjustments and adjustments – This functionality is a batch file where items can be held and amended before being released into the accounting journal allowing RML to ensure that everything is correct or all the information is available before it is released.

Many of the new features listed above, are of possible benefit to RML if they wanted to use them, but many of the enhancements could prove too time consuming to use and manage in a company as small as RML and would not provide enough benefit for RML to justify their use.

To overcome this hype regarding the new features of the new version of the SyteLine software a method was required to see if any of these alleged benefits would actually be of value to the users of the system at RML.

4.2 QFD ANALYSIS OF SYTELINE V. 6

There were many methods available for analysing the new features to see if they would be a cost or time saving for RML but many of these would be far too time consuming and would require extensive testing on the new version of the system.

A Quality Function Deployment (QFD) type methodology was chosen to identify some of the major problems users have with the system and correlate these with the new features of the SyteLine software to see if the new features are of actual benefit to RML.

4.2.1 *QFD Analysis Background*

Quality Function Deployment (QFD) analysis was designed to collect and organise the customers' views so that higher quality products that surpass the customers' requirements can be produced. QFD has been primarily focused around this area of product development, quality management and customer needs analysis but now this technique is being used in much wider fields as diverse as decision making,

teamwork and costing. This method was chosen as it would allow the users of the ERP system to voice their opinion and then to correlate these opinions with the new features that the new version of the software offered. Seaby (2001) highlights that the QFD methodology has been used previously to evaluate software systems and more importantly Management Information Systems (ERP type systems) with high levels of success.

4.2.2 Problem Analysis

To ensure that the problem analysis took into account all areas of the system the following key people were questioned:

- Everyone within the accounts department
- The buyers who deal with purchasing the required parts for production
- The production manager who has a wide knowledge of the current system within a variety of areas

A breakdown of each of the departments and the problems they have with the system are outlined in the following sections of the report and are in the QFD analysis in Appendix 6. The original questionnaire forms are in Appendix 4.

4.2.2.1 Accounts Department

This department deals with much of the day-to-day general accounts work including Invoice entry, maintaining standard costing for items, producing invoices/credit notes/ debit memos, reconciliation of the accounts, chasing orders and WIP analysis.

Within this department, the users identified the following problems:

- The screens they use are not Graphical User Interfaces (GUI) and are all manual screens which are confusing, inconsistent, difficult to understand and time consuming
- When they have to search for a customer, they have to know the exact name. (E.g. if they put in 'B' for the search it will bring up the first customer with its first letter of its name being 'B' and not a list of all of the companies whose name starts with a 'B')

- The Materials by transaction report does not reflect project transaction (currently logged as miscellaneous)
- When a customer pays details have to be added to reconciliation but for vendor payment this is automatic and causes problems with inconsistency when working as screens are similar and it is very easy to forget
- When reprinting an invoice it cannot be found if manually entered into the system. The accounts department have to go through a long winded list of screens to reprint the invoice
- For an invoice reprint you must know the invoice date *and* number
- Remittance advice slip is difficult to produce as it is hard to find and put information into
- Remittance advice slips have poor layout and cant be folded into window envelopes
- Invoices: the figures do not line up with columns and cause confusion for the customers and accounts department
- Invoices: the ship to address can not be used so customers may not realise they have received their goods to another site or quite often in RML's case to a race meeting
- There is no warning on vendor maintenance screen to remit to another company when the accounts department are paying their suppliers
- On the posted transaction screen it is not possible to identify the amount for cheque issued as items that RML have put on hold due to a discrepancy are listed in the screen and not marked clearly
- The majority of the finance reports are all unclear which can lead to confusion and wasted time deciphering the reports
- RML use a significant amount of project resources and can not invoice projects at set interval or when a certain process is complete which happens quite often during a race season

4.2.2.2 *Production*

The production department's primary responsibility is managing the production activities of the various departments within RML. Their use of the system ranges from scheduling activities through to maintaining the bill of materials and other general production activities.

- On part screen there is no supplier information or any quick link to this information
- It is not possible to list transactions on a part which would allow RML to trace where parts have gone if there is a discrepancy within the stock
- On project resources screen there is no way to move direct to a line which means that it takes a long time to find the item they are looking for
- Many prompts that are unnecessary and obvious to the user which slows the use of the system unnecessarily
- It is not possible to report on user-defined fields. This would allow RML to add extra information to the record for a part or customer, which would be specific to their business. For example some of the racing teams like to know how many of their parts are being held by RML on their behalf
- On the planning detail screen, the search defaults to planner rather than part code. This is more of an annoying feature of the system as every time the user wants to look at the details they have to change the search default around
- The system allows deliveries at weekend when RML is closed as their work week is Monday to Friday, therefore the lead times on the parts can be incorrect as they do not factor in the weekend into the lead time

4.2.2.3 *Stores*

The stores area of RML manages the inventory held by RML and deals with issuing the inventory to jobs or projects, receiving goods and shipping goods to customers. The following problems were identified with the current system:

- Pick lists are not sorted in order therefore no structure to picking activity and the picker could be having to walk upstairs to get one part just to return to the store location next to where they were originally
- Stock levels within the system are not accurate with some raw materials such as sheets or bar stocks. RML have no way of knowing if the 5 metres of bar in stock is one 5 metre bar or ten ½ metre bars
- The time phased inventory screen is confusing as it reads upwards
- The material transaction by item report is confusing as it reads backwards
- You can issue more parts than you have from a lot without any form of warning to tell you that you will go into negative stock or that you don't actually have that much in stock
- If an item is over issues by mistake the system does not remove the demand for that part from the system therefore the part may be re-ordered if it is not corrected immediately
- Parts could be bar-coded for much quicker and easier tracking, stores management and issuing
- When receiving goods into a new stockroom location the systems accepts it but does not create the location. The user then has to go and create the new location even though there are parts there already

4.2.3 Results of QFD Analysis

The result of the QFD analysis can be seen in Appendix 6 and as can be seen by the lack of ticks in the boxes there was little correlation between the problems RML have with the system and the new features of the upgraded version of the software.

This could be interpreted in two ways. Firstly, the new version could be providing no real benefit to RML and therefore going through with the upgrade would be an unnecessary waste of time and money, or other factors could be influencing the results therefore more investigation should be undertaken.

4.2.4 Further Development of QFD Analysis

The author then went back to the problems described by each department and analysed each one in detail to see what the cause of these problems could be. From this further analysis, the author concluded that many of the problems RML face with the current system are because of two problems:

1. The system is no longer maintained due to key staff leaving the company
2. Some users could do with more training so they can understand how to use certain features or screens properly

For example, in the accounts department they regularly hand write cheques for suppliers and they get the details from the vendor maintenance screen. On this screen the suppliers address is clearly visible but there is no way to tell if the cheque should be remitted to another company without checking through another screen. This can easily be solved by editing the layout of the screen, which is a feature of their current version of the software and would therefore eliminate the repetitive time consuming checking needed while producing cheques in the accounts department.

The QFD chart in Appendix 6 highlights which of the problems faced by RML's users can be overcome in each of these two ways. As can be seen the number of problems that can be solved with the current version compared to the new version there would be little justification on this evidence alone to upgrade the system incurring significant costs in RML's personnel resources alone.

4.3 OTHER COMPANIES' EVALUATIONS OF VERSION 6

During this project, other companies who use the SyteLine ERP system were contacted for a variety of reasons, one of which was to understand the benefits of moving to the new version of the software.

All of the responses to the authors questions (Appendix 1) have resulted in two areas being identified as key benefits to the upgrade, and these are 'functionality' and 'support'.

Frontstep only officially support two versions behind the current version of the SyteLine software, therefore as RML are currently two versions behind the current,

as soon as version 7 is released the support may end. Frontstep do say that they will continue to support previous versions as much as possible but for most companies this seems to be too much of a risk.

All of the responses received from companies state that there has been major functionality upgrades in version 6 of the SyteLine software but many of these were not specific enough to form a conclusive list of benefits. Of the responses, the main features of the new version that the companies directly outlined as being of benefit were the following:

- New planners workbench where the planner can launch job orders, create purchase orders, select suppliers and consolidate orders from one location proving to be a large time and effort saving.
- Graphical User Interface (GUI) of the accounts screens was liked by users but the value of this seems rather low, as there is little productivity improvement.
- Export features were also noted as being of benefit as it allows better analysis of financial information although this feature usually left the data in a poor form requiring significant secondary processing in a spreadsheet.

The responses from other companies about the benefit of the new features of version 6 of the SyteLine software gave a very unclear idea of the potential benefits of the new version of the software to RML. This made it difficult at this stage to make any specific conclusions as to whether RML should upgrade at this point

4.4 USER EVALUATION OF TEST SYSTEM

The results from the QFD analysis while indicating other problems within the business did not effectively show how any of the new features of the latest version of the SyteLine ERP software would benefit RML providing cost savings, productivity increases or higher efficiency. In addition, the results from the analysis of other companies who have made the upgrade to the latest version of the SyteLine software only highlighted a couple of features that were of benefit. To overcome this shortfall, the author evaluated the feasibility of implementing a test system at RML, so that normal users of the system have the opportunity of evaluating the potential benefits themselves. The advantage of this is that the users will gain an insight into

how the new version operates therefore potentially reducing their resistance to change and improving their involvement in the project.

The following sections explain some background to the planned testing process.

4.4.1 Test System Setup

To run the test system Frontstep suggested a computer with the following basic specifications:

- CPU: PII 500
- RAM: 256MB
- Hard Drive: 4 GB min (2GB for Progress Database software & 2GB for SyteLine) – *this would have to be greater if RML's own live databases were to be used*

Unfortunately, RML did not have a computer that could match this specification and felt the cost of purchasing a machine just for the job was not practical, as the cost of a suitable machine would be approximately £400. RML decided that they would try the software on one of their high-end CAD (Computer-Aided-Design) computers with some hardware modification to increase the size of the hard drive to cope with the Progress and SyteLine ERP software using hardware they already owned. Although this computer was slightly below the specification Frontstep quoted this proved to be sufficient to run the system.

During consultation with Nigel Mee (Account Manger) and Steve Kirk (Operations Director) at Frontstep, they agreed that it would be possible to supply evaluation versions of the software required for the test system for a period of 30 days.

4.4.2 Results from Test System Evaluation

Unfortunately, due to time constraints and problems sourcing the software for the test system it was not possible to complete the testing within the duration of this project, but RML can still undertake this testing to help evaluate some of the further benefits to themselves, rather than accepting the views of others.

4.4.3 Limitations of Test System Evaluation

With the test system, there would be some limitations due to users not having full training and experience with the new version. This meant that when they compare the new version with the familiar current version, for which they have had appropriate training, the new version would not seem as favourable as it actually may be, and the benefits realised during the testing may be more important than the results indicate.

The test system would also not be customised, as the current version has, therefore some of the processes would not be as the users expect. This can be taken two ways as the test system may match the business processes better than their current version. On the other hand, the customisation albeit probably fairly simple and minor may be a considerable advantage to the way RML operate the system therefore the recent version may appear to be less beneficial than it should be.

4.5 INDIRECT BENEFITS

The indirect benefits of an ERP system implementation are normally very vague at the best of times and from the literature review in chapter 2, it can be seen that many companies struggle to evaluate some, if any, of the indirect benefits. In the case of this upgrade, the indirect benefits that could result due to the upgrade are even more clouded as the ERP system currently in place will already provide some indirect benefits, but to what level is relatively unknown when compared to a new version of the system. These benefits could come from such a wide variety of areas of the business and would most likely be due to better integration of functions within the business, which would prove almost impossible to evaluate.

CHAPTER 5: COST ANALYSIS

This section of the report analyses the potential costs and options available to RML for upgrading their SyteLine software and associated hardware as the system specification provided by Frontstep (Appendix 7) shows. In addition, feedback from current users on various newsgroups and mailing lists on the internet highlight the need for a computer system that *at least* meets the Frontstep specifications (Appendix 1).

The direct costs associated with the ERP system upgrade can be broken into two main areas. The first is the cost necessary to upgrade the SyteLine software and the servers and the second is the cost of upgrading the client machines, which users use to run the SyteLine ERP system. These two areas are explained and evaluated in sections 5.1 and 5.2 below.

5.1 SYTELINE COMPUTER SYSTEM UPGRADE REQUIREMENTS

The main part of the computer system upgrade necessary to run the SyteLine software is described in further detail in this section. This does not include the cost of upgrading the client machines that users use to run the SyteLine software as the options and associated costs are explained in section 5.2. These costs are then brought together in section 5.2.3 to obtain the total cost of the upgrade.

5.1.1 SyteLine Version 6 Installation Cost

The main cost of the installation of the software would be hardware and consulting costs as the new version of the software would be free as RML currently have a maintenance contract with Frontstep.

After the author had a lengthy discussion with Nigel Mee (Account Manager) and Steve Kirk (Operations Director) from Frontstep the consensus was that RML would require 10 days of consultation to get the upgraded system up and running. This can be broken down as follows:

- 2 days pre-implementation preparation
- 2 days test installation

- 1 day of generic training
- 3 days acceptance testing
- 2 days of support after the changeover

In total, the consulting required would come to 9 days at a price of £767 per day as long as the consulting is taken before the end of the year. After this there is subsequent price increases as can be seen by the document in Appendix 8.

Of this consulting the most likely area of overrun would be the initial preparation for the upgrade as RML have altered the system so that it operates in the way they want it to operate. These changes have not been documented and the person responsible for the changes has now left therefore Frontstep would have to check the system for these modifications, evaluate their user to see if they are still necessary and then work out how the new system will be modified to cope with these changes. Therefore, an extra day has been added to the consultation charges for the initial SyteLine requirements.

5.1.2 Server Machines

Frontstep supplied system specifications for the servers necessary to run version 6 of the SyteLine software (Appendix 7) and this showed that to upgrade would require some of the servers to be changed to cope with the extra demands placed upon them by the new software. During the research using the discussion group on the internet (www.peg.com) many companies cited that the servers should be upgraded past the recommendations provided by Frontstep to ensure the system runs smoothly (Appendix 1).

In Appendix 9 there are two quotes from Frontstep themselves and from Added Dimension who supply ex-demonstration machines at reduced prices with full guarantees. The total for these machines will come to a total of £8,586 without support. Support would be approximately £40 per month per server and RML already have their existing servers covered on this type of agreement, which would result in a cost of £1,400 per annum and would seem like a wise choice due to the possible implications of server failure.

5.1.3 Software Licenses

To run the systems RML would require server licenses and Client Access Licenses (CALs) for all of the machines connecting to the server. The cost of the recommended Microsoft Windows 2000 server software would come to £2,382 and each one would come with five CALs each. RML would require 50 CALs, which after taking out the free licenses would leave RML requiring 35 licenses, which would come to a total of £891. The price for these licenses is consistent between vendors and these quotes were given by the PC World Business support team and verified with other computer software sales outlets.

Currently RML have a 25 concurrent user license for the SyteLine software and this would remain the same after the upgrade. Therefore, the cost of this is an ongoing cost that is in place with the current version, and will therefore be ignored for the cost analysis of the upgrade.

5.1.4 Backup Tape Drives

The backup system in use by RML at present is very weak and could easily result in a significant loss of data at a high cost to the business of lost production time, lost orders, inventory inaccuracy, ongoing downtime of system and data recovery. The solution to this is to implement a sound backup policy within RML and support this with reliable hardware.

Panacea is a company specialising in backup solutions for companies such as RML and after looking at RML's backup requirements produced a quote for a backup system, and although this was not as competitive as sourcing the components from elsewhere this confirmed that this type of system suggested was the preferable route to go down.

The backup system recommended by Panacea would be a Hewlett Packard Ultrium tape drive system, which would cost £3,258.83 as the quote from Added Dimension shows in Appendix 9.

After reviewing the available software for managing the backup system the Backup Exec software was seen to be most appropriate for RML's needs. This software is freely available from various computer retailers and is broken down according to the

type of computer that will use it. This breakdown can be seen in the computer costing in Appendix 10, and the total for the complete backup software comes to £2,382.60, which brings the total backup solution cost to £5,641.43.

5.1.5 Infrastructure Costs

To upgrade the computer system RML would require extra space in their computer room, which is available if necessary in the small storage room adjacent to the current computer room. This will incur some infrastructure costs of new racks to hold the servers, new uninterruptible power supplies (UPS) to ensure the servers are protected from unexpected power outages and new switches to move the data between computers. The total cost of the UPS required would be £1997.50 and the quote for this can be found in Appendix 9.

Frontstep recommend that RML do not have more than nine computers connected to any one switch for version 6 therefore RML will require three additional switches at a total cost of £2,228.58 (Appendix 9).

5.1.6 Potential Saving

The costs for the SyteLine base computer system cannot really be changed significantly to reap significant savings. The most that could possibly be saved would be approximately 15%, which equates to approximately £5000. To do this RML would have to cut 2 days of consultation from the upgrade process and not have the servers supported.

To reduce the consultation costs the most likely area of saving would be to reduce the amount of after upgrade support and ensure that the rest of the upgrade consultation goes as planned.

RML could also leave the servers unsupported, which means that the business would be exposed to a high risk of data and significant downtime if one of the servers failed.

RML could also potentially save on some of the CAL's, which would provide a small saving at the cost of reduced functionality or computer access around the site.

5.2 CLIENT COMPUTER SYSTEM UPGRADE REQUIREMENTS

After further investigation of the system requirements provided by Frontstep (Appendix 9) and the feedback the author gained from newsgroups (www.peg.com, Appendix 1), it was realised that the client computers would need to be upgraded due to the heavy requirements placed upon the computer systems. This showed that RML would find that the SyteLine software would run too slowly on their current machines; therefore, RML have two choices to increase the speed of the software on the client machines. These two options are:

- Option 1 (FAT clients): Upgrade the client machines (on the users desk) to cope with the requirements of V.6 of the SyteLine software and upgrade the servers to cope with the system.
- Option 2 (Thin Clients): Upgrade only the servers and implement a Citrix (thin client) system where the client uses the server to do all of its processing effectively making the client a dumb terminal.

The relative benefit of each of these options is explained in Figure 8.

Item	Option 1: Fat Clients	Option 2: Thin Clients
Server Costs	The servers required would be basic low cost servers	Requires the same servers as option 1 but also other high cost/spec servers
Client Computers	New PC's would be required for all users	The existing computers would not need to be changed (maybe a few minor modifications)
Scalability	Scalability would be difficult, time consuming and costly for new computers	Very quickly, easily and relatively cheaply scalable due to only requiring server upgrading
Remote Access	Users can only remotely collect e-mails	Users can get access to their desktop and all applications they would normally have access to at any computer on or off site
System Management	Management of computers directly, one at once	Manage all machines together from any location

Figure 8: Comparison of costing options

5.2.1 Option 1: Fat Clients Costing

After consultation with RML’s IT manager George Alland it was realised that there would need to be approximately thirty new PCs purchased to run the SyteLine

system on, of which four would have to double as Computer Aided Drawing (CAD) machines which would be slightly more expensive. In addition, George felt that eight new laptops would be needed for when users are offsite with teams so they are able to add requirements for components to the system as and when necessary. The total for all of these new client machines would come to £84,832.55.

5.2.1.1 Potential Savings

Potentially RML could save up to 20% of this cost, which equates to £16,000 in total by utilising some of the options outlined below:

- Reduce the specification of the machines slightly
- Not purchase many laptops reducing the possibility of remote access while off-site
- Purchase only enough machines for the 25 SyteLine user license which would reduce flexibility in the work environment
- Do not upgrade the extra CAD machines and only upgrade the ones that will run SyteLine

In the author's opinion most of these savings are justifiable and would not significantly affect the business function while reaping considerable savings.

5.2.2 Option 2: Thin Client Costing

The thin client option would be beneficial to RML and would bring additional functionality but it is extremely costly as the quote from Execute in Appendix 9 shows. Execute are a company who have a wealth of experience in installing the Citrix system in businesses of a similar nature to RML and have experience installing the system for use with a variety of versions of the SyteLine software.

As RML have not got the skills in house to implement this system it is definitely advisable for them to allow an outside company such as Execute to install this system for them as it would ensure the project is completed successfully, on-time and on budget. In addition, the risk associated with the installation would be massively

reduced, as Execute would ensure that all precautions are taken and Ray Mallock employees fully understand how to use and manage the system.

The implementation of this system including all of the associated hardware, which would be supplied by Execute, would come to a total of £62,274.27. There would be other costs for the infrastructure and subsistence cost of the implementation team of £2,042.86. Finally, Execute will support the system at a cost of £5,000 per annum, which would appear to be a very sensible idea as RML does not have the experience in house of this type of system.

5.2.2.1 Potential Savings

There is little in the way of savings that RML could find with this option, as an outside company would be used for the installation. The main area of savings would be not to take the support on the system and to agree the subsistence costs of the installation team before the implementation takes place.

5.2.3 Other Companies Evaluation of Options

After contacting other companies regarding their use of Citrix type systems it was found that many companies use the Citrix system and praise it for its ease of use, its flexibility for change and finally its remote access features. Often though the companies that used the system were much larger than RML and had multiple sites running the SyteLine ERP system with one main site providing the servers to run and manage the complete system.

The main problem faced by users of the Citrix and SyteLine ERP software combination was that there were printing issues that had to be overcome, especially if the users roamed around a site or multiple sites within the business.

Overall the responses were fairly split regarding the usage of the Citrix system but the general consensus was that if you were using multiple sites then the Citrix option would prove the most suitable but also the most costly. Many of the users also stated that the one thing that should not be done under any circumstance is scrimping on the hardware, as the performance drop would be significant.

5.3 RESULTS OF COST ANALYSIS & TOTAL COSTING OF OPTIONS

In conclusion, it seems as though the best option for RML would be to upgrade their client machines rather than installing a Citrix type system for two reasons:

- The cost is significantly lower
- The features offered by Citrix would not be utilised effectively by RML and would prove too time consuming for RML to set up fully

The total cost of each of the options available to RML including the cost of the SyteLine requirements would be:

- Upgrade client machines: £86,659.05
- Use Citrix type system: £101,976.17

These costs listed above could have been reduced significantly over the years as RML could have invested in their computer system, ensuring that it would be at a level where it could support RML's strategic goals when necessary. This would be different to RML's current situation where they have to incur a significant financial and time burden making the system capable of supporting projects such as this one.

CHAPTER 6: RISK ANALYSIS

There are various risks associated with upgrading or not upgrading the SyteLine ERP system and these are outlined in the following sections.

6.1 UPGRADING TO SYTELINE VERSION 6

One of the main risks RML will face if they choose to upgrade the ERP system will be the resistance to the change to the new version, as many employees will have a natural resistance, because they will be moving from a version they know well to an unfamiliar version that they need training to use properly. This can be overcome by allowing employees some time to test the new features on the test system, similar to the one set up for the functional testing of the new version, in an environment where they have RML's own data but they are not in a live environment where they can make any serious changes.

After the implementation, RML will have to do a significant amount of re-evaluation of their current practices to ensure that they are in line with the usage of the new system, this will require a considerable amount of management, documentation and evaluation, and there is a risk that this may not be performed. This could be for a variety of reasons such as RML not having sufficient resources available to undertake the analysis, and the result of not undertaking this analysis would be the ERP system not matching the processes at RML properly reducing the efficiency of RML employees, production facilities and finally the software itself.

If the upgrade process is delayed, or faces difficulties, RML may also face significant costs due to production downtime leading to customer orders being delayed, being incorrect or going missing.

6.2 NOT UPGRADING TO SYTELINE VERSION 6

If RML choose not to upgrade their ERP system then they will 'officially' lose the support of their current version of the SyteLine software, as Frontstep will only officially support two versions behind the current and with the release of version 7 of the SyteLine software towards the end of the year RML will be outside this support. Frontstep do say they will continue to support the version RML are using for as long

as is feasible but this could be a dilemma if RML do have any problems with their current version and Frontstep cannot help.

This leads on to the situation where the current version fails seriously, and RML then have to upgrade their ERP system in a very short space of time to get the support they need. The costs of this would be very substantial not just in terms of the hardware and implementation costs required to upgrade in a very short space of time, but also the many of the hidden costs in areas such as lost production time and the time employees are required to put in to upgrade the software. Even though the risk of this is relatively small, the potential cost is so high it is worth seriously considering upgrading just to reduce this type of risk to RML.

If RML choose to upgrade their ERP system at a later date then the jump to the most recent version will become more and more difficult the further they have to upgrade. This will be due to the amount of data conversion that has to take place and the amount of process change that will have to be undertaken within the business. It would seem more appropriate if RML did not undertake such large projects on a one off basis as they risk losing the skills they acquired in previous installations and upgrades. This would allow RML employees to spend more time ensuring they understand the new features in the system rather than having so many features to look at they have no time for their normal jobs.

6.3 FUTURE VERSIONS OF SYTELINE SOFTWARE

Frontstep are currently trialling version 7 of the SyteLine software in the US with its release in the UK being scheduled for the end of this year or at the beginning of next year. This new version of the software does not use the current Progress type database structure and uses the Microsoft SQL structure. This introduces many risks to RML and these are explained in the points below:

- The new version may have many extra features which may be of benefit specifically to RML
- Bug fixes and updates may not be released for earlier versions as the database system the programs run on are completely different

- The system specification earlier may be much higher than necessary, or much lower than necessary for version 7 depending on how hardware intensive the new version is
- Frontstep may want to stop giving support to people outside 'two versions behind present' as they will have to retain skills on two database systems
- The cost of licenses may increase significantly as the Microsoft SQL licenses are more expensive than the Progress licenses

6.4 RESULTS OF RISK ANALYSIS

The risk analysis shows that with either option RML face considerable risks. From the analysis, it may be advisable at this point in time to wait until version 7 of the SyteLine system is on general release, and information can be gained about the enhancements that are in this version, the upgrade cost, the running costs and system requirements so that a more informed decision about the upgrade can be gained. This may lead RML to look at moving to version 6 and staying there permanently or, waiting a few months until version 7 is on release in the UK and upgrade directly to that version.

CHAPTER 7: IMPLEMENTATION PLAN

The following sections of the report outline an approximate breakdown of the timescales for the implementation of the options available to RML.

7.1 SYTELINE BASIC REQUIREMENTS INSTALLATION

This stage of the implementation would be the most time consuming requiring significant levels of employee involvement. The following stages outline the requirements for this part of the installation:

1. Infrastructure has to be in place – 1 week full installation – little RML employee involvement
2. Server and backup system installation – 2 weeks for total setup – requires majority of time from George Alland (IT manager at RML)
3. Total SyteLine installation – 3 weeks in total -- 10 days of consultation from Frontstep and 20% to 50% of time from approximately four RML employees
4. Training – ongoing – all users of the SyteLine system (see section 7.1.1)

7.1.1 *Training Requirements*

The training required for the new version largely depends on each user's ability and the training required would be in a different area each time. Frontstep offer training courses for users at a cost of £300 per person per day but after considering this the cost to RML would be rather large. To solve this problem it is proposed that RML should bring in a consultant as and when they are needed to overcome problems, train users and modify the system. The cost savings and advantages of this method are outlined below:

- Users can get training only in relevant areas
- Training will be tailored to users knowledge
- Many problems can be solved simultaneously with training

- Users get to work with live, relevant information as they would use it on their system, rather than using fake training information which would make the training more relevant and appropriate
- The cost works out cheaper than a days training course as many people can be trained at the same time by one consultant

To ensure that the problems are dealt with correctly and training needs are identified in a timely manner a problem analysis needs to take place on a regular basis. It may help if this is managed by a user team who would be responsible for the maintenance of the SyteLine system.

7.2 UPGRADED CLIENT MACHINE INSTALLATION

The client machine installation could be phased so that the most essential machines are upgraded first as the upgrade of machines would be fairly time consuming possibly taking up to 3 weeks, requiring up to 70% of George Alland's time. For example, only the essential 25 machines could be upgraded in the initial push with the remaining machines being upgraded at a slower rate, which would reduce the demand placed upon George Alland's time.

7.3 CITRIX INSTALLATION

The Citrix installation would be undertaken by an outside company and they feel that to undertake the implementation fully at a reasonable pace it would be feasible to allow a month for the full implementation, testing and hardware setup.

7.4 WHEN TO PERFORM UPGRADE

RML have three main options for the time to upgrade the ERP system and these are outlined in the following points:

- At the end of the accounting period
- At the end of a race season
- At a period of low production with few employees absent

The advantage of undertaking the upgrade at the end of the accounting period is that RML will have more time to ensure that the system is operating correctly and they are able to alter their accounting practices if necessary to accommodate the new working practices. The main problem of upgrading at this point in time is that the accounts department will be extremely busy producing the accounts for the year and would not have the opportunity to fully contribute to the upgrade process to ensure that the new version matches their requirements.

At the end of each race season RML is not as busy and has closed down most of its race projects within the SyteLine system. This means that large amount of demand and information within the SyteLine system is not constantly changing or in need of updating. Therefore, the system itself would be in better shape to cope with the upgrade without creating large amounts of unnecessary work to ensure the projects continue smoothly and upgrading at this time means that there is less 'critical-live' data within the system if there were to be any problems. This is the method RML chose when they moved from their previous management system to the Symix version 4 of the SyteLine software.

The final option would be to upgrade when they know they will not be busy within the production environment and would probably turn out to be at about the same time as the previous option. The advantage of this would be that many staff would be available to manage the upgrade to ensure their business processes match the system or vice versa. In addition, many of the jobs and projects within the system will have been closed down ensuring the system is in a fit state to be upgraded with minimal risk.

There are advantages and disadvantages to upgrading at any of these points in time, therefore it is suggested that RML should try to upgrade at the end of the race season as they did previously, therefore reducing the possibility of errors with the data transfer and users will not have such a high workload at that point in time. This will help for the basis of a dedicated team to manage the upgrade process, ensuring the business and ERP system are in harmony.

CHAPTER 8: FUTURE DEVELOPMENTS

During the analysis in the previous sections, it has become apparent that it is not realistic for RML to upgrade their ERP system at this point in time. Therefore, the following sections outline some areas that RML should address to ensure they get the most from their current system, and are in a position to go ahead with any future upgrades.

8.1 PEOPLE RESOURCES

At present RML are limited due to the lack of people resources to manage the system. Over the years, the people at RML who maintained and managed the system have left which means RML are not capable of updating or making changes to the operation of the system. In the QFD analysis, it was concluded that many of the problems RML have with the current system could be solved, if RML had someone who was capable of maintaining the system, therefore RML should try to ensure that they have the skills available to manage the system.

RML need to set up a management team and feedback system so that the current system can be maintained properly so it constantly matches the business needs and processes. This team would have the following responsibilities:

- Adjusting the system to match the business needs
- Collating problems identified by the system users
- Providing a helpdesk facility for users and as a result being able to identify potential areas of training requirement
- Identifying new areas where the system could be developed to support the business and its strategies
- Planning for future upgrades or future changes in the system usage
- Communication of system changes and training users in software features
- Evaluation of new versions of the software
- Ensuring the IT infrastructure is capable of supporting the business strategies

The team should have knowledge of the majority of the SyteLine system so they can have a business wide view of the changes and must be able to make these changes therefore requiring a high level of programming ability. This may require RML to employ someone who has some of these skills to head the team while also having a further role within another functional area of the business.

8.2 COMPUTER REQUIREMENTS

RML need to concentrate some of its resources on ensuring the business is in a situation where they are capable of upgrading if necessary and the computer system is in a position to support the business. At present when RML want to evaluate an IT investment such as this upgrade, they associate the cost of the computer system with the project, which may adversely affect the outcome of the appraisal.

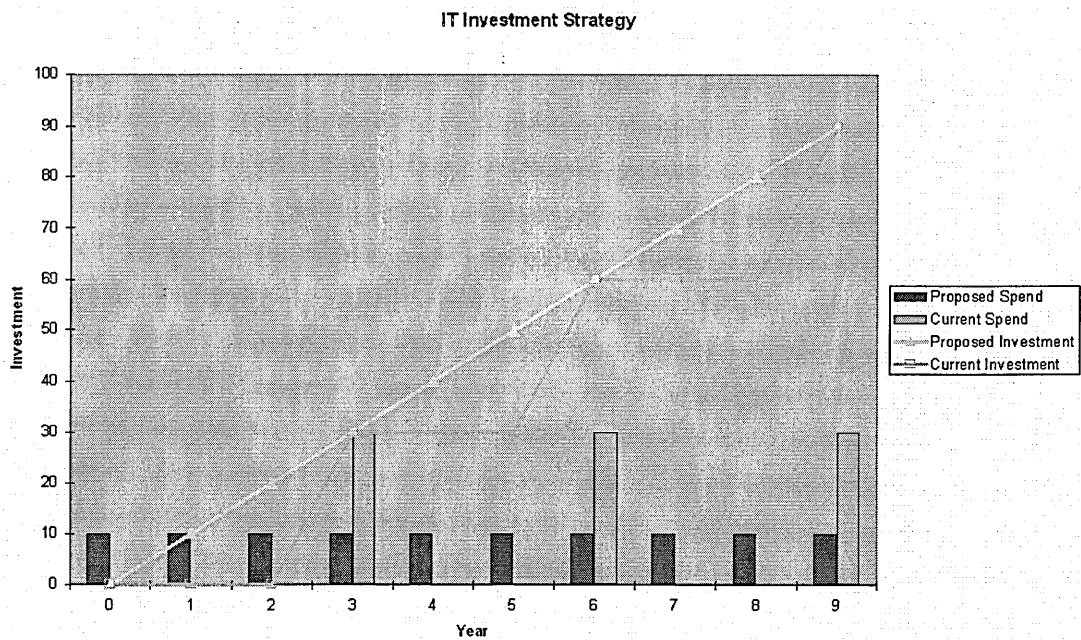


Figure 9: IT spending (current and proposed)

Figure 9 shows an example of the current spending structure RML use on their IT system. This shows that RML experience a large financial outlay every few years rather than spending a smaller amount over a longer period which would lighten the financial burden on future projects. RML almost need to view the IT spending as a fixed overhead on the business rather than a one-off cost.

CHAPTER 9: CONCLUSION

In conclusion, this project has shown that the benefits of the most recent version of the SyteLine software are not great. Coupled with the risks RML face with the upgrade it leads to the conclusion that RML should not upgrade their ERP system at this time, but RML should continually re-evaluate the status of the upgrade.

The following points should be taken into account by RML to ensure that they are in a situation to take full advantage of the current version of the software, and if they choose to upgrade they will be able to do so in an efficient timely manner:

- Ensure RML's technology infrastructure is in place to support business needs before it is needed rather than as an afterthought
- Ensure a management team is in place to develop the current system eliminating problems and assess the potential for upgrading the system at a later date

If RML do choose to upgrade their ERP system in the very near future, they should look to upgrade the client machines rather than installing a Citrix client server system.

9.1 IMPLICATIONS OF RESEARCH TO OTHERS

The implication of this project to other companies is that an ERP system should not be seen as a one off purchase; it should be seen as a system that needs to grow and develop along with the business, and as such will require significant levels of investment. This investment would be over and above the high cost of the implementation and is often neglected by companies implementing ERP systems.

In addition, the ERP system needs to be maintained to ensure they fit the business needs therefore appropriate staff have to be trained, and retained to ensure the skills do not leave the business and a dedicated management structure should be put in place to manage the system and the users.

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APPENDIX 1: COMPANY RESPONSES

Chris Shaw

From: postmaster@peg.com on behalf of Robert.Chabot@qc.teknion.com
Sent: 15 July 2002 22:19
To: symix@peg.com
Subject: RE: V5 or v6 just don't know?

We just upgraded from 3.5 to 6 from one group of companies and from 5 to 6 for the other - go directly to 6, the middle step to 5 is not useful.

Also go directly to 6.01.00 over 6.00.10 as suggested, specially if you intend to workflow and stuff... product is more mature and easier to install we have been told. Ourselves we depend on our var to translate into french so we're kind of stucked with 6.00.10 and, for now, can only envy what is being said about the other.

Robert Chabot
Coordonateur de projets SI/TI - IS/IT Projects Manager
Teknion Roy & Breton Inc.
(418) 951-3400

"Fisher, Michael -
EIMCO"
<Michael.Fisher@eimcop
rocess.com>

To: symix@peg.com
CC:
Subject: RE: V5 or v6 just don't

know?

Sent by:
postmaster@peg.com

2002.07.15 13:14

If you decide to go w/ V6 (I would over V5), skip 6.00.10 and look at 6.01.00. Lot's of differences between these two, including schema changes.

This way you'll be current and fully supported with any bugs you run into . . . at least until SL6.02.00 surfaces.

~~~~~  
Michael Fisher  
Programmer/Analyst  
Eimco Process Equipment Co  
www.eimcoprocess.com  
~~~~~

-----Original Message-----

From: Eric Paul Hus, SPG Int'l [mailto:spg@cgocable.ca]
Sent: Monday, July 15, 2002 11:01 AM
To: symix@peg.com
Subject: Re: V5 or v6 just don't know?

Bon Matin Bob,

Personnally, I see the question as is there any reason to go on a 2000 version when the 2001 version of the same software is available ? ... And frankly, I do not see any, or rather not any longer (in late 2001/early 2002 stability could have been an issue) ... Some features introduced in SL5 only work in SL6, something to do with UET

and/or UDFA ... IMO in going to SL6 you "buy" a year in your upgrade process and even SL6 will be a "previous" version pretty soon ...

ore screens are GUI, performance issues ... and SL6 has been out for almost a year now (IIRC since Oct. 2001) ...

Eric.

----- Original Message -----

From: Bob Berg <bberg@ptacorp.com>

To: <symix@peg.com>

Sent: Monday, July 08, 2002 13:15

Subject: V5 or v6 just don't know?

> We are currently running on Syteline V4.01. Should I go to Syteline 5.
> or straight to 6.01 - I know 5 has some performance issues and I'm
> sure 6 does as well. Any recommendations from those who have used
> both? Thanks! Bob
>

Chris Shaw

From: postmaster@peg.com on behalf of Eric Paul Hus, SPG Int'l [spg@cgocable.ca]
Sent: 17 July 2002 21:23
To: symix@peg.com
Subject: SL6 Interface coming from Symix4.0R4

Bon Matin All,

I sifted through some screens ... And although the "idea-of-SL-GUI" sounds better than "ChUI-Symix4" I do not feel compelled to be "enthousiastic" about the SL interface ... The mix of pseudo-GUI that require ENTERs, the F2/Ctrl-F2 vs the old F1 now popping the windows Help... On-line is good though, hopefully users will take the time to sift through ...

The First / Last / PgUp / PgDn buttons that pops in a search windows are not "that intuitive" I checked with a computer savvy power-user and after a few minutes I had to explain it to him ... They do the work though ...

I quite didn't get how to explain when to Tab fields and when Tab would not work ... Maybe it's me (that is first glance at a full demo of SL6) but some dialog seem to "ignore" tabs and still need a RETURN ...

And for (potential) members of the Canada/International Frontstep User Network: As per requirement you have to change the date delimiter from "-" to "/" otherwise the various "visual calendars" will choke ... Small detail, but a WIndows-Compliant software would "read those options

And so far the most annoying thing: Someone during the design phase of Syteline either overlook, or WORSE decided, that in order to get the interface to display your *HAVE* to use "small fonts" so all the user with 1024x768 or 1600x1200 screens now installed with Large Fonts will have to revert to tiny print in other Windows applications like Outlook, Word and Excel in order to have SL on their PC ... (I guess those using Terminal Services/Citrix will be spared that outrage) ... Apparently this is a very small issue amongst the SL user community ... But thinking of the impact and effort needed to master the GUI Interface starting from years on Symix4 ChUI Interface, I feel Frontsep should do something ... With a 17 and 19 inches monitor becoming commodities the "small font" requirement is ABSURD ...

Also menus do not seem to be clean-up in the Symix4 -> SL3.5 -> SL6 conversion ... Leading to old menus staying there and customize menu appearing "merged" to standard menus ... But again, I am new to that interface so it could be a BCK problem (Between-Chair-and-Keyboards for the TLA averse people :-)

I also find awkward the different behavior of windows being opened while some pseudo-GUI do not ... Not that easy to sum up after a short while fiddling in the software ... Or is it to understand that all those options sharing the same window are non-GUI ? Does every "true" GUI program open in a new window ? ... (funny to talk about true and false or pseudo GUI when talking about a Windows client software :^) ...

I wonder what other surprises are buried in SL6 ... I'd guess heavy training is not really and option if one wants the monthly business cycle to stay monthly after re-implementation ...

We will see if my first impressions change over time ... But now for me SL6 is still a "necessary evil" to get some goodies like WorkFlow ...

Eric.

Chris Shaw

From: Pryor, Marilee [MPryor@microwavedata.com]
Sent: 23 July 2002 22:17
To: 'Chris Shaw'
Subject: RE: Upgrade blues - 4 to 6

Chris,

Prefer to answer these over the phone. We went live with SL6.00.10 from Symix4.0R8 on 4/29/02. Went from two single-site companies to multi-site. 75 user SyteLine license, 105 user Progress license. Several add-on products. Not using Citrix, using Windows Terminal Services. 1 db server, 2 terminal servers for client access set up to do load balancing.

If you want to get more info, please call me. I'm typically in the office 8-5 EST. Pardon my ignorance but I believe that's totally out of your normal working hours. I would be happy to set up a call off hours if you're interested.

Marilee Pryor
www.microwavedata.com
585-242-8482

-----Original Message-----

From: Chris Shaw [mailto:c.shaw.2001@cranfield.ac.uk]
Sent: Tuesday, July 23, 2002 5:08 PM
To: symix@peg.com
Subject: Upgrade blues - 4 to 6

Fellow Peggars,

I am asking for your help on my bended knees !!! - I am after some information about peoples upgrades preferably from Symix 4 to Frontstep 6. I have listed some questions that our company has regarding the upgrade we are thinking of undertaking and I am hoping that some of you will be able to spare a couple of minutes to answer one or maybe a couple of the questions below. I know that there are quite a few questions here but our thirst for knowledge is great, due to our company 'experience' disappearing in search of bigger and better pay cheques elsewhere, but hopefully some of you may be able to spare some time between searching for those nasty little words that escape us all out at our weakest moment! (usually when we are intoxicated) Also a black art in the UK is figuring out if it is a 'cob' a 'roll' a 'bap' or a 'butty'?

- 1.) A bit of background about your company (employees, approx turnover etc...)
- 2.) What is your current system hardware setup (approx spec of client and server machines) - using citrix type system and if this system is adequate as I have heard many complaints about the speed of V.6 and also how much of an upgrade did you have to do for v.6 and was it sufficient (did you have to make unplanned changes after go-live date)
- 3.) Why did you choose to upgrade (what were the benefits of v.6 to you)
- 4.) How was the upgrade performed (timescales, implementation team, overruns to projected timescale of upgrade project)
- 5.) What problems did you encounter
- 6.) How much consultant time was required (compared to what Frontstep recommended)
- 7.) How much training did you take on and for who and why (was this more or less than Frontstep recommended)
- 8.) What have you found the ongoing costs of this project to be, and approx how much are they
- 9.) Do you have a defined strategy for maintaining the software - e.g. does someone have the responsibility of making minor modifications to SyteLine as requested by the users once a week/month etc...
- 10.) Did you implement a test system before you chose to upgrade to V.6?

- 11.) How did you justify the upgrade? Did you manage to put together some sort of cost/benefit analysis of the upgrade (if so, how?) or did you only look at the benefits and possible limitations if you didn't upgrade?
- 12.) Have you got any tips for the upgrade/planning/justification?
- 13.) Finally how do users in each of the departments feel about the upgrade - (e.g. do finance love the new version while production hate the new version??)

any thanks for your help in advance - and thanks for your previous advice over the last few months...

Chris Shaw
ML & Cranfield

Chris Shaw

From: Fabian, Maggie [Maggie.Fabian@isc-mail.com]
Sent: 24 July 2002 01:54
To: 'Chris Shaw '
Subject: RE: Upgrade blues - 4 to 6

Chris,

My name is Maggie Fabian. I have worked for several companies over the last ten years, with all of them I have worked with Symix. We have just completed our upgrade from Symix 4.0 to Syteline 6.00.1.

I will try and answer some of your questins.

- 1) A bit of background about your company (employees, approx turnover etc...) Our mfg company runs Syteline. They have approximately 120 employees, 35 of which use Syteline. We own a 24 user licenses each of data collection and Syteline.
- 2) We installed what Syteline suggested for us. One database server and two citrix servers. Std config. So far we have made no adjustment. Our old server was pretty slow so the users are not complaining of speed to much. We are considering adding some memory to the database server.
- 3) We choose to upgrade due to lack of support. We want to add features and functionality and it was just harder to do that on Symix 4.0.
- 4) We plan to perform the upgrade in four months. Start re-writing mods in December, initial conversion in January and final in March. I ran into two problems, lack of resources (time) to spend on the project and problems with our test conversion. Our G/L ended up out of balance. It took Frontstep till late April to figure out why. We did the actual converion on July 12th.
- 5) The main issue we ran into was the G/L out of balance. If you run into this problem let me know and I can tell you the details.
- 6) Consulting time. We brought Frontstep in for 3 days on the initial conversion and then 4 days of functionality training. We choose to cover go-live support ourselves. We also re-wrote our mods ourselves.
- 7) see #6
- 8) Our overall cost came in \$2,000 below budget. We spent a little more in hardware up front and dropped the general consulting and the go-live support. We used Frontsteps number to create the budget though.
- 9) We have one tech dedicated to supporting the system and writing reports. He has been on the team about 8 months. I taught him progress. He had not previous coding experience but is doing well.
- 10) We used the test conversion to create a test system. Then used that system to train the users. It just works better with your own data.
- 11) Most of the new features in Syteline are not of much us to us. We liked the system the way it was in Symix 2.6. We upgraded because we wanted additional flexibility by way of the UET's. We did not do much in the way of cost justification. The cost of the servers was paid for by the savings in the current maintenance agreement for the old server.
- 12) suggestions. I would take a hard look at Syteline's requirements and increase what you buy. Run plenty of test conversions. If you don't code yourself, find someone you can depend on to help out. We use a local contractor not Frontstep.
- 13) Tips. Take a look at the new features and sell those to the users. It will make it easier if they have something to gain. Upper management wanted to added flexibilty as well as they are interested in the add-in's.

14) As far as the users, I don't have any users that hate it. We did not re-create one of our mods and the department that used it really dislikes the Syteline way of doing it. We'll probably give it another week, if they still hate it we will move that mod. Otherwise they seem to be doing ok. The big step seems to be once they figure out that it really isn't that different then from there on their ok.

-----Original Message-----

From: Chris Shaw
To: symix@peg.com
Sent: 07/23/2002 5:08 PM
Subject: Upgrade blues - 4 to 6

Fellow Peggers,

I am asking for your help on my bended knees !!! - I am after some information about peoples upgrades preferably from Symix 4 to Frontstep 6. I have listed some questions that our company has regarding the upgrade we are thinking of undertaking and I am hoping that some of you will be able to spare a couple of minutes to answer one or maybe a couple of the questions below. I know that there are quite a few questions here but our thirst for knowledge is great, due to our company 'experience' disappearing in search of bigger and better pay cheques elsewhere, but hopefully some of you may be able to spare some time between searching for those nasty little words that escape us all out at our weakest moment! (usually when we are intoxicated) Also a black art in the UK is figuring out if it is a 'cob' a 'roll' a 'bap' or a 'butty'?

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Many thanks for your help in advance - and thanks for your previous advice over the last few months...

Chris Shaw
RML & Cranfield

Chris Shaw

From: Kjeldgaard, Dave [DKjeldgaard@severntrentservices.com]
Sent: 24 July 2002 12:58
To: 'Chris Shaw'
Subject: RE: Upgrade blues - 4 to 6

Yes - you've listed a bunch of questions .

Here at our main plant (1 of 6 on Syteline) we have about 50 users, 40 office and 10 warehouse/plant. Like most custom-engineering companies, there are more engineers than hands-on production workers.

We upgraded to Ver 5.01 last winter, and will probably go to 6.01 this coming winter. Some of the urge to upgrade is dictated by the requirement to stay on Frontstep maintenance -- we believe that is a basic business requirement, not an optional choice (others may have other opinions, especially when your support comes from a VAR instead of directly from Frontstep itself).

I'm sure you've seen the list of upgrade features -- our Material Control folks love the planner workbench. The Finance folks are mixed -- GUI screens got somewhat slower, but they like the GUI features like filter and export to Excel, etc.

Like most small and mid-size companies, one has to do the upgrade with part-time project teams -- you just have to believe in the requirement to set up the test environment and do some amount of testing to determine what procedures change.

Good luck with your responses,
Dave

-----Original Message-----

From: Chris Shaw [mailto:c.shaw.2001@cranfield.ac.uk]
Sent: Tuesday, July 23, 2002 5:08 PM
To: symix@peg.com
Subject: Upgrade blues - 4 to 6

Fellow Peggers,

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- 3.) Why did you choose to upgrade (what were the benefits of v.6 to you)
- 4.) How was the upgrade performed (timescales, implementation team, overruns to projected timescale of upgrade project)
- 5.) What problems did you encounter
- 6.) How much consultant time was required (compared to what Frontstep recommended)
- 7.) How much training did you take on and for who and why (was this more or less than Frontstep recommended)
- 8.) What have you found the ongoing costs of this project to be, and approx how much

Chris Shaw

From: postmaster@peg.com on behalf of Eric Paul Hus, SPG Int'l [spg@cgocable.ca]
Sent: 26 July 2002 21:10
To: symix@peg.com
Subject: Re: Upgrade blues - Symix 4 to SL6

Chris,

We are in the midst of the same process. First test conversion done by a consultant in 3 days and awaiting I guess another day to solve the final glitches and install some missing parts ... That's to go from SCO Openserver 5.0.1, Progress 7.3 and Symix4.0R4 to SL6.00.10 with 2 databases (different business units) Progress 9.1C, with a W2K Citrix XP box and a IBM RS6000-F80 on AIX 5.1L ... I (almost) didn't touch anything ... I am guessing that the live conversion will take at most a day ...

The environment is most Repetitive Mfg with EDI and store-and-forward Data Collection ... 20 licences (about 30-35 users on 2 shifts, 20-25 on day-shift) ... We manufacture metal tool boxes, chests and cabinets from *PRICE HIKING* cold rolled steel ...

If you have reply off-line, please summarize, I bet there is many Symix4 asmins out here in the same boat according to to readings here ...

I will know more once we start piloting ...

Eric.

PS Also I suggest you specify from Symix4 because another gang of "newer accounts" are trekking from SL4.0 to SL6.0. And you're lucky I'm a big Blues (the music, not the hockey team) fan ...

----- Original Message -----

From: Chris Shaw <c.shaw.2001@cranfield.ac.uk>
To: <symix@peg.com>
Sent: Tuesday, July 23, 2002 17:08
Subject: Upgrade blues - 4 to 6

> Fellow Peggers,

>

> I am asking for your help on my bended knees !!! - I am after some
> information about peoples upgrades preferably from Symix 4 to
> Frontstep 6. I have listed some questions that our company has
> regarding the upgrade we are thinking of undertaking and I am hoping
> that some of you will be able to spare a couple of minutes to answer
> one or maybe a couple of the questions below. I know that there are
> quite a few questions here but our thirst for knowledge is great, due
> to our company 'experience' disappearing in search of bigger and
> better pay cheques elsewhere, but hopefully some of you may be able to
> spare some time between searching for those nasty little words that
> escape us all out at our weakest moment! (usually when we are
> intoxicated) Also a black art in the UK is figuring out if it is a
> 'cob' a 'roll' a 'bap' or a 'butty'?

>

> 1.) A bit of background about your company (employees, approx turnover
> etc...)

> 2.) What is your current system hardware setup (approx spec of client
> and server machines) - using citrix type system and if this system is
> adequate as I have heard many complaints about the speed of V.6 and
> also how much of an upgrade did you have to do for v.6 and was it
> sufficient (did you have to make unplanned changes after go-live date)
> 3.) Why did you choose to upgrade (what were the benefits of v.6 to
> you)

> 4.) How was the upgrade performed (timescales, implementation team,
> overruns to projected timescale of upgrade project)

Chris Shaw

From: postmaster@peg.com on behalf of Greg Keating [greg.keating@olsonintl.com]
Sent: 26 July 2002 21:43
To: symix@peg.com
Subject: RE: Upgrade blues - Symix 4 to SL6

We went from SL4.0r9 to SL5.00.3. The majority of time (9 of the 11 hours) was the SYMIX 4.0 to SL3.5 conversion. A few things that we did to keep the conversion time down were:

1. Create your SL3.5 databases as multivolume PRIOR to loading them
2. Put the .bi files are on a different physical disk from the .db's
3. Dump the SYMIX data to a different physical disk than #'s 1 & 2
4. Save the con50 db (Account conversions table) from your trial conversions. It took about an hour and a half to build that table the first time. We re-used ours once we were sure accounting didn't change anything between the trial and actual conversion.
5. Clean your data. Move all appropriate CO's & PO's to history. Check the matltran & matltrack tables. We purged up to 1/1/2000.

We converted a 2.25Gb database in 11 hours. I was fortunate enough to have enough physical disks in the UNIX box to spread the .db's, .bi's and .d's on separate disks.

Hope this helps.

Greg Keating
Olson International Ltd.

-----Original Message-----

From: postmaster@peg.com [mailto:postmaster@peg.com] On Behalf Of Eric Paul Hus, SPG Int'l
Sent: Friday, July 26, 2002 3:10 PM
To: symix@peg.com
Subject: Re: Upgrade blues - Symix 4 to SL6

Chris,

We are in the midst of the same process. First test conversion done by a consultant in 3 days and awaiting I guess another day to solve the final glitches and install some missing parts ... That's to go from SCO Openserver 5.0.1, Progress 7.3 and Symix4.0R4 to SL6.00.10 with 2 databases (different business units) Progress 9.1C, with a W2K Citrix XP box and a IBM RS6000-F80 on AIX 5.1L ... I (almost) didn't touch anything ... I am guessing that the live conversion will take at most a day ...

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Eric.

PS Also I suggest you specify from Symix4 because another gang of "newer accounts" are trekking from SL4.0 to SL6.0. And you're lucky I'm a big Blues (the music, not the hockey team) fan ...

----- Original Message -----

From: Chris Shaw <c.shaw.2001@cranfield.ac.uk>
To: <symix@peg.com>
Sent: Tuesday, July 23, 2002 17:08
Subject: Upgrade blues - 4 to 6

Chris Shaw

From: nmorris@fc-us.com
Sent: 26 July 2002 23:09
To: c.shaw.2001@cranfield.ac.uk
Subject: Symix 4.0.7 to SL 6.01 on win2000/citrix

Chris

We have just gone live with exactly the scenario you are looking at to summarize our experience, I would say that there were not really that many major technical difficulties, but user training & familiarisation is very important. Once users get over the shock, they don't really find it that difficult. We used a specialist consultant for the data conversion (we actually merged two separate databases together, so this was important), and ran three trial conversions to test and to benchmark the time it would take to actually run the 'purge and merge'. To facilitate this process, we purged transaction history for all but the last 2 years.

On the user front, we subscribed to the online training, which includes 'video' classes (using WebEx) and all the training manuals. This cost about \$4000 for one year's use. We had to force the users to take the time to go through the relevant classes, but it was worth it. By the time, they were doing these classes, we had a demo database up containing our merged and migrated data. This would not have worked, however, without us staging a "Conference Room Pilot" for a couple of days prior to go live. This was hosted by a Frontstep consultant (independent), and there was a clearly defined set of tasks for each team member to perform. Basically, we simulated as many business processes in the new system as possible from order entry through to month-end closing. This was performed using a database containing week-old data, and obviously brought a number of issues to light (most of which we able to resolve).

Obviously, one of the keys to this was having the servers and infrastructure in place in advance of training, and having a 'working' migrated database up and running for users to play with alongside the web classes. The Citrix element, especially across a WAN took some time to get going. We set it up ourselves, as there is not much Citrix help out there, and it was not easy. However, once it is up, it seems to be very effective for local, WAN, VPN & Internet users, and requires little or no client-side maintenance. Iam very happy with the platform.

To answer your questions

1.) Manufacturer of wireless infrastructure solutions, at several sites in the US and elsewhere, with approx 400 US users, and about 60 Syteline sessions. Turnover varies between \$80m & \$150m

2a) Our old setup: IBM RS/6000, AIX, Progress 7.3, SYmix 4.0.7. Slow as molasses, especially for reports.

2bi) New setup: Dtabase server is HP Netserver LT6000r with four P4/Xeon 900 processors (2mb cache), 2.5gb RAM, RAID arrays as recommended by Frontstep, Windows 2000 Adv Server (required for 4 processors)

2bii) Terminal servers: Two HP Netserver LP2000r's running Windows 2000 with Terminal Services. Dual 1.25 mhz processors in each, 2.5gb RAM, 2 mirrored HD's in each, CITrix Metaframe XP loaded. Servers load balanced (Citrix feature)

2biii) Connection between DB server and Terminal servers is gigabit - you need it!!

Performance is excellent, even over the WAN (1.5mb). Client configuration & specs are kind of irrelevant in this environment. However, a Microsoft TS license is required for all client connections from machines below WIndows 2000 Pro (the license is included with Win 2000). Given the hardware specs above, the only tuning necessary was on the Syteline/Progress side. We are not really even exercising our servers!

3.) To get away from Rs/6000, AIX, and to get onto WIn2000. To start using new features (ECN, RMA, G/L Unit codes, DDE to Excel, easier connectivity with other apps via ODBC). Too many differences between Symix 4 & SL 6 to enumerate. Easier to support, more flexible.

4.) About 6 months (could be done quicker, but there is really just me here at the moment). Implementation Team about 8 people, from each area, responsible for testing, learning, and then teaching their group. About 2 month overrun, caused mostly by lack of user readiness, vacation, absence etc.. Came in within budget (< \$150k including all hw, sw, licenses, and consulting)

5) No significant issues encountered - we did have a number of complex custom reports that we needed to rewrite. Large number of printing issues come with Syteline/Citrix environment. Strongly advise ironing those out prior to going live. Syteline will pick up users' default system printer in local NT/2000 profile- but in CITrix/TS environment, that profile is based on a server (and, with load balancing across multiple Terminal Servers, users can easily have different profiles on each server). Without some forethought, printing will be your biggest headache. Recommend all users have NT/2000 domain accounts, and then set up Roaming Profiles. That way, whichever server their session starts on, they will have the same mapped drives and default printers. Setting up Active Directory is another solution of course. Some issues with permissions (there are many extra in Syteline). Basically, only printers & permssions caused problems.

6.) Good consultants are worth their weight in gold (and they are often not Frontstep employees). I have had far better experience with independents specialising in these products. Twice as good, and half the price. I estimated 360 hours @ \$120 per hour, and we have come in well under. For us, a significant proportion of those hours were directly related to the consolidation of two separate site databases into one, which would not apply to all companies> I used OSG for the migration and conversion, and a former Fronstep consultant (now freelance) for the Conference Room Pilot and user familiarity issues. OSG subcontracted a couple of days to someone who specialised in JetForms to set up all the forms (checks, po's, invoices etc). In total, this was about half the cost of Frontstep. Absolutely no regrets. However, your options regarding consultants in the UK may be more limited. I am pretty sure that my guys will work in the UK, so it might be worth considering. Call me if you need to know more (number at bottom)

7.) Purchased one year of web classes, and had a consultant onsite for about three days (2 for Conf Room Pilot, 1 for general walkaround). Much cheaper than formal training, but requires some discipline. Probably was as effective, and it's always there if you need to go back and do it again.

8.) See above. Total project budget was \$150k (\$45k consultants, \$15k software, \$60k hardware (add c. \$8000 per extra terminal server) with some room to spare. Depending on your requirements, could come in substantially less. Don't stint on the hardware, especially processors and memory.

9.) Nothing defined - we have annual maintenance from Frontstep, and contract with OSG for mods as needed. Used to have dedicated person, but alas no more!)

10.) Yes see above

11.) Primarily the latter, in that Frontstep would discontinue support for the old version. Also customers beginning to ask for web and e-mail based communications with our systems. We have had three previous trips down the altar on this project, and have jilted Frontstep each time. It had been on the cards for the last three years, and finally the financial folks plucked up the courage to say "I do"

12.) See above. Take your time. make sure that the platform is solid before you get going. Make sure you have all the user account, user profile, printing issues squared away ahead of time, especially in a Citrix environment

13.) On the whole, feedback has been positive. Initial mainifestation of fear and loathing, via grudging acceptance, to realisation that it's better in a lot of ways.

Good luck, mate!!

Nick Morris
US Director IT
Filtronic Comtek
603-424-8404 x.207

Chris Shaw

From: postmaster@peg.com on behalf of Mickey Wilkinson [mickeyw@tomcoequipment.com]
Sent: 29 July 2002 12:58
To: symix@peg.com
Subject: RE: Upgrade blues - Symix 4 to SL6

Major tip.... make absolutely certain that the record dump count for all your major tables (item, cust, custaddr, matltran, etc, etc, etc) matches the record load count going into Syteline. There will be some differences in minor files

-----Original Message-----

From: postmaster@peg.com [mailto:postmaster@peg.com] On Behalf Of Eric Paul Hus, SPG
Int'l
Sent: Friday, July 26, 2002 4:10 PM
To: symix@peg.com
Subject: Re: Upgrade blues - Symix 4 to SL6

Chris,

We are in the midst of the same process. First test conversion done by a consultant in 3 days and awaiting I guess another day to solve the final glitches and install some missing parts ... That's to go from SCO Openserver 5.0.1, Progress 7.3 and Symix4.0R4 to SL6.00.10 with 2 databases (different business units) Progress 9.1C, with a W2K Citrix XP box and a IBM RS6000-F80 on AIX 5.1L ... I (almost) didn't touch anything ... I am guessing that the live conversion will take at most a day ...

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Eric.

PS Also I suggest you specify from Symix4 because another gang of "newer accounts" are treking from SL4.0 to SL6.0. And you're lucky I'm a big Blues (the music, not the hockey team) fan ...

Chris Shaw

From: postmaster@peg.com on behalf of Randy Morrison [r_morrison@mindspring.com]
Sent: 21 August 2002 05:52
To: symix@peg.com
Subject: Re: Your evaluations of SyteLine Version 6

My \$.02,

Why you Should Not upgrade to SL 6:

If my company was still on Symix 4, (character based), I would seriously consider staying there until I could move to version 7 of Syteline. You could put allot of work and investment into conversion of Progress mods, user training, new hardware, etc, etc, just to get to a version that has what now appears to be a very limited lifespan.

The more I look into SL version 7 the more I like it, but I still get very nervous having all the eggs in one basket. Especially with the blatant vagueness on pricing.

My company is running SL5.02 on Progress 9.1c and will most likely due one of two things.

- a) Convert to SL 7 as soon as I personally trust it not to bug out in accounting.
- b) Stay on SL 5 if licensing costs are too high for SL 7, (which I expect given both FS and MS track records and the fact that the loss of user session pricing will probably kill us), drop support, and begin the search for a more affordable ERP solution.

Why you Should upgrade to SL 6:

Two words, functionality and support.

Is Symix 4 still supported?

GUI is pretty, but few users really appreciate the multiple windows. You upgrade in order to stay on a supported version of the software and to gain new functionality. Get the release notes for both SL 5 and SL 6 to get a feel for the functionality gains and ask yourself, "are we gonna use it?". Showing the release notes to end users has helped me sell many SL upgrades.

If you're a Unix house, SL 6 is probably a very smart move at this time. SL 7 doesn't do Unix. That's what happens when you go to bed with Micro\$oft.

YMMV

Randy Morrison
Navitar, Inc.

r_morrison@navitar.com

----- Original Message -----

From: "Chris Shaw" <c.shaw.2001@cranfield.ac.uk>

To: <symix@peg.com>

Sent: Tuesday, August 20, 2002 12:41 PM

Subject: Your evaluations of SyteLine Version 6

> Peggers,

>

> I am just asking you all two really simple questions that I am being
> asked day in and day out regarding our potential upgrade to v.6 from
> symix v.4.

>

> 1: Why should we upgrade to V.6...

> 2: Why shouldn't we upgrade to V.6...

>

> Some of you out there should have looked at this in the past and
> either rejected or taken the upgrade... So why?? I know there are
> reasons such as staying on maintenance or the costs are too high but
> there must have been some deeper analysis of what the upgrade can and
> cant do for you.

>

>

Chris Shaw

From: postmaster@peg.com on behalf of Monty Williams [amri1@attglobal.net]
Sent: 21 August 2002 14:51
To: symix@peg.com
Subject: RE: Your evaluations of SyteLine Version 6

I just upgraded to S6 from 4.1

Our reasons were:

1. Support ended (not that we were using it)
2. Unit Codes (required flag too)
3. a bit more functionality
4. To switch to a Windows platform (goodbye old HP9000, sniff)
5. but bottom line, if you don't keep up, you can't catch up

Now I can sit here a few years and wait on S8.

Overall, S6 is working well.

Monty Williams
MIS Manager

amri
2045 Silber Road
Houston, Texas 77055
713-682-0000
<http://www.amrivalves.com>

-----Original Message-----

From: postmaster@peg.com [mailto:postmaster@peg.com] On Behalf Of Chris Shaw
Sent: Tuesday, August 20, 2002 2:41 PM
To: symix@peg.com
Subject: Your evaluations of SyteLine Version 6

Peggers,

I am just asking you all two really simple questions that I am being asked day in and day out regarding our potential upgrade to v.6 from symix v.4.

- 1: Why should we upgrade to V.6...
- 2: Why shouldn't we upgrade to V.6...

Some of you out there should have looked at this in the past and either rejected or taken the upgrade... So why?? I know there are reasons such as staying on maintenance or the costs are too high but there must have been some deeper analysis of what the upgrade can and cant do for you.

Many thanks in advance - Chris Shaw

From: postmaster@peg.com on behalf of Fisher, Michael - EIMCO
[Michael.Fisher@eimcoprocess.com]
Sent: 12 July 2002 15:03
To: symix@peg.com
Subject: RE: Opinions on upgrading from Symix 4 to Frontstep 6.01

Fyi . . . we have a similar setup here, except we have a Sun box. We too saw a huge performance issue with upgrading from SL4 to SL6. We saw a huge performance improvement with an additional CPU AND using the -spin startup parm.

~~~~~  
Michael Fisher  
Programmer/Analyst  
Eimco Process Equipment Co  
www.eimcoprocess.com  
~~~~~

-----Original Message-----

From: Ed GSK [mailto:ed_gsk2@yahoo.com]
Sent: Thursday, July 11, 2002 7:49 PM
To: symix@peg.com
Subject: Re: Opinions on upgrading from Symix 4 to Frontstep 6.01

Hi,

We upgraded Syteline ver 2 to ver 6 about 2 months ago. So far it has been below our expectation (to say the least). We notice BIG drop in performance.

So like Bob Hartung said, get a bigger power machine.

We are using HP K370 with 1 CPU dan 1 GB of RAM (and will purchase additional CPU and 1 GB of RAM). We have 75 users and mostly use Citrix for access.

Edward

--- Bob Hartung <bhartung@wiscoind.com> wrote:
> When we converted from Symix 3 to Syteline 3.5, we
> had been planning to
> use Citrix Winframe only to support users with older
> sub-Pentium PCs.
> After installing the Syteline client on a few 300
> Mhz PCs and seeing the
> glacial response time we elected to upgrade the
> Winframe server from 2
> to 4 processors and double the memory to 2 Gb. This
> provided us with
> acceptable performance for 35 users. We only use
> Citrix to provide
> Syteline as a published app, no desktops or other
> apps. We've since
> upgraded the Winframe server to Metaframe
> XP/Terminal Server 2000 which
> didn't have any noticable impact on performance but
> dramatically improved
> reliability.
>
> Another thing you should consider is the state of
> your network
> infrastructure. Even with new PCs for everyone if
> you are running
> ethernet your results will not be satisfying if you
> run the Syteline
> client on the PC. Metaframe requires very little

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> bandwidth. We host a
> Syteline database for a remote plant over a VPN (768
> Kbps) and 5 users
> at the other end have virtually the same performance
> as the local users.
>
> Were still running Syteline 3.5 and from what I've
> read on this forum,
> subsequent versions of Syteline demand increasingly
> more hardware
> horsepower. We are considering an Syteline upgrade,
> as well. The
> FrontStep tech who helped us with our Metaframe
> upgrade recommended
> adding a 2nd Metaframe server and splitting the
> number of users across
> them. It's an old story. Everytime faster hardware
> comes out, software
> bloat and feature creep eats up the gain.
>
> Good luck.
>
>
> Chris Shaw wrote:
>
> >I was wondering if any of you peggers can help:
> >
> >I am looking at an upgrade for a company from v.4
> >of symix to the latest
> >Frontstep version and was wondering if any of you
> >out there had any
> >experiences that may be worth sharing with myself.
> >I am mainly
> >concerned with justifying the step to the next
> >version to management as
> >the company is rather small (max 15 users) and
> >there would need to be a
> >significant outlay in terms of the new hardware.
> >What are the benefits that people have found with
> >the new software and
> >why did you choose to move - and even more
> >importantly what was the
> >result - was the upgrade a success - how long did
> >it take... Etc...
> >
> >One option that is being looked at is the
> >possibility of using Citrix as
> >many of the computers are old (many pre-pentium)
> >and we know that speed
> >will be a big issue with the new version. Also have
> >any of you looked at
> >the same options (citrix 'v' upgrade hardware) and
> >how have any of you
> >evaluated the benefits/costs of these two options
> >and if you went down
> >one of these routes what was your opinion and the
> >result.
> >
> >Any help/advice you can give would be great -
> >thanks in advance...
> >
> >_____
> >
> >Chris
> >E-Mail: c.shaw.2001@cranfield.ac.uk
> >_____
> >
> >
> >
> >

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Chris Shaw

From: postmaster@peg.com on behalf of Bob Forder [Bob.Forder@Linamar.com]
Sent: 12 July 2002 16:44
To: symix@peg.com
Subject: RE: Opinions on upgrading from Symix 4 to Frontstep 6.01

We have upgraded from 4.0 Symix to 4.01 Syteline about 2 years ago and other than the interim step we experienced no Frontstep problems. Only some we created ourselves. As far as hardware is concerned we did very little for that upgrade as we had things pretty much under control at the time. We are now going to Syteline 6.01.00 and we need to improve hardware. We do run other apps and we prefer to run Fat Client, therefore; we have tested some of our older PCs and we have tested some of our recent purchases. It is our experience so far that 330 MHz with 128MB is the minimum one can go without degrading the users time. This would be a typical user. For your heavy users and MRP regens the faster the better. We have tested 1.6 GHz with 512MB and up and find the performance great! We run on Dell 1550 Rack Mount Servers and Windows 2000 server. We have 65 users. We are going to be upgrading in the next 6 months and our first step is to ready the network and PCs. We will keep you pegged as to our progress.

Bob Forder
IT Manager
Invar Manufacturing Ltd.
(613) 398-6106 x335
(613) 966-7932 Fax
(613) 921-4742 Cell
Bob.Forder@Linamar.com

-----Original Message-----

From: Bob Hartung [mailto:bhartung@wiscoind.com]
Sent: Thursday, July 11, 2002 7:43 AM
To: symix@peg.com
Subject: Re: Opinions on upgrading from Symix 4 to Frontstep 6.01

When we converted from Symix 3 to Syteline 3.5, we had been planning to use Citrix Winframe only to support users with older sub-Pentium PCs. After installing the Syteline client on a few 300 Mhz PCs and seeing the

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Another thing you should consider is the state of your network infrastructure. Even with new PCs for everyone if you are running ethernet your results will not be satisfying if you run the Syteline client on the PC. Metaframe requires very little bandwidth. We host a Syteline database for a remote plant over a VPN (768 Kbps) and 5 users at the other end have virtually the same performance as the local users.

We're still running Syteline 3.5 and from what I've read on this forum, subsequent versions of Syteline demand increasingly more hardware horsepower. We are considering a Syteline upgrade, as well. The FrontStep tech who helped us with our Metaframe upgrade recommended adding a 2nd Metaframe server and splitting the number of users across them. It's an old story. Everytime faster hardware comes out, software bloat and feature creep eats up the gain.

Good luck.

Chris Shaw

From: postmaster@peg.com on behalf of Eric Paul Hus, SPG Int'l [spg@cgocable.ca]
Sent: 15 July 2002 15:52
To: symix@peg.com
Subject: Re: Opinions on upgrading from Symix 4 to Frontstep 6.01

Bon Matin Chris,

We are in the beginning stage of piloting SL.6.00.10 (we will move from a Symix4.0R4) ... There are some benefits as per fonctionnality (easier transfer to Office Automation Suite, Panner's Workbench, Delivery Order) ... But I think the best justification is the interest that you or your management may have in other add-ons like WorkFlow, JetForms, Busines Intelligence, etc ...

Going from Host Based to Client/Server and from ChUI to GUI in one step makes it a "very big hurdle" to jump but, IMO, it is now a necessary evil ... :-) ... In fact, IMO, SL5 and SL6 are probably the first GUI versions worthy of the name ... And even then, there are still a lot of those character sceens int there ...

We have a W2K/Citrix to provide access to 5 remote users via a WAN link and our db server is IBM RS6000 F80 ... If you have no/little Unix experience you may consider a W2K server but bear in mind that the a lot of the money saved on hardware will go to MicroSoft for licencing. You may inquire about the news Small Business Server 2000 although it should be a different box that the Citrix server ...

Also from some formal and informal sources I gather that most of the "prowin32.exe" errors come from unpredictable network contention ... So a 100MBps switch to each client PC seem minimum (if you don't go the all-on Citrix route).

Also check the usage of Results reports I had the last minute surprise to learn I will have to redo all Results Reports and/or Exports deemed essential to our business process :-(... (we were on Progress 7.3E and are going on 9.1D18 ...)

Like you, I feel it is hardly justifiable, but it is now almost essential to get all the other stuff we want for future expansion ... We delayed the upgrade for 3 years now ... And should have gone to SL last year ...

Re-Training will also be an issue depending of your typical users ... No problem for self learners but major menus overhaul, the F1 vs F2, Enter vs Tab, the new features like Binoculars, sync'ing windows, loading and caching windows, saving options reports,etc ... all need to be learned and mastered IMO for the upgrade to be cost effective ... So maximize your training budget dollar or time allocation...

I also suggest you and management representative check to assist to FrontStep Webinars on upgrade ... It will be easier to convey to management it is *not* an upgrade but a "re-implementation" ...

Eric.

PS I would also consider on waiting for SL7 coming out soon, if you rarely upgrade it makes sense to go to the real latest when re-implementing ...

----- Original Message -----

From: Chris Shaw <c.shaw.2001@cranfield.ac.uk>
To: <symix@peg.com>
Sent: Thursday, July 11, 2002 06:59
Subject: Opinions on upgrading from Symix 4 to Frontstep 6.01

>
> I was wondering if any of you peggers can help:
>
> I am looking at an upgrade for a company from v.4 of symix to the
> latest Frontstep version and was wondering if any of you out there had
> any experiences that may be worth sharing with myself. I am mainly

Chris Shaw

From: Glenn Mesaros [glennm@circuitscience.com]
Sent: 11 July 2002 12:29
To: Chris Shaw
Subject: Re: Opinions on upgrading from Symix 4 to Frontstep 6.01

We are in the process of upgrading from symix 4.1 to syteline 6.01. We have 16 user license, and had to buy 20 new Gateway computers, as listed in my signature, which cost about \$1000 each. The functionality of syteline compared to symix is a revolution in software, so there is no comparison. Your DB processor can be unix or NT, and right now microsoft has upgrade protection on new NT systems, such as Windows 2000 if you buy before 7/31/2002.

Hardware is cheap now, so I would upgrade ASAP.

Glenn Mesaros, ERP, Syteline 6.00.10, Progress 9.1c (Pilot) Circuit Science, Plymouth, Minnesota Sun O/S, Windows XP, Pentium 1.8 GHZ, 40 GB HD, 256 RAM PC's
www.circuitscience.com

----- Original Message -----

From: "Chris Shaw" <c.shaw.2001@cranfield.ac.uk>
To: <symix@peg.com>
Sent: Thursday, July 11, 2002 5:59 AM
Subject: Opinions on upgrading from Symix 4 to Frontstep 6.01

>
> I was wondering if any of you peggars can help:
>
> I am looking at an upgrade for a company from v.4 of symix to the
> latest Frontstep version and was wondering if any of you out there had
> any experiences that may be worth sharing with myself. I am mainly
> concerned with justifying the step to the next version to management
> as the company is rather small (max 15 users) and there would need to
> be a significant outlay in terms of the new hardware. What are the
> benefits that people have found with the new software and why did you
> choose to move - and even more importantly what was the result - was
> the upgrade a success - how long did it take... Etc...
>
> One option that is being looked at is the possibility of using Citrix
> as many of the computers are old (many pre-pentium) and we know that
> speed will be a big issue with the new version. Also have any of you
> looked at the same options (citrix 'v' upgrade hardware) and how have
> any of you evaluated the benefits/costs of these two options and if
> you went down one of these routes what was your opinion and the
> result.
>
> Any help/advice you can give would be great - thanks in advance...
>
>
> _____
>
> Chris
> E-Mail: c.shaw.2001@cranfield.ac.uk
>
> _____
>

Chris Shaw

From: postmaster@peg.com on behalf of Bob Hartung [bhartung@wiscoind.com]
Sent: 11 July 2002 12:43
To: symix@peg.com
Subject: Re: Opinions on upgrading from Symix 4 to Frontstep 6.01

When we converted from Symix 3 to Syteline 3.5, we had been planning to use Citrix Winframe only to support users with older sub-Pentium PCs. After installing the Syteline client on a few 300 Mhz PCs and seeing the glacial response time we elected to upgrade the Winframe server from 2 to 4 processors and double the memory to 2 Gb. This provided us with acceptable performance for 35 users. We only use Citrix to provide Syteline as a published app, no desktops or other apps. We've since upgraded the Winframe server to Metaframe XP/Terminal Server 2000 which didn't have any noticable impact on performance but dramatically improved reliability.

Another thing you should consider is the state of your network infrastructure. Even with new PCs for everyone if you are running ethernet your results will not be satisfying if you run the Syteline client on the PC. Metaframe requires very little bandwidth. We host a Syteline database for a remote plant over a VPN (768 Kbps) and 5 users at the other end have virtually the same performance as the local users.

We're still running Syteline 3.5 and from what I've read on this forum, subsequent versions of Syteline demand increasingly more hardware horsepower. We are considering a Syteline upgrade, as well. The FrontStep tech who helped us with our Metaframe upgrade recommended adding a 2nd Metaframe server and splitting the number of users across them. It's an old story. Everytime faster hardware comes out, software bloat and feature creep eats up the gain.

Good luck.

Chris Shaw wrote:

>I was wondering if any of you peggers can help:

>

>I am looking at an upgrade for a company from v.4 of symix to the
>latest Frontstep version and was wondering if any of you out there had
>any experiences that may be worth sharing with myself. I am mainly
>concerned with justifying the step to the next version to management as
>the company is rather small (max 15 users) and there would need to be a
>significant outlay in terms of the new hardware.

>What are the benefits that people have found with the new software and
>why did you choose to move - and even more importantly what was the
>result - was the upgrade a success - how long did it take... Etc...

>

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>any of you evaluated the benefits/costs of these two options and if you
>went down one of these routes what was your opinion and the result.

>

>Any help/advice you can give would be great - thanks in advance...

>

>

>

>Chris

>E-Mail: c.shaw.2001@cranfield.ac.uk

>

>

>

>

From: Monty Williams [MWilliams@amrivalves.com]
Sent: 11 July 2002 14:41
To: Chris Shaw
Subject: RE: Opinions on upgrading from Symix 4 to Frontstep 6.01

We are converting from 4 to 6.01 this month. I have been in test mode for a while. We are also small. 12 users.

I found that there was no way to get the same speed that I had with character, no matter how fast my network, servers and fat clients were. It was just slower. So I went with Terminal Server, which is bundled in win2k for free anyway.

It's really funny look back at the circle I just made. A server based product that went client server so that you can run on the server anyway.

So you might want to start with a thin client approach or use the free terminal server option.

The only advice with terminal server I would give, is auto-login your users with a icon. That way they never see the server desktop and get confused.

Thank you,

Monty Williams
MIS Manager

amri
2045 Silber Road
Houston, Texas 77055
713-682-0000
<http://www.amrivalves.com>

-----Original Message-----

From: postmaster@peg.com [mailto:postmaster@peg.com] On Behalf Of Chris Shaw
Sent: Thursday, July 11, 2002 5:59 AM
To: symix@peg.com
Subject: Opinions on upgrading from Symix 4 to Frontstep 6.01

I was wondering if any of you peggers can help:

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One option that is being looked at is the possibility of using Citrix as many of the computers are old (many pre-pentium) and we know that speed will be a big issue with the new version. Also have any of you looked at the same options (citrix 'v' upgrade hardware) and how have any of you evaluated the benefits/costs of these two options and if you went down one of these routes what was your opinion and the result.

Any help/advice you can give would be great - thanks in advance...

Chris
E-Mail: c.shaw.2001@cranfield.ac.uk

From: postmaster@peg.com on behalf of Ed GSK [ed_gsk2@yahoo.com]
Sent: 12 July 2002 02:49
To: symix@peg.com
Subject: Re: Opinions on upgrading from Symix 4 to Frontstep 6.01

Hi,

We upgraded Syteline ver 2 to ver 6 about 2 months ago. So far it has been below our expectation (to say the least). We notice BIG drop in performance.

So like Bob Hartung said, get a bigger power machine.

We are using HP K370 with 1 CPU dan 1 GB of RAM (and will purchase additional CPU and 1 GB of RAM). We have 75 users and mostly use Citrix for access.

Edward

--- Bob Hartung <bhartung@wiscoind.com> wrote:

> When we converted from Symix 3 to Syteline 3.5, we
> had been planning to
> use Citrix Winframe only to support users with older
> sub-Pentium PCs.
> After installing the Syteline client on a few 300
> Mhz PCs and seeing the
> glacial response time we elected to upgrade the
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> to 4 processors and double the memory to 2 Gb. This
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> acceptable performance for 35 users. We only use
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> Syteline as a published app, no desktops or other
> apps. We've since
> upgraded the Winframe server to Metaframe
> XP/Terminal Server 2000 which
> didn't have any noticable impact on performance but
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> Another thing you should consider is the state of
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> Syteline database for a remote plant over a VPN (768
> Kbps) and 5 users
> at the other end have virtually the same performance
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> Were still running Syteline 3.5 and from what I've
> read on this forum,
> subsequent versions of Syteline demand increasingly
> more hardware
> horsepower. We are considering an Syteline upgrade,
> as well. The
> FrontStep tech who helped us with our Metaframe
> upgrade recommended
> adding a 2nd Metaframe server and splitting the
> number of users across
> them. It's an old story. Everytime faster hardware
> comes out, software

APPENDIX 2: CASE COMPANIES

Background to a few of the case companies is outlined in the following sections to verify some of the results and provide a reality check to the results proposed within this project. The companies were contacted for a variety of reasons:

- To understand their computer system requirements for the upgrade (taking into account their previous computer system)
- To understand the computer system they chose and if it matched their requirements and if they needed any unplanned changes after go-live
- To understand if there were any major problems they faced during the upgrade
- To see how much consultant time was required in each department and in total and if this matched the recommended amount suggested by Frontstep
- To investigate the reasoning for upgrading their ERP system
- To investigate the benefits they have found with the new version of the software
- What the costs of the system were, at initial implementation and on an ongoing basis
- If the company has a defined strategy for maintaining the previous or current version of the software both on a short and long term basis
- The methods they used to evaluate the feasibility of the upgrade (e.g. cost benefit analyses or just a one-off decision)
- If they had any tips for the upgrade process to avoid possible difficulties
- And finally, how they feel the new software is performing for the users

2.1 FILTRONIC COMTEK (USA)

Filtronic Comtek is a distributed company in the USA specialising in wireless infrastructure solutions and currently have over 400 employees in the USA with 60 SyteLine licences. Their annual turnover varies between \$80 million and \$150 million.

Filtronic Comtek moved from version 4.07 of the SyteLine software to the latest version 6 for various reasons:

- The current system was too slow especially for reports
- They wanted to get away from current hardware setup to new faster / reliable hardware
- The new version had many new features
- The new system had much improved data connectivity with standard applications such as Microsoft Excel through DDE and ODBC
- The new version was easier to support
- The new version was also much more flexible

There were other benefits of the system to Filtronic Comtek but they mentioned that these were too great to be explained fully.

The company managed to fully implement an upgrade with a team of eight people from each main department over a 6-month timeframe which was slightly over estimation mainly due to sickness and holidays of key employees. The total cost of this upgrade was estimated to be around \$150,000 including all of their new hardware, software and licenses. This can be broken down as \$45,000 for consultants, \$15,000 for software and \$60,000 for the hardware.

The main difficulty that Filtronic Comtek faced was that many of the users resisted the change even though they wanted the new features offered by the system. To overcome this they invested \$4000 in online training which they had to force many users to undertake before, during and after the upgrade. During the upgrade, Filtronic set up a conference room pilot for the users, which was hosted by an independent Frontstep consultant to allow full testing of the new version in the full range of business processes that they would use in normal use.

The feedback from the users of the system can best be described as 'Initial mainifestation of fear and loathing, via grudging acceptance, to realisation that it's better in a lot of ways' *Nick Morris, Filtronic Comtek.*

2.2 SEVERN TRENT SERVICES

Severn Trent Services is a custom-engineering company with 6 sites around the USA with all of the plants using the Frontstep SyteLine Software. They have 50 users at their main head office, of which 40 are office staff and 10 are warehouse and plant users.

Severn Trent Services try to keep on top of the new versions of the software produced by Frontstep and upgrade approximately 6 months after the release of a new version to allow time for the bugs to be ironed out of the system. Severn Trent Services believe that staying on top of the upgrades is a requirement to stay on the Frontstep maintenance and actually class it as a basic business requirement. This allows smoothing of the cost steps faced by many companies who allow their IT systems to lag behind the current significantly.

The main features of the new version that they find the most beneficial are the planning workbench, the accounts screens now being Graphical User Interfaces (GUI) and the GUI extra features such as filters and exports to software packages such as Excel. The only problem was that the GUI screens are now a little slower than the previous type of screens.

Severn Trent Services are only a mid-size company therefore they had to undertake the upgrade with part time project teams and tried to use these cross-functional teams to test the new system and determine what procedures should change to make the most of the new features of the new version.

APPENDIX 3: QFD QUESTIONNAIRE DESIGN

PROBLEM IDENTIFICATION & IMPORTANCE

Aim: To assess the problems that you would like the system to address and to assign an importance to it.

Importance Scale:

1	A Necessity
2	Important
3	Beneficial
4	Would be nice
5	Make no real difference

Department:

[illegible]

APPENDIX 4: QFD QUESTIONNAIRE RESPONSES

PROBLEM IDENTIFICATION & IMPORTANCE

Aim: To assess the problems that you would like the system to address and to assign an importance to it.

Importance Scale:

1	A Necessity
2	Important
3	Beneficial
4	Would be nice
5	Make no real difference

Department:

Problem	1	2	3	4	5
e.g. The finance screens are not GUI screens...	X				
part screen - no cost info.				✓	m
Not reported but history state to be reported				✓	
Ending item / start item -> double entry on reports.				✓	
Can't list breakdown on part.				✓	m
Project resources screen: Can not move to specific line!! (sometimes there)				✓	m
Change P.O. order screen when altering a line due date...					✓
Time for screen load.					m
Inventory - Change location or new location but have to go & change item stockroom.			✓		
Time phased inventory screen very confusing. reads upwards.		✓			m
Material transaction by item report backwards.				✓	m
Lot numbers - can issue more than available.				✓	m
Barcodeing the parts. so easier stock taking & monitoring					✓
If over issue then when demand returns item is returned demand is not taken off.				✓	m

27.

PROBLEM IDENTIFICATION & IMPORTANCE

Aim: To assess the problems that you would like the system to address and to assign an importance to it.

Importance Scale:

1	A Necessity
2	Important
3	Beneficial
4	Would be nice
5	Make no real difference

Department:

Problem	1	2	3	4	5
e.g. The finance screens are not GUI screens...	X				
mat by transaction by item report should reflect project transactions. (worthily documented as misc.)		J			
cut report on user defined fields.					
Too many prompts on some screens...					J
Planning debit display - can not see defaults to planner rather than part code.				J	
Purchases can be delivered sat/sun when place not open. - some sort of configuration to change			J		
Pick list - Sorted in order		J			
Wastage due to bar or sheet materials. system says we have 1m of bar. (in how many pieces?)			J		
When looking for customer by first letter it brings up the first co. with that letter. + does not give a list.			J		
Customer pays → have to be add to reconciliation. Vendor → reconciliation automatic.			J		
Invoice reprint - cannot find if input number are to go thro - customer order number.			J		
Must know invoice date for reprint			J		
Rowthace advice - poor layout can hold no envelopes too difficult to get to.		J			

PROBLEM IDENTIFICATION & IMPORTANCE

Aim: To assess the problems that you would like the system to address and to assign an importance to it.

Importance Scale:

1	A Necessity
2	Important
3	Beneficial
4	Would be nice
5	Make no real difference

Department:

[illegible]

APPENDIX 5: QFD ANALYSIS CHART

APPENDIX 6: TEST SYSTEM QUESTIONNAIRE

TESTING METHODOLOGY

The following document is for the testing stage of the Frontstep SyteLine Version 6 ERP system upgrade evaluation to be undertaken at Ray Mallock Limited and should be read by everyone undertaking the testing.

TESTING PROCEDURE

The methodology of the testing phase should be broken down into the following steps to be followed by all test subjects:

1. Review the changes in the test version of the system, which can be found in the LIST OF CHANGES document. (File: problems and changes.doc) In addition, please circle each of the features you feel may be advantageous to yourself on the LIST OF CHANGES
2. The users then should spend as much time as possible reviewing the areas of the system they usually use and any new features they feel may help their specific role within RML (e.g. planners workbench and consolidated orders etc...)
3. Please note how each screen performs on the TESTING QUESTIONNAIRE form in section 1.
4. After completing the testing, please answer the questions in section 2 of the TESTING QUESTIONNAIRE and add any comments as you see fit.
5. Finally, please check you have entered your name and details on the TESTING QUESTIONNAIRE and the LIST OF CHANGES document.

LIST OF CHANGES IN VERSION 6 OF SYTELINE SOFTWARE.

PLEASE REVIEW THE FOLLOWING CHANGES TO THE SYSTEM BEFORE COMPLETING THE MAIN TEST QUESTIONNAIRE.

PLEASE IDENTIFY EACH OF THE NEW FEATURES WHICH COULD POSSIBLY PROVIDE A BENEFIT TO YOURSELF BY CIRCLING THE POINT BESIDE EACH ITEM IN THE LIST.

NAME: _____ DEPARTMENT: _____

- You now see all Accounts Receivable screens GUI.
- APPLY button to permit one transaction for applying open credits, payments, and invoices.
- G/L references are now posted to invoices and payments
- Also, Landed Cost Variances for freight, duty and brokerage fees are recognized at the time of receiving material versus the time of generating the landed cost voucher.
- The currency revaluation utility revalues all A/R open debits, credits and payments to the current exchange rate
- A/R aging report recognizes the estimated and realized gains/losses on open transactions.
- NEW BUTTONS:
 - Auto-Refresh Windows - When this field on the Window List screen is selected and you save changes on a screen, all screens which access the same data table are refreshed with new data. If this field is cleared, only the screen on which you saved the data is refreshed. Performance is enhanced if this field is cleared. If this field is cleared, to ensure you are looking at fresh data, you must click the Refresh button on the toolbar.
 - DUP – The duplicate (DUP) button has allows you to launch multiple copies of the same screen that is currently open.
 - SYNC – The synchronize (SYNC) button allows you to synchronize all open screens to the key of the screen where the SYNC button is activated.
 - TRANSLATE – Where appropriate, the translate button allows a user to toggle views between the home currency and the translated currency.
 - REFRESH –button brings up the latest information on the database without requiring you to toggle on and off of the screen being viewed.
 - www.symix.com – This button allows you to launch directly into Symix' web site
- Cached Screens – A user can cache as many screens as their RAM will permit simply by exiting the screen. The screen will be cached so that the next time the user wants access to the screen, they will simply access it through their normal means and it will instantaneously appear. In addition, the user can set a parameter that will save a specific number of his/her cached screens at time of logoff. If set to zero, no screens will be saved.

- **Set Navigation** – A user can save specific views of his/her CRT. These views can be recalled later. These views include SyteLine screens and their positioning on the users CRT. They can be sent to other users for their use as well. An example of this may be for a purchasing agent to have a PO Maintenance Screen, a Vendor Master Screen and an A/R screen open. This set may be named and recalled later.
- **Auto NT Logon** – This feature allows a customer to include his/her SyteLine logon in his/her log on script. The user no longer requires a separate action to log on to SyteLine and combined with Cached Screens and/or Set Navigation permits the user to launch all of his/her screens at the beginning of the day, reducing wait time during the day.
- **A Planners Workbench** has been developed to permit "One stop shopping" for production, purchasing and material planners. After running MRP and processing the planners' workbench, the planner can launch job orders, create purchase orders, select suppliers, consolidate orders, etc. from one location. There is also drill down capabilities to permit access to information that may not be on the screen. It is a powerful tool developed to save the planners valuable time.
- At the request of many customers, costing has been added to By-Products. Costing in By-Products works much the same way as costing works for other SyteLine material types.
- For those customers who have multiple sites and BOMs used at more than one site, SyteLine 5.0 allows copying of BOMs from site to site. The BOMs carry materials, operations, work centers, etc. to permit copying without rekeying.
- **CTP Capabilities** – When invoking the CTP option at the time of order, a user doesn't simply get a no or yes back, he gets an answer of what can be done. So, if a user's customer would like to have 300 pieces by next Tuesday but there are only 75 capable to promise, the user sees what is capable rather than simply a NO. This permits the user to provide a higher level of customer service by saying "I can't get you 300 by next Tuesday but I can get you 75 and deliver the rest by Thursday ..." In addition, the new capability shows the user the source of the 75 (i.e. 30 from stock, 25 from purchase orders and 20 from production. Lastly, multiple CTPs will be permitted for a customer line item.
- **APS ANALYSER** – Enhancements have been made to allow the user to see where the bottleneck sources that are causing production deficiencies are. These sources can then be used to develop "What-If" scenarios in APS that will now be tracked and saved so that once the best combination of capacity changes is developed, they can be placed into SyteLine.
- **BOM Effectivities** – APS has been enhanced to plan orders based upon the expected manufacture date of the lower level item versus the manufacture date of the end item. So, if a parent is not going to be manufactured until June but its child is manufactured in May, it's child's configuration is based May.

- Offset Hours – APS now allows different operations to be performed on the same job order at the same time. If operation 20 can begin directly after operation 10 but before the job order is complete for operation 10, APS plans for that.
- User Extendible Tables (UET) have been added to SyteLine 5.0. This allows a user to add their own fields to the database that will carry forward to future upgrades of the software. In addition, these fields can be replicated to multiple sites. This helps customers who modify SyteLine to make upgrades easier. Lastly, where you may have wanted information (e.g. length, width, height, chemistries, etc.) to be added to SyteLine but chose not to do it for maintenance purposes, you can do it now.
- Another benefit of User Extendible Tables is the ability to add additional tabs to GUI screens. This will allow user to set up specific areas that they can go to and enter only the information that they need for specific purposes.
- You can now use the ? Lookup button on the operation number for a job.
- Press the telescope button from the following window to access a SuperFind browser with filter capability across Vendor records: Vendor/Item Cross Reference
- The ability to consolidate invoices, vouchers, shipments and receivers
- The ability to print forms in a field nominated manner and many scheduling updates.
- Why should someone in your company be required to actively reserve inventory or invoice a customer at time of shipment when the information you need to perform the task exists in the system anyway? Well, that's what Frontstep Adapters and Frontstep Process Brokers are for. They allow you to remove keyboards and rote activities from your organization permitting your valuable human resources to think rather than to perform mindless activities. The Adapters that are available in SyteLine 6.0 include those required for the customer fulfillment and invoicing process: (1) Customer Order Confirmation, (2) P.O. Acknowledgement, (3) Inventory Availability Check, (4) Reserve Inventory, (5) Print Pick List, (6) Automatic Ship Notification, (7) Invoicing at Shipment, (8) Customer Item Pricing and (9) Credit Check.
- In the graphical user interface world, you will find that Frontstep has added the following areas to the GUI listing for SyteLine 6: Accounts Payable, General Ledger, Returned Material Authorizations, Engineering Change Notices, Unposted Job Transactions, Vendor Letters of Credit, Transfer Orders, and many more.
- Frontstep has added the ability to ship multiple customer lines and/or multiple customer orders on one control document, a Delivery Order. This functionality allows you to fill containers with product and to control the contents of the entire container rather than worrying about the specific customer order. In addition, this functionality flows through to the customer invoice. You can send the customer one invoice for the entire shipment rather than multiple invoices. ASNs are supported, too.
- If the shipping and invoicing process can handle multiple customer orders and customer order lines, why can't the receiving process handle multiple purchase orders or multiple purchase order lines in the same manner? The answer is ... it can. Frontstep has turned the Delivery Order shipping process described earlier inside out and is providing you

with the ability to receive items from multiple purchase orders or purchase order lines onto one control number permitting that control number to carry forward to the vouchering process. EDI and ASNs are also supported. This capability, entitled Goods Receiving Notes, is available in SyteLine 6.

- For the accounting users, SyteLine 6 provides the ability to consolidate invoices. You may consolidate an invoice for multiple lines, customer orders, or delivery orders, sending your customer the invoice the way he/she wants it. The vouchering process now works in a consolidated manner as well. Next, Frontstep has added the ability to require a unit code to be present before posting a transaction to the General Ledger. In the past, the base account number was all that was needed.
- Lastly, Frontstep has added Voucher Preregistering. This functionality provides the ability to handle taxing issues associated with goods that have shipped from your supplier but have not arrived at your facility.
- On the operations and scheduling side of things, Frontstep has added the long awaited Work Center Sequencing. Work Center Sequencing allows a SyteLine user to establish buffers at specific work centers that the SyteLine Global Scheduler uses to attach additional time to the operation going through the work center. By doing this, you have the flexibility to sequence items through a work center within the buffer without disrupting other schedules within your operations. This functionality will help you schedule your shop by attribute such as color or tool usage, etc. By the way, Frontstep provides the screens to help you perform the sequencing operations as well.
- Other scheduling enhancements include adding additional fields to the SyteLine APS integration that provide additional flexibility. These fields include: order maximum, run like MRP part, order attribute, unrestricted purchase part. While doing this, we spent quite a bit of time tuning the performance to make you more efficient.
- Enhanced Project controls - work breakdown structure, invoicing of tasks/resources
- RF store and forward data collection capability using Antares devices for areas such as stock control and goods issue

TESTING QUESTIONNAIRE

NAME: _____ DEPARTMENT: _____

APPROX TIME SPENT WITH SYSTEM: _____

NOTES:

- Please rate each screen and report used in the first section of this questionnaire and then proceed to the questions in the second section.
- If a question is not applicable then please leave box blank.
- Please feel free to add additional comments to this form where necessary and in the comments box at the end.

SCALE:

1=Massive improvement and benefit over previous version

5=No benefits over previous version (no better or worse)

9=Much more difficult (much less benefit) than current

- If a question requires a yes/no answer please use scale: 1=Yes, 9=No.

SECTION 1

PLEASE RATE EACH SCREEN (INCL. REPORTS) USED COMPARED TO PREVIOUS
VERSION SCREENS / REPORTS

[illegible]

	1	2	3	4	5	6	7	8	9
	1	2	3	4	5	6	7	8	9
	1	2	3	4	5	6	7	8	9
	1	2	3	4	5	6	7	8	9
	1	2	3	4	5	6	7	8	9
	1	2	3	4	5	6	7	8	9
	1	2	3	4	5	6	7	8	9
	1	2	3	4	5	6	7	8	9
SECTION 2 PLEASE RATE YOUR OVERALL IMPRESSION OF THE NEW VERSION OF THE SOFTWARE	Better (yes)				Same	Worse (no)			
The screens are clearly laid out clearly (Graphical screens are better?)	1	2	3	4	5	6	7	8	9
Information can be entered quickly and efficiently	1	2	3	4	5	6	7	8	9
Information and screens can be found quickly and efficiently	1	2	3	4	5	6	7	8	9
Appropriate information is on the screens/reports	1	2	3	4	5	6	7	8	9
Reports are better or worse than current version	1	2	3	4	5	6	7	8	9
System automates more repetitive tasks hence saving time	1	2	3	4	5	6	7	8	9
The system addresses the problems identified previously (see attached sheet)	1	2	3	4	5	6	7	8	9
New features provide a benefit to me (1=Yes, 9=No)	1	2	3	4	5	6	7	8	9
Overall understanding of use of system (can you use and understand system functions)	1	2	3	4	5	6	7	8	9
Overall impression of the new system	1	2	3	4	5	6	7	8	9
COMMENTS:									

Thank you for taking time to do this questionnaire. Extra sheets are available if required.

PROBLEMS ENCOUNTERED WITH CURRENT SYSTEM

PLEASE IDENTIFY (BY CIRCLING POINT) IF ANY OF THE PROBLEMS IDENTIFIED PREVIOUSLY HAVE BEEN SOLVED.

NAME: _____ DEPARTMENT: _____

Accounts

- Materials by transaction report should reflect project transaction (currently logged as miscellaneous)
- When a customer pays details have to be added to reconciliation but for vendor this is automatic
- When reprinting an invoice it cant be found if manually entered - have to go through customer order maintenance screen
- For an invoice reprint you must know the invoice date and number
- Remittance advice slip is difficult to produce
- Remittance advice slips have poor layout and cant be folded into window envelopes
- Invoices: the figures do not line up with columns
- Invoices: the ship to address can not be used
- No warning on vendor maintenance screen to remit to another company
- Posted transaction screen: not possible to identify the amount for cheque issued
- Aeging buckets does not ignore payments on hold due to discrepancy
- Finance reports are all unclear
- Can not invoice projects at set interval or when a certain process is complete

Production

- On part screen there is no supplier information
- Can not list transactions on a part
- On project resources screen there is no way to move direct to a line
- Many prompts that are unnecessary and obvious to the user
- It is not possible to report on user defined fields
- On planning detail screen search defaults to planner rather than part code
- System allows deliveries at weekend when closed but work week is Monday to Friday

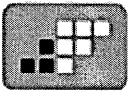
Stores

- Pick lists are not sorted in order therefore no structure to picking activity
- Stock levels not accurate with sheet or bar material (stock = 1metre, in how many pieces?)
- Confusing time phased inventory screen as it reads upwards
- Material transaction by item report reads backwards
- You can issue more parts than you have from a lot without any form of warning
- If item is over issued then when part returned demand is not removed from system
- Parts should be bar-coded for easier tracking and stores management
- When receiving goods into a new stockroom location systems accepts it but does not create it. Have to go to item stockroom to create

General

- Have to wait for screens to load
- When looking for customer by first letter system takes first name in database and does not give a list

APPENDIX 7: FRONTSTEP SYSTEM SPECIFICATION



1. Hardware & System Software Requirements

1.1. Assumptions

Single Site

SyteLine: 20 concurrent users

Advanced Forms: 1 site (Optional for this specification)

NT/Win 2000 Domain Controllers and Printer Servers are not included in this proposal.

Either Active Directory or a MS SQL Server (v7) is also assumed available to run MS Message Queue.

Uninterruptible Power Supplies, and other Computer-Room facilities (Power, phone lines, etc.) are in place.

Also, see the Notes, Networks, and Communications sections below.

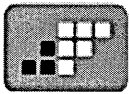
1.2. SyteLine Database and Progress Appserver Server

The SyteLine Progress Database Server stores the SyteLine ERP data, and runs the "Appservers" – processing the ERP business rules and passing data to and from the database on behalf of the clients to improve performance and reduce local network traffic.

Note that the speed and number of disks is important, but size is not.

This machine should have no other responsibilities, i.e. file serving, print serving, email, or domain security.

Description
Hardware Dual PIII 700 MHz 1.25 GB Ram, expandable No RAID: 5 x 9.1GB Ultra-160 SCSI hot-swap drives (4 disks if after-imaging not used) OR RAID 1E: 7 x 9.1GB Ultra-160 SCSI hot-swap drives (5 disks without after imaging, or if sharing the DB volume) 1 x dual-channel Ultra-160 SCSI RAID 1E controller OR RAID 1 or 10: 10 x 9.1GB Ultra-160 SCSI hot-swap drives 1 x dual-channel Ultra-160 SCSI RAID controller (8 disks without after-imaging, or if sharing the DB volume) Optional: 1 x 9.1GB Ultra-160 SCSI hot spare drive IBM 20/40GB DDS/4 Tape drive 100baseT or 1000baseT Ethernet controller 15" monitor Modem
3rd party software Windows 2000 Server (preferred) or NT Server 4 Veritas Backup Exec, or similar PC Anywhere remote support software



1.3. Fileserver, Forms Server and Workflow Server

The **File Server** is a network computer used to centrally store SyteLine and Progress code (SyteLine is written in Progress) on behalf of the clients. The primary reason for using a File Server is to relieve the administration involved in maintaining duplicate sets of code on possibly several dozen machines. A File Server, or even multiple File Servers, reduces the number of separate installations of the code.

Approximately 50 SyteLine clients are supported on a File Server, additional clients may need to use a separate File Server to prevent potential bottlenecks, resulting in poor performance. The actual number of users a file server can support without adversely affecting performance will vary depending on activity.

In this case of Ray Mallock, with about 20 concurrent local users, this server will also run the Advanced Forms server software, and the Workflow Server element of SyteLine Workflow Automation.

Advanced Forms takes character-based reports/documents and transforms them using user-designed templates to fill, route and fax professional-looking forms electronically. Dynamic processing capabilities allow data from additional sources to be merged, and external scripts executed.

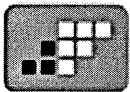
SyteLine Workflow Automation connects, automates and streamlines business processes eliminating traditional "rip, read and re-key" methods. Workflow Automation delivers intelligent messaging and workflow to extend your enterprise and automate your supply chain for fast response and improved efficiency.

SyteLine Workflow takes advantage of Microsoft Exchange for email-based information, and Microsoft Message Queue Server (MSMQ) to ensure delivery of messages delivered through the Exchange server across the Enterprise.

Workflow Server must be installed on a machine that has access to Microsoft Exchange Server 5.5 in order to process flow templates, flows and task messages from Workflow clients.

MSMQ requires an SQL server or Windows 2000 Active Directory to run the Enterprise Controller which authenticates and routes messages whilst also providing a "queue" to hold the message if the target computer cannot be found. MSMQ is a store-and-forward message service for Windows NT/2000 Server, providing a secure, priority-based messaging system to efficiently route transactional messages across networks.

This machine should have no other responsibilities, i.e. email or domain security.

**Description****Hardware**

Single PIII 600MHz
512MB Ram, expandable
4 x 9.1GB Ultra-160 SCSI drives
Optional ServerRAID-4Lx Ultra-160 SCSI RAID 1E controller
100baseT or 1000BaseT Ethernet controller
15" monitor

3rd party software

Windows 2000 Server (preferred) or NT Server 4
Veritas Backup Exec Remote Agent

1.4. MS Exchange Server

Workflow Server must be installed on a machine that has access to Microsoft Exchange Server 5.5, in order to process flow templates, flows and task messages from Workflow clients. Microsoft Exchange Server provides a comprehensive messaging and collaborative application platform with integrated connectivity to the Internet, legacy-messaging systems, and to client machines.

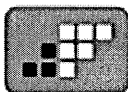
The following server is a basic server catering for moderate Workflow and email usage. It can be upgraded should usage in these areas become very high.

Description**Hardware**

Single PIII 933MHz, Dual Capable Open bay Tower
512MB Ram, expandable.
4 x 9.1GB Ultra-160 SCSI drives
Ultra-160 SCSI RAID 1E controller
100BaseT or 1000BaseT Ethernet controller
15" monitor

3rd party software

Windows 2000 Server (preferred) or NT Server 4
MS Exchange Server 5.5 (Exch 2000 downgraded)
Veritas Backup Exec Remote Agent or similar
Optional: Veritas Backup Exec Exchange Agent or similar



1.5. Clients

1.5.1. *Standard Clients*

SyteLine fully leverages the intuitiveness and rich functionality of the Microsoft Windows client environment, with its highly configurable interface, its ability to interact with and communicate with other applications, and its ability to manage multiple SyteLine windows (programs) at the same time. With each field, on each tab, on each window on a SyteLine client being processed for security and configuration, good performance requires a reasonable processor and lots of memory (so that multiple screens can be “cached” for rapid access). Lower specification machines may be suitable for simple data-collection screens, however.

SyteLine will run on Windows 95 and 98, but Windows 2000 and Windows NT memory management are more efficient with memory sizes above 40MB, significantly improving performance of the SyteLine application.

Minimum recommended SyteLine Client Specification
--

PII 350MHz

128MB Ram

500MB free hard disk space

10BaseT Nic

1024 x 768 SVGA

TCP/IP networking

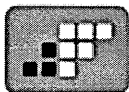
NT 4 Workstation or Windows 2000 Professional

1.5.2. *Thin Clients*

One way in which lower specification machines (even down to 486 class machines running Windows 3.11), or even non-windows clients, can still be efficiently used as SyteLine clients is by using Windows 2000 Terminal Services with Citrix Metaframe. Performance, and cost effectiveness, can be even better than for standard clients.

More common reasons for “thin clients” are to drastically reduce network bandwidth requirements (from 10MB to around 20Kb) enabling clients to connect across a WAN or even a phone line; to easily centralise, standardise and secure the client’s environment to simplify administration; and to maximise the use of a machine’s resources

A thin-client server running Windows 2000 Terminal Services and Citrix Metaframe software is required for this solution. (Contact Frontstep for server specifications).

**"Thin clients" specifications**

486-class PCs and above (A very good graphics card is advisable)

Windows 3.x

Windows 9x

Windows NT 4 Workstation/Server

Windows 2000 Professional/Server

Windows Terminal Devices (e.g. Wyse)

800 x 600 (1024 x 768 preferred)

Other operating systems capable of running Citrix ICA clients (these include web browser plug-ins, Java clients, Windows CE clients, Unix, and so on). Some functionality restrictions may apply.

1.6. Notes

1.6.1. Fault Tolerance, Fast Recovery and Business Continuity Planning

Disk failures are one of the most common reasons for the loss of data crucial to the uninterrupted running of businesses. Whilst Progress before-and-after image journaling can protect the SyteLine database without RAID systems, the cost of the ensuing recovery time usually easily outweighs the cost of the extra hardware. The specifications of the above servers include the minimum level of fault tolerance, which are RAID subsystems for the hard disks. Frontstep recommends that consideration be given to incorporating high availability systems or recovery planning solutions. Such options include component-level redundancy such as redundant power supplies, processors, networks cards, Ethernet switches, and so on, through to server fail-over clustering, network protection, and business continuity planning.

1.6.2. Do not use RAID 5 or software RAID

Note that Frontstep do not recommend RAID 5 for transactional database systems. RAID 5 is comparatively slow compared to RAID 1, 10, or 1E. The use of write-back caching is therefore a common practice to improve RAID 5 performance. However, if the RAID 5 controller fails, the data in the cache will not be written to the disk even though the Database Management System (Progress, SQL, etc.) thinks that it already has been saved. This leaves the database in an indeterminate state with a likely corruption of the data. Write-back caching should not be used, if possible.

Software RAID, such as the capability provided in Windows NT and 2000 Server, is also not recommended because it impacts performance significantly. Hardware RAID systems use their own processors, and not the servers' CPUs, and therefore do not interrupt the application.

Frontstep recommends RAID levels 1, 1E and 10 i.e. mirroring, or mirroring and striping, all of which offer a better combination of performance and reliability. For more information on RAID systems, contact Frontstep (UK) presales technical support.

1.6.3. Networks and Communications

1.6.3.1. Local Area Network fundamental requirements:

Local clients should access the servers from a switched Ethernet, where all servers are connected to one 100baseTX or 1 Gigabit switch, all clients are

connected at 10baseT, and there are no more than 12 clients or nodes per collision domain (i.e. 12 in-use ports on a non-switched hub, and no hubs are daisy-chained).

See Wide Area Networks, below, for guidelines if your network does not meet this requirement.

We recommend TCP/IP is the only network protocol.

1.6.3.2. Wide Area Networks:

Remote clients can access the servers using “thin clients” via Windows 2000 Terminal Services (with Citrix Metaframe), as described above under “Thin Clients”.

Each concurrent remote user will require approximately 15-20k bandwidth. An additional 20-50k should also be allowed on the total for remote printing. Latency (“ping time”) for the WAN should ideally be less than 70ms.

1.6.3.3. Using SyteLine clients over the Internet:

Several customers are successfully running SyteLine clients from across the Internet using the Citrix technologies, such as Web Browser clients, the Secure ICA protocol and so on. Some connect direct, and some connect over a Virtual Private Network (VPN), which is a way of connecting two or more remote networks over the Internet using encryption to secure the data.

There are three major considerations when doing this: Performance, security and cost.

Performance.

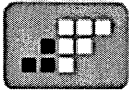
While performance over the Internet can be fine, performance cannot usually be guaranteed because the Internet is a shared resource. Also, certain parts of the Internet will be affected at different times because of international time zones – as America comes on line in the morning, the UK users, around early afternoon, often see a slowdown with the increase of traffic. And in order to maintain security, data should be encrypted, which itself has an impact on performance. However this is generally less significant than the above.

Security.

Anyone connecting to the Internet is at risk of security breaches or service attacks by a potentially huge number of malicious or nuisance third parties from anywhere in the world. Professional Internet security advice is highly advisable.

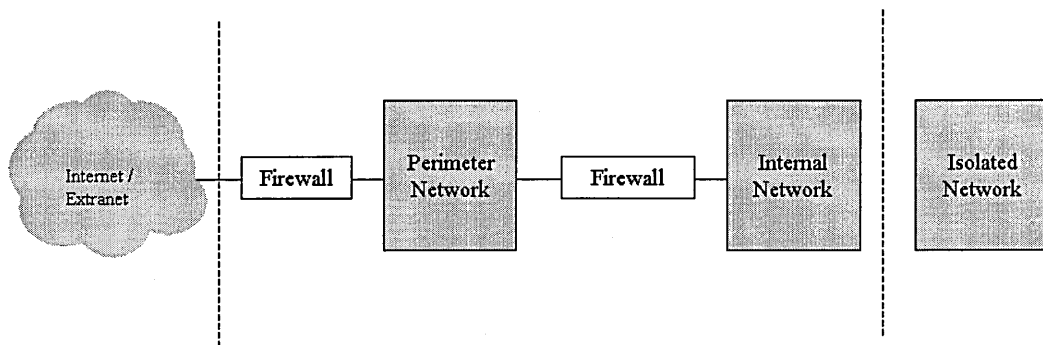
Cost.

The above issues notwithstanding, cost is the major reason for connecting clients over the Internet. However, care should be taken to weigh up the benefits, risks and hidden costs when comparing Internet solutions to more conventional solutions such as point-to-point leased or dial-up lines.



1.6.4. Firewalls and Security

Several levels of security for the network infrastructure are normally required when connecting to the Internet. The highest level of security is achieved by physical separation (an “Airgap”) of part of the local area network. A perimeter network is partly connected to, and protected from, the external world (such as the Internet) by a firewall; and similarly the internal network is protected from the perimeter network by another firewall. External access onto the internal (connected) network is usually achieved using high-security dial-up access or high-security VPN (Virtual Private Network) technology.



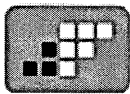
Information needs to be passed safely between each part and outside of the company network, for example:

- To pass CAD documents and email between the isolated network and the internal network.
- To allow customers and suppliers to access a restricted amount of information directly.
- To allow users to have input and receive output from automated processes occurring in any or all parts of the internal and external networks.

To assist in developing this goal, Fronstep’s Active Link technology framework has standard support for the transfer of documents and data in both synchronous and asynchronous mode over a number of transports, with built-in document and data format conversions, and even allowing for manual intervention, authentication and authorisation.

Specific examples are:

- Purchase orders raised in SyteLine on the Internal Network can be sent as an encrypted document via SMTP email over a VPN connection to a supplier, who would then decrypt the order, update or confirm the details, encrypt it, and send it back. The updated document would be automatically scanned and processed (possibly prompting a buyer to



manually review and authorise the order via a workflow XML form) before being automatically posted into SyteLine.

- CAD documents on the isolated network could be transferred to the internal network via a specialist 3rd party hardware product designed to bridge the airgap in a secure fashion.
- Workflow event messages, containing passive or active data (active data meaning the data which will be used to change or determine the state of a step in a workflow), can also be passed from the isolated network to the internal network, and vice versa, using the 3rd party product and Active Link.
- Extranet information (data held on a web server for customer review for example) can be held in a database sitting on second-level perimeter network, and synchronised with SyteLine or another database on the internal network using Active Link (for example using FTP as a medium-security transport mechanism, or another, more secure, batch copy protocol like scp).

While these capabilities exist in the Fronstep solution framework, provision for specific solutions are outside of the scope of this proposal.

1.7. Hardware Solutions, Installation, Support and Maintenance

1.7.1. IBM xSeries

Fronstep can supply IBM, Compaq and Compaq-HP hardware and have ratified Dell and Sun hardware.

We currently propose IBM servers primarily because of their RAID 1E storage technology, which we think offers the best performance/value for money (RAID 1E requires fewer disks than RAID 10, better performance than RAID 1, and better security than RAID 5). Typically, this outweighs costs savings for other parts of the system, unless RAID is not employed, or RAID 5 is considered sufficient.

In addition, the IBM Director systems management software, derived from the world-class Tivoli software, is free with the server. This provides comprehensive and pro-active server, LAN and WAN systems management capability.

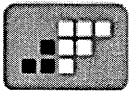
Installation and 3rd party software support can be quoted. See below for additional products and services.

1.7.2. Warranty

The above hardware comes with standard 3 year parts and labour on-site IBM warranty (excludes monitors).

“IBM is the only company with a support organisation large enough to offer three years of warranty support 24 hours a day, 365 days a year, next business day on-site service, with world-wide coverage, that can be upgraded to a four hour response.” (IBM June 2001)

SyteLine is ratified on IBM’s ServerProven programme.



1.8. Extended Products and Services

Some of the extended products and services Frontstep are able to offer its customers include:

1.8.1. IT Solutions:

- A wide range of hardware and business software (The high level of accreditations included Cisco, Microsoft, IBM, Compaq, Citrix and many others)
- Structured cabling
- Networking and Internetworking products
- Communications
- Installation and configuration services
- Technical consultancy
- Internet services including hosting.

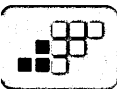
1.8.2. Business Continuity:

- Relocatable recovery ("ship to site" of replacement systems)
- Mobile recovery ("computer room on a trailer")
- On-Line recovery (Business recovery centres located throughout the UK)
- Office recovery (Full stand-by office and systems facilities)
- Business Continuity Consultancy
- Systems Testing
- Invocation Testing

1.8.3. IT Support Services:

- Managed Support Services, from cost-effective PC support, through to High Availability support with tailored service levels, bonded stock and even dedicated on-site staff
- Enterprise Management, including User Help Desk, Technical Help Desk, Remote Management, Insourcing and Outsourcing.
- Further information can be provided.

APPENDIX 8: FRONTSTEP PRICE CHARGES

**FRONTSTEP**

TM

Frontstep (UK) Limited

2460 Regents Court The Crescent Birmingham Business Park Birmingham B37 7YE England

phone	+44(0)121 606 5500
fax	+44(0)121 606 5501
web	www.frontstep.co.uk

RECEIVED 26 JUN 2002

Mr G Alland
Ray Mallock Ltd
Head of IT
6-10 Whittle Close
Park Farm Industrial Estate
Wellingborough
Northants NN8 6TY

25th June 2002

Dear Mr Alland

I am writing to you to advise you of a change to our standard consulting and maintenance rates, effective from 1st July 2002.

Professional Services

For the past few years Frontstep (UK) has maintained its standard consulting fees at a flat rate of £750 per day plus expenses for project management, application consulting, technical consulting and development.

To reflect both the value added by the services we offer and also the increased cost and investment we are making in our resources, we are adopting a revised standard fee structure, the rate of which is dependent on the type of service being provided:

- *Project Management* £1,100 per day
(Project initiation, planning, co-ordination and review)
- *Application Consulting* £850 per day
(Advice and guidance on the use of Frontstep application software products, specification and system testing of modifications)
- *Technical Consulting* £850 per day
(Advice and guidance on the installation and configuration of Frontstep products and associated infrastructure)
- *Development* £750 per day
(Development and unit testing of modifications to Frontstep application software products)

However, for some of our longer term customer, we appreciate that the revised rates could represent a stepped increase, as often the rate paid today dates back to your initial implementation of Symix/SyteLine. In recognition of this fact we are proposing that the rate we apply in your case is incremented in three equal steps during the next year. As of 1st July 2003 all clients will be charged based on the above standard rates, notwithstanding any future changes to these rates. The pricing you will pay is as follows





<i>Service</i>	<i>Current Rate</i>	<i>1st July 2002- 31st December 2002</i>	<i>1st January 2003 – 30th June 2003</i>	<i>1st July 2003 onwards*</i>
Project Management	725	850	975	1100
Application Consulting	725	767	809	850
Technical Consulting	725	767	809	850
Development	725	734	743	750

* subject to confirmation in June 2003.

By adopting this approach, we believe that we have a transition mechanism that fairly reflects our past and present commercial arrangements, and takes into account the value and cost of our services in line with the rest of our industry.

In addition, for any services agreed and ordered before 30th June 2002, for delivery between 1st July 2002 and 31st December 2002, we will apply your existing service rate. Please note, as per our standard terms, we will require a 10% deposit with any services order.

Please note, this does not affect a clients existing commercial agreement for Services that is already in force

Maintenance

In line with general increases in costs, as well as reflecting our desire for continued investment in our support capabilities, Frontstep (UK) maintenance prices will increase by 3.5% for all renewals effective after 1st July 2002.

Please note, this will also apply to Progress maintenance costs for customers on our bundled SyteLine/Progress licensing package (i.e. customers after July 1998). For customers not on the bundled licensing package, Progress standard list prices will apply. Generally in the past, Progress increases have not exceeded 3.5% year on year in any case.

Should you have any questions regarding the above, please do not hesitate to contact Steve Leak (Customer Services Manager) or myself.

Thank you for your past business and we look forward to supporting you in the future.

Yours sincerely

Stephen Kirk
Operations Director

APPENDIX 9: COSTING QUOTES



PROVISION OF THIN CLIENT SERVICES FOR LAN & REMOTE ACCESS USERS

PROPOSAL DOCUMENT

FOR

Ray Mallock Ltd

DATE	12 TH JULY 2002
PREPARED BY	S. P. GILLARD
DOCUMENT REF:	SPG\RML_PROP_001
VERSION ID	1.0
STATUS	PUBLISHED

RAY MALLOCK LTD

PROPOSAL DOCUMENT

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1.0 INTRODUCTION AND ACKNOWLEDGEMENT

Execute wishes to thank Ray Mallock Ltd, (known within as RML) for the opportunity to present this proposal. This document details our proposal for all project related hardware, software, consultancy services and ongoing support for the proposed Thin-Client environment.

This document has been developed from the information gained from a recent discussion with George Alland of RML, and is presented on the understanding that it is treated with commercial confidence.

Any work undertaken by Execute on behalf of Ray Mallock Ltd will be treated as strictly confidential. All trade and professional information disclosed by RML will be treated as having been given in confidence and will not, without prior consent, be communicated to any third party. Where it is necessary for Execute staff to have access to information with a restricted circulation, it will be undertaken on the premises of RML only.

The contents are based upon Executes understanding of the broader support requirements.

All enquiries relating to this document should be made to:

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E-mail: simon.gillard@execute.co.uk

2.0 EXECUTIVE SUMMARY

Execute have prepared this proposal to outline the required hardware, technical consultancy and support services required for a successful implementation of Thin-Client within RML. The proposal also provides a brief overview of the company, our project methodology and existing customer list.

Execute are fully accredited and highly experienced consultancy practice and systems integrator, providing leading edge business solutions to corporate companies and the public sector. The company operates on a UK wide basis from strategically positioned offices in the South and North of England.

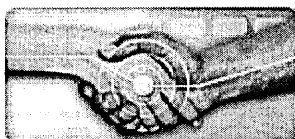
Unlike many IT solution providers, Execute has developed a proven IT project methodology which builds a close working relationship between the two parties from day one. This methodology ensures projects are successful, delivered on time and have adequate funding. A core part of the methodology also identifies key project dependencies and risks at an early stage. When dependencies and risks are identified early on, they can be effectively managed and the success of the project greatly increased as a result.

Based upon the information gained, Execute can confirm we can achieve the implementation deadlines and have the necessary skills, resources and experience to understand and plan an implementation of this scale. The proposed solution will include:

- Implementation of a highly-availability, low-risk Citrix MetaFrame XPa Thin-Client Application Server Farm.
- Secure, easy to use remote access solution for Roving Users
- Integration of Line-of-Business Applications and Core Services
- Full Project Documentation & Handover
- Post implementation Support

Execute is extremely well positioned to work with RML for the following reasons:

- We have a proven record of accomplishment
- We are a preferred delivery of product for Microsoft
- We are a preferred supplier of technical services and product for Citrix
- We are a preferred developer of services and solutions for Citrix
- We understand the Microsoft & Citrix marketplace
- We provide the lowest risk to your business
- We have a wealth of experience across the proposed product sets
- We are delivering similar services to Times Top 1000 Companies and Government Sectors
- We are keen to continue to be recognised for providing real added value
- We have clearly defined project procedures and implementation guidelines to ensure the success of the project both technically and from a business perspective



2.1 INVESTMENT PROFILE – EXECUTIVE OVERVIEW

Detailed below are the investment amounts based upon the requested options. Elements of the project need further consultation with RML and so should be used to provide budgetary figures.

As part of our project methodology the initial Project Discovery & Definition Workshop is the initial consultation exercise to confirm all the details of the project. The results of the Workshop form the basis for the Project Plan, Project Schedule and a revised proposal is produced in conjunction with RML. This confirms not only timescales for the implementation but also confirms the investment required for hardware, software and a technical service to ensure the project is a success.

INVESTMENT DESCRIPTION	INVESTMENT VALUE
FULL SOLUTION WITH DELL SERVERS	£62,274.27
* - ALL PRICING INCLUDES VAT CHARGED AT THE PREVAILING RATE (17.5%)	

Detailed breakdowns of the investment profile are provided in Section 6.0, page 22 of this document. Information relating to the proposed solution can be found in Section 5.0, page 14 onwards.

3.0 EXECUTE COMPANY INFORMATION & BUSINESS FOCUS

Execute are a specialist consultancy and systems integrator providing leading edge business solutions to corporate companies and the public sector. The company operates on a UK wide basis from strategically positioned offices in the South and North of England.

Our past and present clients include JP Morgan Chase, BBC Radio, Walt Disney, Kellogg's, Shell Exploration and numerous public sector organisations including London Borough of Greenwich Company, Perth & Kinross Company and Kings Lynn NHS Trust, to name but a few. Previously completed projects range from fifteen users secure remote access solutions through to comprehensive 3,000 user plus, server based computing solutions with onsite managed services and helpdesk facilities.

The company operates as both a consultancy practice, bringing high levels of knowledge and expertise to all projects and as a solution provider/systems integrator. As a solution provider and integrator we specify and source all the required hardware and software at competitive prices, ensuring value for money for our clients.

All the solutions Execute designs and implements are based upon best of breed products which combine with our highly skilled technical services to provide tailored solutions to meet our customers' business needs. Execute is founded upon the principle that business is about creating mutually beneficial relationships, helping our clients and in turn developing long term relationships.

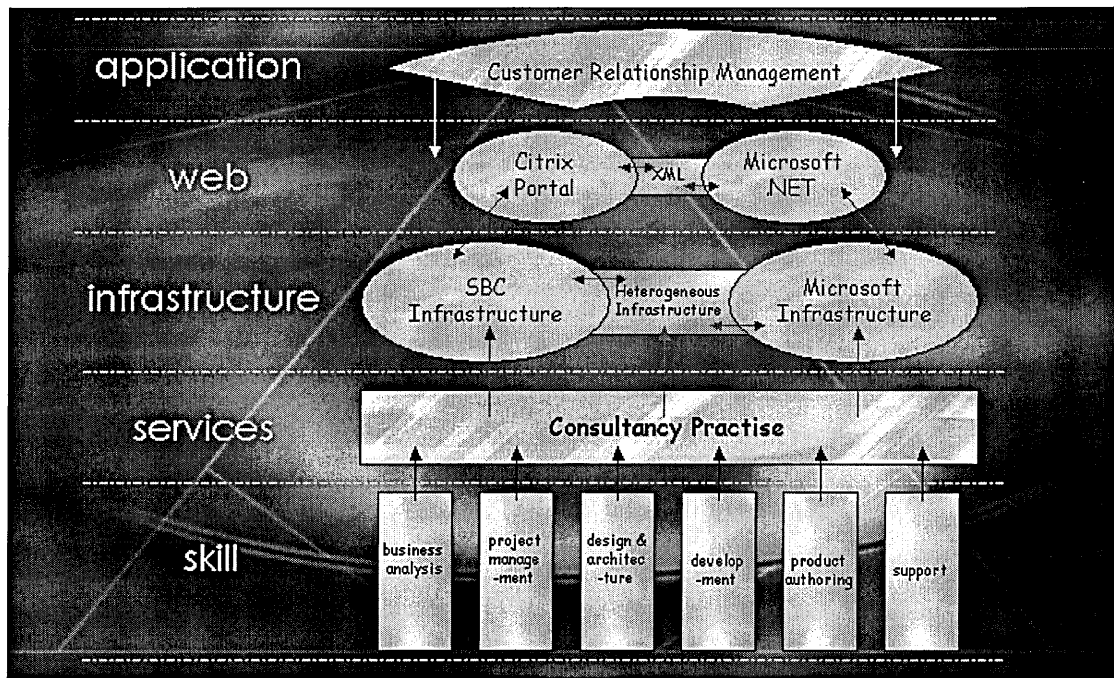
Our primary areas of expertise are:-

- Server Based Computing
- Secure Corporate Web Portals
- Workforce Mobility Solutions
- Desktop PC Management & Deployment
- Network Bandwidth Management & QoS
- Technical Consultancy Services
- Managed Services
- Development Services

In addition to providing a full range of consultancy services, Execute is able to offer bespoke development skills to clients. This enables us to provide tighter integration, maximise systems capabilities and tailor solutions to meet specific customer requirements. Through tailoring solutions our clients receive more benefits from their IT investment.

All the business areas are interlinked enabling Execute to draw upon some of the very best IT professionals to design, develop and implement the latest business critical systems. Execute are always more than happy to discuss how our services and solutions can be used to bring more benefits to your business

Below is a diagram depicting Executes service model.



Executes Service Model

Execute has established itself as one of Citrix's key Gold partners, we are a managed account within Citrix and form part of the top 7% companies across the UK. In addition we are one of twelve development partners for Citrix's new XML Portal solutions. The evolution of Thin-Client or "Server Based Computing" has provided a solution that meets the challenges of today's IT and Business needs. Execute has developed a Service Model that enables organisations to quickly and easily address the needs of their infrastructure demands. Through careful planning and implementation, Execute can help you to realise a True Return on Investment very quickly.

Execute are also a Microsoft Certified Partner, focusing on the development of Microsoft Infrastructure solutions such as Windows 2000 server, Active Directory, Exchange 2000, SQL 2000, etc. Additionally, Execute also provide key development skills around Microsoft's .NET framework, Visual Basic and C#.

3.1 VENDOR ACCREDITATIONS

Execute has partnered with a number of key vendors to provide a range of solutions, focussed on not only resolving business connectivity and management issues but also reducing the total cost of IT ownership.

The accreditations confirm our technical skills and understanding of the various technologies that form the solutions we provide. They also ensure we have excellent lines of communication enabling access to the latest information and resources.

We can happily provide references from the vendors to confirm our close business relationship, technical expertise and customer focussed approach.

General Accreditation Overview:-

<i>VENDOR</i>	<i>ACCREDITATION</i>
CITRIX	CSN – GOLD PARTNER
	NFUSE ELITE (SOUTHBEACH) - PRODUCT CHAMPION
MICROSOFT	MANAGED - CERTIFIED PARTNER
WYSE	PLATINUM PARTNER
DELL	PREMIER SOLUTIONS PARTNER
COMPAQ	CERTIFIED SOLUTIONS PARTNER
SITARA	PREMIER PARTNER
EXPAND	ACCREDITED PARTNER

Execute always maintains direct technical support arrangements with key vendors to ensure access to the latest information, patches and fixes for our clients.

4.0 PROJECT METHODOLOGY FOR PROJECT SUCCESS

The need and desire to implement new technology to meet changing needs and service demands forms the basis of many IT projects. Many organisations have a standard pattern of requesting proposals from suppliers to implement the new systems or solutions they have chosen. In most circumstances the supplier of the solution has very little information regarding the existing infrastructure or specific needs of the organisation. The proposals put forward are therefore usually inaccurate and do not provide a true picture of the solution, the benefits of it and also the budget and timescales required to implement it.

In addition to this, the investment required is usually focussed on a single commitment by the organisation to purchase the whole solution. This can often be prior to having experience of the solutions provider, using the technology, making sure it meets their needs and that the infrastructure is in place to support it.

It is this lack of understanding that creates a number of high-risk areas for both the Client and the supplier leading to problems with the project and in turn the solution.

These often include:

- Failure of the project
- Over spending on the project
- Badly implemented solution
- Missed implementation deadlines
- System downtime
- Poor perception of the systems and service by the user population
- A solution which does not deliver all the services the Company requires

Execute have invested a great deal of time and effort to develop a project strategy which removes the above issues, dramatically reduces the risk associated with new IT projects and delivers a number of additional benefits to its clients.

Our solution is an in depth concept codenamed 'Project Genesis'. This concept sets out a proven methodology and details procedures for ensuring project success time after time. It also leads to the implementation of robust and fully functional solutions which delivers value for money. Project Genesis also breaks the IT project into four key stages, each stage offering RML the chance to review the technology and investment required depending on the success of the previous stages.

The first step of the Project Genesis concept is the Project Definition and Discovery Workshop (PDDW). The workshop takes place onsite with key people from the RML being involved in the process in addition to Executes fully accredited and experienced consultants. The initial part of the PDDW is a full investigation or audit into the organisations existing infrastructure leading to a greater understanding of the services required by the different areas of RML.

During these phases RML works very closely with the Execute to make sure as much detail as possible is provided. The process is very much a technology partnership and information sharing exercise enabling Execute to design the best solution for them. In turn the RML will be able to fully understand the solution, the areas of work required, the timescales involved and how the project will operate. The PDDW will also identify any areas of the existing infrastructure that need to be addressed and also any high-risk areas. These are then addressed in advance or specific strategies drawn up to remove or manage the risk during the project.

Project Definition & Discovery Workshop Benefits:-

- Precise system & technology review prior to committing funds & strategy
- Greater understanding of existing system configurations
- Greater understanding of user and service requirements
- Greater understanding of the Company's future service requirements & strategy
- Identify areas of concern early on so they can be addressed in advance
- Dramatically reduce the risk to the business ensuring business continuity
- Deliver a robust and supportable solution on time
- More precise project investment profile & timescales created
- The Company has a greater understanding of the solution and the project

Once the onsite part of the PDDW has been completed, Execute reviews all the information gleaned from the time onsite. Based upon this information the solution architecture is developed, the project defined and a project plan produced.

In addition to the project plan a revised and detailed budgetary proposal can also be produced which identifies the investment required including all the technical services, the software, hardware on ongoing support and maintenance arrangements. Because the PDDW has taken place, the budgetary proposal for a fully implemented and robust solution will be very accurate ensuring budget requests are far more precise.

In summary the Project Definition & Discovery Workshop delivers a range of benefits to the Company in return for a small investment in Executes technical services. This allows RML to understand and embrace the new technology without committing to it with limited knowledge of the costs, resources and timescales involved. The PDDW will answer the majority of the questions the Company will have, remove the risk of potentially investing something that is not suitable and leads to accurate/mutually agreed budgetary proposals and timescales.

4.1 PROJECT GENESIS OVERVIEW

Project Genesis is Executes methodology to ensure projects are successful and well planned. It also ensures the implemented solutions are fully functional, robust, reliable and well supported. Through the continual development of Project Genesis and its project guidelines we effectively remove the guesswork and risks usually associated with business critical implementations.

It consists of an overall process definition that contains standards, checklists, templates and defined process definitions that ensure Executes commitment to quality implementations is not compromised. Each of Executes solutions are built using the Project Genesis concepts which incorporates the use of proven, tried and tested systems designs.

The concept breaks the project down into four key stages each with its own set of criteria. The stages are adaptive to meet client's requirements; however the underlying methodology is maintained in all projects.

The PDDW is the first phase and is critical to the success of the entire project. It can also be used purely to review existing infrastructures and help define future strategies as a stand alone activity.

Project Genesis – Four Key Stages:-

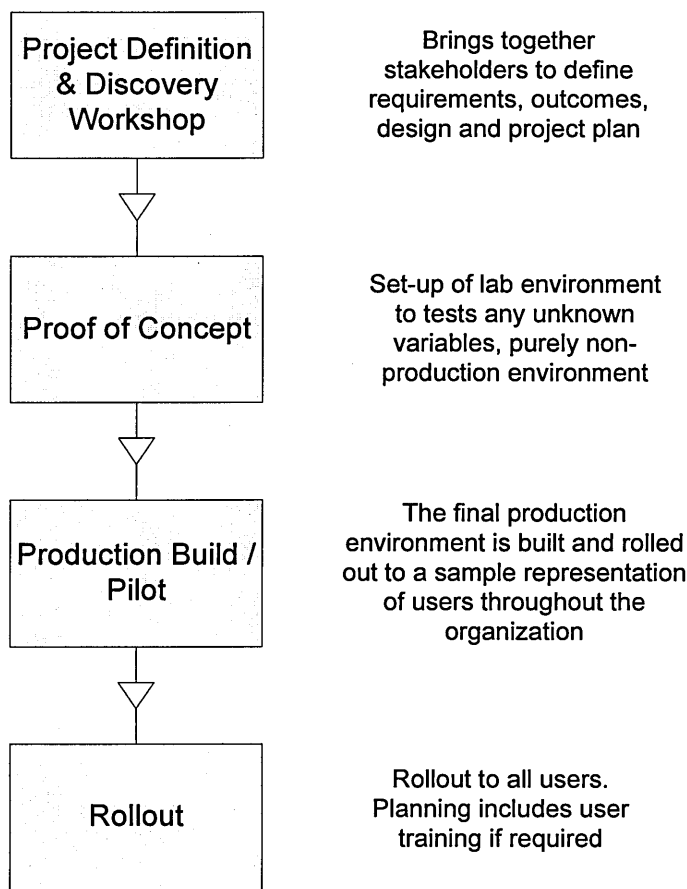


Figure 1 - An IT Project Lifecycle

4.2 PROJECT DISCOVERY & DESIGN WORKSHOP

Execute will initially hold a Project Definition and Discovery Workshop (PDDW) to finalise the complete scope of your requirements. The PDDW is key to enabling successful project deployment and will provide the blueprint and foundation for the entire project life cycle. Execute firmly believes that PDDW will quickly establish the correct framework required for enabling successful execution of a project of this size.

Execute will host the PDDW, where key personnel from both Execute and RML will be gathered to discuss and tailor the required project boundaries. Execute will re-confirm, finalise and collect further relevant system information required for the deployment of the proposed Thin-Client Infrastructure. This information will enable Execute to develop the detailed Project Plan.

To realise the benefits of the new technology in a shorter time frame, “time to deployment” needs to be reduced. The key to minimising these costs is to bring the right people together at the beginning of the project.

A successful deployment relies on ensuring that the benefits the new technology will provide are clearly defined and understood. Knowing user requirements is crucial to the correct design being applied.

Lines of communication need to be established between IT manager, IT staff, executive sponsor, and user representatives (e.g. team leaders/ heads of departments).

Project success starts with these stakeholders outlining their desired outcomes and bringing any concerns to the table. It is also the time for stakeholders to agree to be accountable to working as a team to eliminate any obstacles that may hinder a successful implementation. Once concrete outcomes and critical success factors are agreed on, the audit can go ahead.

An audit is a systematic process of discovering the organisations current IT infrastructure. Preparation for this prior to the PDDW is crucial and so a PDDW checklist can be found in Appendix C on page 38 and 39 of this document. It is essential that the information on the checklist is gathered in advance, detailed correctly and made available for use within the PDDW.

Execute provides technology specific checklists to allow accurate research to be compiled for meaningful contribution to the PDDW. This information and any hands-on auditing at the PDDW are used as the basis for the design.

With every technology, there are best practises that need to be applied that will best deliver the desired outcome. The PDDW allows Execute to share common pitfalls and proven designs that will work best in your type of environment.

Once the design is developed, an implementation plan sets the course and provides the framework to allocate the right resources to the project.

Resources must be allocated to project management. Involving a dedicated Project Manager from the outset ensures that problems can be found and remedied faster, schedules maintained and critical success factors adhered to.

More than three months focussed on one project is a long time in the IT industry. Project fatigue creeps in, attention spans start to waver and the sense of urgency starts to dissipate. A series of small, successful projects maintains focus and is better than one large make or break project.

Scope definition by its nature is subject to change. Continual scope change or 'scope creep' (akin to changing the architectural plans for a house mid-construction) almost guarantees protracted costs and unacceptably long project durations. Creating an agreed change control procedure keeps things on track and ensures a positive outcome.

To keep users well informed, a corporate announcement at the outset should detail the benefits of the new technology, communicate how important it is that users support the success of the project, and introduce Execute as the solution provider.

The PDDW is the vehicle which brings together stakeholders so that information is transferred effectively, a best-fit design is created, and a platform from which to launch a successful project is in place.

4.3 PROJECT PLAN DOCUMENTATION

Execute will design and publish the overall Project Plan. The Project Plan will include the entire project schedule, work breakdown structure, project team responsibilities, communication and escalation procedures, all relevant status reports and a matrix of scheduled meetings.

Execute personnel involved within this phase will be the Project Manager.

4.4 PROJECT TEAM

The Project Team makeup from Execute includes the following personnel:

- **PROJECT MANAGER** – Responsible for the management of the entire project. The Project Manager will manage the complete delivery of the project contents, ensuring the required materials; personnel, etc are available at the correct times. The Project Manager will oversee all aspects of the project during its life cycle, allocates tasks, chases progress, provide the backbone of all points within the project, managing all communications, escalations, meetings, etc... The Project Manager may also manage the project management resource from within RML if required.
- **SENIOR DESIGN ARCHITECT** – Responsible for the design and development of the proposed system management framework plans. The Senior Design Architect will design and publish a working model that will be scaleable for both the project life cycle and beyond. The Senior Design Architect will be the backbone specialist within the project, providing guidance and support to the Senior Consultant(s) and Implementation Team(s).
- **SENIOR CONSULTANT** – Responsible for heading the delivery of the technical implementation of the project. The Senior Consultant will guide the entire implementation of the Thin-Client framework throughout RML, responsible for managing the day-to-day activities of the Implementation Team(s) and provide guidance and support to the Implementation Team Members.
- **IMPLEMENTATION CONSULTANT** – Responsible for hardware implementation, basic software configurations and roll outs to the desktop or remote sites. This consultant works closely with Senior Consultant on a day to day basis.
- **SUPPORT PROFESSIONALS** – Responsible for supporting the technical solution, providing initial first-line support to RML. Support Professionals will provide skills transfer to The House technical resource, helping RML to manage and maintain the solution more quickly and efficiently.

5.0 PROPOSED SOLUTION

Below is a breakdown of Executes proposed solution based upon the information supplied in our meeting.

5.1 SOLUTION OVERVIEW

This project is design to deliver Thin Client services for 50 concurrent LAN and Remote Access users.

Internal LAN users will access individual applications via a web page using Citrix NFuse portal technology. These applications can be assigned on an individual basis.

Remote users will access applications via a secure Web Page served from the same internal web server. These applications will run via a thin client session encapsulated in the Secure Socket Layer protocol at 128bit encryption, fully securing Internet access.

The Citrix Secure Gateway solution removes the need for VPN clients, VPN licenses and software. Remote users will be able to access their local operating systems in hybrid mode, but also receive 'LAN-like' application performance from RML internal systems worldwide. The applications they receive and user profiles will be identical when onsite and off, allowing hot-desking as well.

Printing and Network drive access will be aggregated onto existing File and Print Servers for reliability and increased file security.

The solution will be designed in such a way that it is scaleable and manageable to support the required number of users, while by the same token is cost effective to maximise RML's investment.

5.1.1 CITRIX METAFRAME XPA

From the information supplied in the meeting, Execute (UK) Ltd would recommend utilising Citrix MetaFrame XPa as the preferred Server Based Computing delivery method. Citrix MetaFrame provides greater flexibility and reliability over that of Microsoft Terminal Services in addition to better bandwidth utilisation.

The investment in Citrix MetaFrame will enable RML to make sure of NFuse Classic to web enable applications without rewrites and Citrix Secure Gateway as a cost effective and secure method of Remote Access. The combination of the two provides RML with a highly effective and secure remote access solution incorporating SSL.

Citrix MetaFrame XP leverages Windows 2000 Terminal Services to provide full manageability, performance and functionality for a Server-based Computing / thin-client infrastructure.

The solution caters for a full thin client environment for the two internal sites called UNIT 1 and UNIT 2. Remote users will access Thin Client via the Citrix Secure Gateway Internet web page, providing hybrid access to the local Operating System Desktops and the applications installed there. Graphically intensive Applications such as AutoCAD will remain on client PCs or specialist workstations.

Execute uses the RAIS (Redundant Array of Inexpensive Servers) principle to design Citrix MetaFrame XP server farms. These are still very fast servers but the investment is made across

the servers (i.e. creating redundancy by purchasing as many servers as possible). The concept revolves around building redundancy with quantities of servers not hardware.

This addresses the following key areas:

- High availability. If a server goes down less users are affected and performance of the entire farms performance will be less affected (less user spread).
- Lower cost per unit if there is the need to add servers.
- Performance. 100 users on 1 server (no matter how highly specified) will have significantly lower performance than 100 users on 2 servers. Many of the tunings we perform on a Terminal Services box are due to the fact that there are (still) serious OS limitations of around 60 users.
- Testing. Allows for inexpensive test server.

Based on an estimated 30 users per server the server farm will require 2 servers to support 50 concurrent users. To cater for a server failure the 'n+1' calculation is used to ensure the continuation of full capacity. This server can also be taken offline to provide a controlled environment removed from the Production Servers to test applications and Changes under Change Control. Therefore a total of 2 production servers are required and 1 test/n+1 server.

MetaFrame XP farm data will be located on a Microsoft Access database located on the XP Control Server. Execute will create the database, and configure backing it up to disk and tape.

5.1.2 IIS/NFuse

Execute propose to implement an IIS/NFuse service to allow RML to provide access to their environment via browser-based connectivity. Citrix's NFuse technology lets an organisation offer out Windows applications via an Internet browser. Citrix NFuse uses Java objects to query the Citrix farm, and uses ActiveX to deploy the Citrix client.

NFuse will allow RML to provide access to business critical applications and information to any mobile user from anywhere around the globe.

5.1.3 CITRIX SECURE GATEWAY

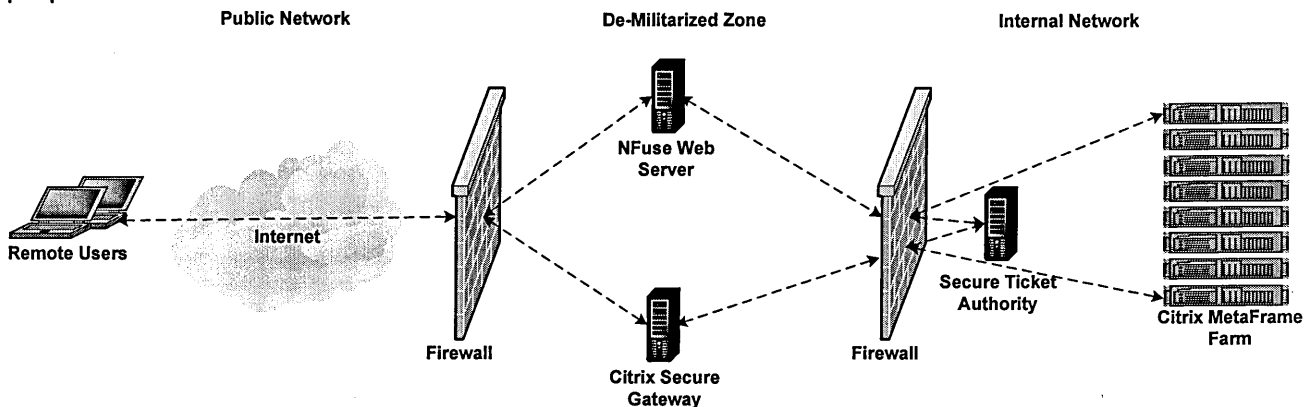
During the PDDW, Execute will establish the existing security framework of RML. However, until this has been carried out it is necessary to ascertain a level of security for the project. Therefore, Execute recommend that RML implement a separate De-Militarised Zone (DMZ) on their existing firewall and secure NFuse access via the Citrix Secure Gateway solution.

Citrix Secure Gateway is a free product as part of the Citrix Subscription Service. However, it does require two additional servers. The first being a Citrix NFuse Server, which can be utilised as an Intranet/Internet Web Server. The second being the Citrix Secure Gateway Service Server. Both these Servers will be implemented in the DMZ to provide the best security to the internal corporate LAN. Two Internet public IP Addresses will be required, one for each server. Verisign 128bit SSL Certificates are required to provide the correct level of authentication and encryption. Two Fully Qualified Domain Names will need to be registered with RML's Internet Service Provider.

The current 64Kbps 'Dial-on-Demand' ISDN line to the ISP is not sufficient for an Internet Remote Access solution such as CSG. The reason is that the line is made active by a LAN-side call, so access via the Internet will not activate the line.

The line bandwidth required is 128Kbps to allow for reliable concurrent usage of two users with printing. It is therefore recommended that RML arrange installation of a leased line to an ISP dedicated for CSG of 128Kbps.

Further discussion surrounding the security requirements for RML will be addressed during the proposed PDDW.



Typical Citrix Secure Gateway Implementation

5.1.4 WINDOWS NT4.0 FILE & PRINT SERVICES

File & Print services are core to any organisation and thus these will run on existing Windows NT 4.0 Servers. User home directories, roaming profiles, shared data and printers will be located on these servers according to department or division. Shared Data may be located on other servers as decided during implementation.

Share permissions are controlled via NTFS permissions, and everyone will have RX rights. Change rights will be assigned to appropriate home drives and shared data drives.

Printing is most robust when TCP/IP network attached devices are used. The PDDW will identify whether the printing infrastructure requires modification or upgrade.

For remote users, printing can be re-directed to locally attached printers on a user-level basis.

5.1.5 CLIENT CONFIGURATION

A robust and trouble-free client configuration is crucial to a manageable environment. Therefore, local data will need to be migrated from these PC's to a central File Server(s).

All existing remote PC's will retain their current configuration with the exception of an update to the browser homepage. There may be a requirement to install the 128bit security version of Internet Explorer for remote users.

5.1.6 BACKUP SOLUTION

RML are not required to tape backup the Thin Client farm.

Execute will work with RML to implement the following tape backups using RML's existing backup systems:

Tape Backup:

- NFuse Web Site
- File and Print Server
- Terminal Services Licensing Database

Disk File Replication:

- NFuse Web Site to another Intranet Server if available.

Note: The backup solution assumes that RML have the required software, licensing and hardware for backing up to tape. Example: Client Agents.

5.1.7 CLONING SOLUTION

The Thin Client Farm consisting of 4 servers will contain 3 identical application servers; therefore a Ghost Image will be created with a companion boot diskette that is used for System Recovery to identical hardware.

Individual clone recovery images will be created for The XP Control Server, CSG Server and the IIS/NFuse server.

5.1.8 ENTERPRISE MANAGEMENT

Management of the Thin Client deployment is achieved through usage of the Java-based Citrix Management Console (CMC), which allows user session management, including session shadowing.

As part of the deployment plan Execute will provide Training to RML staff on using this tool.

5.1.9 ANTIVIRUS SOLUTION

RML currently use Sophos Antivirus for virus protection.

This product is fully compatible in a Terminal Server/MetaFrame environment and has the advantage of a very small operational footprint.

5.1.10 REMOTE WORKING

The existing RAS solution is redundant with CSG implemented providing Internet remote access.

5.1.11 ACTIVE DIRECTORY BENEFITS

This information is for reference only and has been requested by RML. The current NT4.0 infrastructure will remain for the solution described.

Active Directory is the Windows 2000 based directory service, which provides user authentication services. Active Directory offers many advantages including more robust design features, improved security and management features such as Group Policies, which allow ease of configuration management of user environments. Windows 2000 Active Directory is a required component for Exchange Server 2000.

Domain Controllers also will provide WINS & DNS services. WINS & DNS are name resolution services, which allow machines to locate each other and are crucial to a well-performing Windows based network. Two domain controllers allow high availability of authentication services to users.

One Domain Controller is used as the Terminal Services Licensing server for the Citrix MetaFrame farm.

The DNS namespace and Active Directory design would be designed and implemented in conjunction with RML. It is a pre-requisite that the Active Directory environment be in place prior to a Thin Client implementation.

Windows 2000 policies would be used to customise the user interface, automate application configuration and secure the environment.

5.2 IMPLEMENTATION OVERVIEW

This project will be broken down into stages that can be defined and managed. This section provides an overview of the stages.

5.2.1 PROJECT DEPENDENCIES

Executes success of large infrastructure change projects within the Thin-Client arena for its corporate customer base is not only down to its unprecedented technical professional, but also to its expertise and dedication from its project leaders.

Execute breaks down project leaders into two categories:

- Project Managers
- Technical Managers

Execute firmly believes that a successful project, which is delivered within time and budget, is down to the synergy between its project managers and its technical managers. Both professionals play an equally important role in delivery projects of this nature. Project management is an essential function in maintaining and managing all the diverse parts of the project. Whilst, technical management is an equally essential function in maintaining and supporting the complex technical aspects of a project.

RML Requirements:

- Project Definition and Design Workshop to assess infrastructure, agree on Project Definition and Design
- RML to install a 'de-militarised' zone (separate physical subnet off existing Firewall)
- Obtain 2 Public IP addresses from their ISP
- Register publicly resolvable Domain names for the CSG server and the NFuse Server.
Example: csg.rmlmallock.co.uk, nfuse.rmlmallock.co.uk.
- RML to install a dedicated leased line to their ISP of 128Kbps.
- Execute can assist with the above activities as much as required by RML.

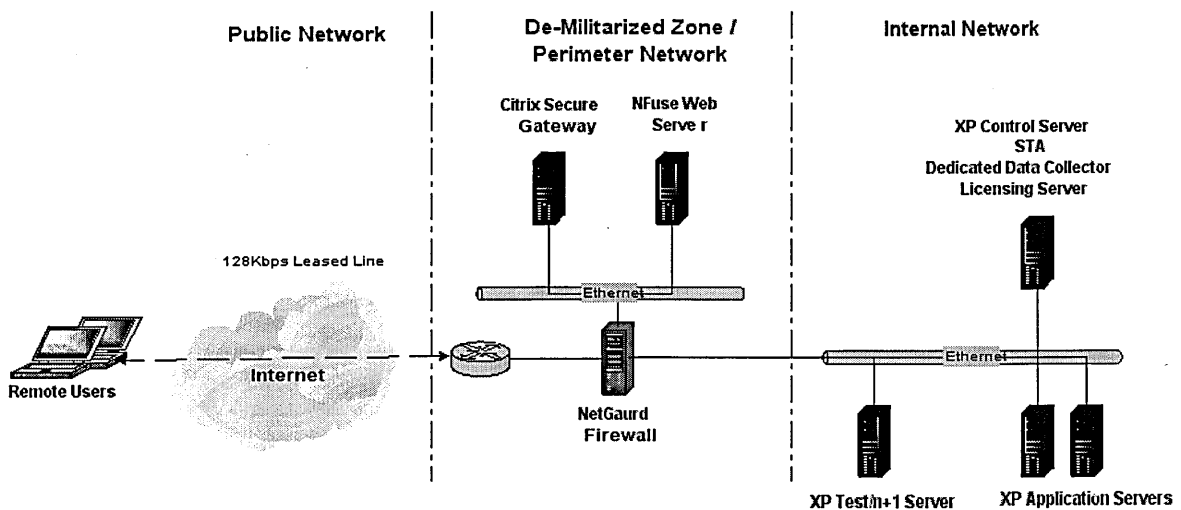
5.2.2 RE-UTILISED EQUIPMENT

FILE AND PRINT SERVERS

Existing File and Print Servers would be used for these services, after infrastructure assessment is conducted.

TAPE BACKUP SYSTEMS

Existing systems would be utilised for backing up the Citrix IMA database, Windows 2000 Terminal Services Licensing database. User Profiles and network Home Drives and Shared Data.



**Proposed Ray Mallock Ltd
Citrix MetaFrame Farm / Secure Gateway Implementation**

5.2.4 APPLICATION INTEGRATION LIST

The following applications would be integrated into the Citrix thin client environment:

- Syteline ERP
- Microsoft Office
- Microsoft Outlook client
- Microsoft Internet Explorer 5.5

Execute have experience integrating all of the above applications.

5.2.5 CABLING & POWER

Execute assume that RML have adequate network points, cabling and power points to support this equipment.

This information will be confirmed during the Project Definition & Discovery Workshop prior to work commencing. This avoids encountering problems once the project is underway.

5.3 PROJECT PLAN

This section details Executes approach to ensure that the project is delivered in a timely fashion and within budget. It also demonstrates our desire to fully understand RML's perception along with RML end-user perception of what the final solution will deliver. How we approach the skills transfer process between the Execute consultants and RML's IT staff is detailed below.

Specific solution training is likely to be needed. If the Remote & Onsite support service agreement is purchased then this provides RML with access to highly qualified technical people via the phone, fax or email. It also provides RML with access to onsite resources at preferential consultancy rates as set out in this proposal.

5.3.1 PROJECT DEFINITION & DESIGN WORKSHOP

Steps:

- Day 1: Is for Technical People only and focuses on an infrastructure assessment
- Day 2: Is for all attendees including Project Sponsors, and focuses on requirements/Project definition. The afternoon is spent analysing and documenting the results.

5.3.2 CITRIX FARM- PILOT

This stage involves building a single Citrix Server, integrating applications and testing the Thin Client Infrastructure with 10 LAN users.

Steps:

1. Build MetaFrame XP Pilot Server
2. Build IIS Web Server
3. Install and Configure NFuse
4. Integrate Applications.
3. Create secure desktop
1. Create network drive structure
5. Create Printer Shares.
6. Create Logon Scripts.
7. Create Group Structure.
8. Pilot of users for User Acceptance Testing (UAT).

5.3.3 CITRIX FARM- PRODUCTION BUILD

This stage involves installing the Citrix infrastructure, and migrating existing users to the Citrix server environment.

5.3.4 INTERNAL CLIENT ROLLOUT

This stage involves configuring and installing Internet Explorer for NFuse access within the LAN.

Steps:

1. Configure a single LAN desktop machine for NFuse intranet access and train RML staff on configuration.

5.3.5 SECURE REMOTE ACCESS- PILOT

This stage involves installing and configuring the Citrix Secure Gateway Server, and IIS web server with a secure NFuse website for Remote Access. A Secure Ticketing Authority will also be configured on the XP Control Server.

Steps:

1. Build Citrix Secure Gateway Server
2. Install and configure STA
3. Install and configure Verisign Certificates
4. Create a secure NFuse web site for remote users.
5. Pilot of users for User Acceptance Testing (UAT).

5.3.6 SECURE REMOTE ACCESS ROLLOUT

This stage involves configuring remote clients with a 128-bit Internet Explorer browser, and testing of the remote access solution.

Steps:

1. Install and configure Internet Explorer
2. Test

5.3.7 ADMINISTRATOR TRAINING & USER TRAINING

This stage provides tailored administration training, and user training documentation, and/or classroom training.

Steps:

1. Budget to be identified

Execute will provide skills transfer to relevant members of RML's IT department. The skills transfer will focus on the implementation and objectives of the project. Executes approach to skill transfer is one of importance, Execute firmly believe that an effective skills transfer programme ensures that our customers are left with a complete understanding of their new environment, and are confident to support and maintain the entire infrastructure.

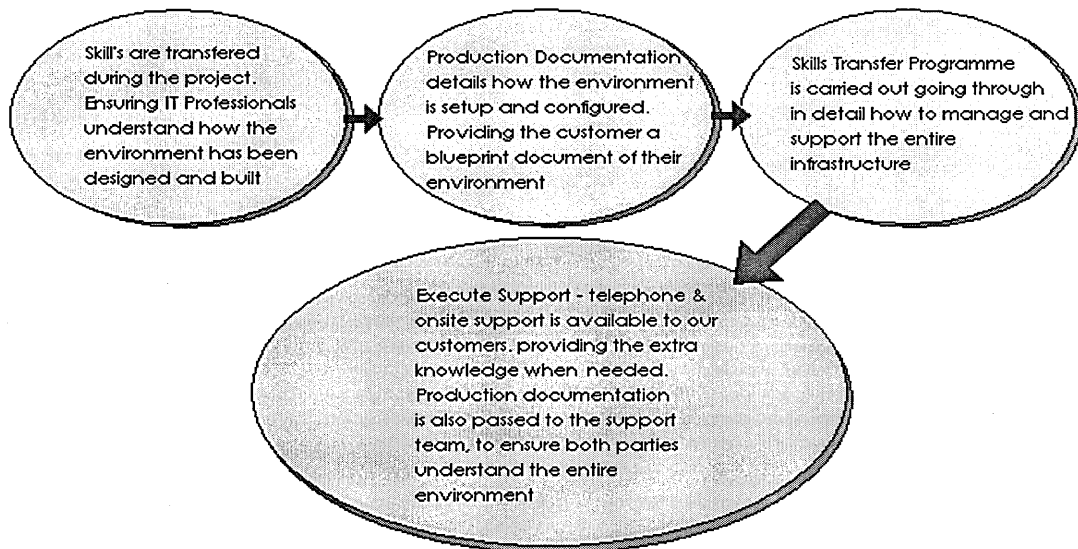


Diagram 4 – Executes Skill Transfer Approach

Understanding the capabilities of a system, how it should be managed, the avoidance of any potential pit falls and future expansion capabilities are covered in skill transfer available from Execute. Skill Transfer is an essential investment as it will empower the IT staff and make them and the overall solution so much more effective.

Executes Skill Transfer is tailored to reflect the solution RML has purchased and how it integrates into the environment, how the business operates and the knowledge level within the technical team. The Skill Transfer is delivered by Microsoft & Citrix Certified Consultants with extensive experience of implementing and supporting heterogeneous solutions.

5.3.8 DOCUMENTATION

This stage involves creation of an extensive technical build document that records all configurations.

Steps:

1. Formally document build records

5.4 REMOTE SUPPORT & ONSITE SERVICES COVER

Execute propose to provide RML with a flexible software and services support contract. The Unit Based Support & Service contract allows customers to build and tailor the level and type of support they wish to receive.

The UBS&S contract enables customers to prioritise the severity of the call with the assistance of one of Executes 1st line support specialists. Once the priority has been agreed the necessary corrective action will be engaged. It is important to note that the level of service and responsiveness of the resolve is paramount to Execute. Therefore Executes support service strives to surpass the underlying SLA agreement set between you the customer and ourselves.

The flexibility allows the allocation of support units against a variety of services, below is an outline of typical services available through the UBS&S contract:

- Telephone support for all infrastructure related software at 3 x priorities (A, B & C)
- On-Site support visits relating to customer infrastructure requirements
- Additional project related services (i.e. Design, Project Management, Training, etc)

Please refer to the separate document which has been submitted with this proposal. The document details Executes Unit Based Support & Services Cover. This service arrangement can also be extended to accommodate hardware warranty cover.

HELP DESK ARRANGEMENTS

As part of the value added services Execute offers to our customers we have a dedicated support help-desk sited at our Northern Head Office. As part of this we employ full-time technical personnel who are permanently office based and dedicated to first, second and third line support; this is in addition to our team of pre-sales and post-sales consultants and project installation engineers who assist with on-site visits if necessary. In line with Executes growth the business proactively increases the level of consultancy and support services prior to the demand of our customer base. Our support technicians include CCAs (Citrix Certified Administrators) and MCSE (Microsoft Certified Systems Engineer).

A sample of our standard support arrangements has been attached; however we can tailor contracts to the specific customers' requirements. A bullet point overview of the details of our support is as follows: -

- Guaranteed four working hour's response with immediate confirmation that the fault call has been received and logged.
- Help-desk permanently manned between 0900 and 1730 hours Monday to Friday, excluding public holidays.
- On call engineers permanently available 24 hours per day, 365 days per year for customers who opt for our extended cover options (e.g. 24x7).
- On call engineers contactable via one dedicated, easy to remember pager number (for outside normal extended office hours).
- Full escalation procedures in place (as detailed in Appendix A) leading to CCA/MCSE accredited engineers visiting the customer site if this is deemed necessary.

6.0 DETAILED INVESTMENT PROFILE

This section details all hardware, software and technical services costs that can be identified before the Project Design and Definition Workshop has taken place.

INVESTMENT DESCRIPTION	INVESTMENT VALUE
SERVER HARDWARE INCLUDING 42U RACK	£26,050.57
SOFTWARE LICENSING (CITRIX & MICROSOFT)	£14,161.20
IMPLEMENTATION SERVICES –SUBJECT TO PDDW	£22,062.50
TOTAL	£62,274.27

Delivery lead times:

Hardware:

- Dell: 10 working days standard, however prioritised orders can usually be delivered with 5-7 working days.

Software:

- Microsoft: Online licensing usually 2-3 working days
- Citrix: Shrink wrap usually 2-3 working days

The table below details the standard consultancy rates charged by Execute. Execute has the policy of applying volume discounts, customer loyalty discounts, and introductory pricing.

6.1 PERSONNEL MATRIX COSTS

<i>PROJECT FUNCTION</i>	<i>STANDARD RATES</i>	<i>RML'S DISCOUNTED RATES</i>	<i>RATES INCLUDING VAT</i>
PROJECT MANAGER	£1,100.00	£750.00	£881.25
SENIOR DESIGN ARCHITECT	£950.00	£750.00	£881.25
SENIOR CONSULTANT	£825.00	£625.00	£734.38
IMPLEMENTATION CONSULTANT	£650.00	£450.00	£528.75
SOFTWARE AUTOMATION SPECIALIST	£975.00	£850.00	£998.75
SOFTWARE DEVELOPER	£975.00	£850.00	£998.75
TRAINER	£950.00	£750.00	£528.75

PLEASE NOTE:

- | | |
|--|--|
| (A) - All costs are include VAT but exclude delivery | (B) - E & O E |
| (C) - Normal Terms and Conditions | (D) - Additional services will be chargeable |
| (E) - Expenses will be charged where appropriate | (F) - Rates quoted are based on normal working hours |
| (G) - Execute overtime rates will apply as required | (H) - Support can be increased at additional cost |

The rates quoted above are in sterling and are exclusive of expenses, which will be charged where appropriate.

6.2 SPECIALIST TECHNICAL CONSULTANCY SERVICES

This section details the number of resources and days required by Execute technical consultancy services during the project. The numbers of days are estimated but provide a budgetary outline for financial planning.

The PDDW reviews the existing infrastructure and defines the tailored solution which will be implemented. It is critical to ensuring a successful project which delivers a solution based upon the business and user needs. This is in addition to being reliable, scalable, supportable and robust.

Consultancy breakdown

Activity Schedule	Quantity	Unit Cost	Total Cost
PDDW	2	£625.00	£1,250.00
Citrix Farm- Pilot	12	£625.00	£7,500.00
Citrix Farm- Production Build	7	£625.00	£4,375.00
Internal Client Rollout	1	£625.00	£625.00
Secure Remote Access Pilot	6	£625.00	£3,750.00
Secure Remote Access Rollout	1.5	£625.00	£937.50
Administrator Training & User Training	TBA	TBA	TBA
Documentation	1	£625.00	£625.00
Project Management	4	£750.00	£3,000.00
		TOTAL	£22,062.50

6.2.2 TECHNICAL SUPPORT & TRAINING SERVICES

REMOTE SUPPORT & ONSITE TECHNICAL SERVICES

PRODUCT DESCRIPTION	QTY	UNIT COST	TOTAL COST
TELEPHONE & ONSITE SUPPORT			
UNIT BASED REMOTE SUPPORT & ON SITE SERVICES CONTRACT Contact methods: Phone, Fax, Email Minimum term: 12 months Number of units: 50 (number can be increased or renewed) Response times Priority A – 1 hour Priority B – 4 hours Priority C – 8 hours Hours: 08:30 – 17:30 Days: Monday to Friday Exclusions: Bank & Public Holidays Elements covered: Entire thin client solution (W2K server, Citrix MetaFrame, Citrix Secure Gateway, NFuse Classic etc). The service excludes network and application support. The service also provides the facility for onsite consultancy to resolve urgent issues or assist in further expansion or development of the solution. A more detailed overview has been enclosed with this document.	1	£ 5,000.00	£ 5,000.00
		SUB TOTAL	£ 5,000.00

6.3 SOFTWARE LICENSING

This section details all the licensing required to implement the proposed solution. Certain licensing requirements may change as a result of the PDDW.

The Microsoft licensing has been based upon MLOP A pricing structures.
The Citrix licensing has also been based upon shrink wrap pricing.

Software & Licenses	Quantity	Unit Cost	Total Cost
Citrix MetaFrame XPa Media	1	£38.00	£38.00
Citrix MetaFrame XPa (50 Users)	50	£197.274	£9,863.70
Microsoft Terminal Services CAL's	50	£62.27	£3,113.50
Windows 2000 Server licenses	0	Inc	Inc
Windows 2000 CAL's	50	£22.92	£1,146.00
		TOTAL	£14,161.20

Remote Access Solution

As part of the secure remote access solution SSL licensing will need to be provided. Due to the security this process requires RML to arrange and purchase the SSL licensing. Third parties such as Execute cannot purchase or register products on RML's behalf.

Items Required	Quantity	Cost	Total Cost
SSL Licenses installation (Customer to supply)	2	TBC	TBC
Internet IP Addresses (Customer to supply)	2	TBC	TBC
Citrix Secure Gateway	INC	FOC	FOC
Citrix NFuse	INC	FOC	FOC
		TOTAL	TBC

6.6 DELL HARDWARE BASED SOLUTION

Detailed below are the costs to implement the solution based upon the latest Dell hardware. Execute has implemented many thin client solutions based upon Dell equipment and have found it to be reliable, cost effective and robust.

Execute are a fully accredited Dell Premier Partner.

Citrix Application Servers & Control Server

Dell Hardware – Citrix Servers	Units	Unit Cost	Total Cost
Control Server - Dell PowerEdge 1650 Single 1.13GHz P3 512k Cache CPU 512MB PC133 SDRAM (2 x 256MB) 48 x IDE CD-ROM 2 x 18GB 15K Ultra 3 Hot Swap HDD's 128MB PERC3/Di Embedded RAID Windows 2000 Server Licence	1	£3,311.00 <i>2418.15</i>	£3,311.00
Citrix Application Servers - Dell PowerEdge 2550 Dual 1.4GHz P3 512k Cache CPU's 2GB PC133 SDRAM (4 x 512MB) 24 x IDE CD-ROM 3 x 18GB 15K Ultra 3 Hot Swap HDD's 128MB PERC3/Di Embedded RAID Windows 2000 Server Licence	3	£5,425.86 <i>5309.83</i>	£10,851.72,
TOTAL			£14,162.72

Hardware for Internet & Remote Access Solution

Dell Hardware – NFuse/IIS & CSG	Quantity	Unit Cost	Total Cost
NFuse/IIS Web Server – Dell PowerEdge 1650 Single 1.13GHz P3 512k Cache CPU 512MB PC133 SDRAM (2 x 256MB) 48 x IDE CD-ROM 2 x 18GB 15K Ultra 3 Hot Swap HDD's 128MB PERC3/Di Embedded RAID Windows 2000 Server Licence	1	£3,311.00	£3,311.00
NFuse/IIS Web Server – Dell PowerEdge 1650 Single 1.13GHz P3 512k Cache CPU 512MB PC133 SDRAM (2 x 256MB) 48 x IDE CD-ROM 2 x 18GB 15K Ultra 3 Hot Swap HDD's 128MB PERC3/Di Embedded RAID Windows 2000 Server Licence	1	£3,311.00	£3,311.00
TOTAL			£6,622.00

Dell Rack

Dell PowerEdge 4210 42U Full Height Rack	Quantity	Unit Cost	Total Cost
APC Smart-UPS 2200i Rack mount 14.1" TFT with Trackball Required cabling and power	1	£5,265.85	£5,265.85
TOTAL			£5,265.85

APPENDIX A – PARTIAL CUSTOMER LIST

CORPORATE

- Virgin
- J P Morgan
- Shell Exploration & Production
- Dunlop Aviation
- Total Fina Elf
- Knight Frank
- Kellogg's
- Thistle Hotels
- Prudential Europe
- National Exhibition Centre
- Walt Disney

HOUSING ASSOCIATIONS

- The Guinness Trust
- Prime Focus Housing Association
- Cube Housing Association
- Kingdom Housing Association
- Thenew Housing Association
- Ridgehill Housing Association
- Riverside Housing Association
- Eastleigh Housing Association

LOCAL GOVERNMENT

- London Borough of Greenwich Company *
- London Borough of Hammersmith & Fulham Company
- London Borough of Lewisham Company
- Stevenage Borough Company
- Royal Borough of Kingston Upon Thames Company
- London Borough of Harlow Company
- High Peak Borough Company
- Wigan Company
- Plymouth Company

NHS TRUSTS

- Rotherham NHS Trust
- Parkside NHS Trust
- Plymouth NHS Trust
- West Wales & Carmarthenshire NHS Trust

POLICE FORCES

- Nottinghamshire Police
- West Midlands Police

APPENDIX B – PDDW PREPARATION CHECKLIST

PDDW Preparation Checklist

Infrastructure Upgrade / Active Directory Migration

- WAN infrastructure
 - Bandwidth available / in use
 - Detailed typology
 - Physical / geographical layout
 - Routers
 - Known traffic types
 - Internet connectivity
- Domain / directory infrastructure
 - Directory / Domain controller servers, specifications, names, additional services
 - Structure
 - Policies
 - Groups
 - Naming conventions
 - Login scripts
 - Any other directories
 - Logon / email naming conventions
- Network infrastructure
 - Switches / hubs
 - Network protocols
- Backend services
 - DNS, internal & external namespaces, zones etc.
 - Any external resource (i.e. web) hosting
 - Mail environment
 - Database environment
 - File & print environment
 - Backup environment – hardware & software
 - WINS, DHCP
- User environment
 - Mapped drives
- Printing environment
 - List of users mapped to the printer models and names
 - Print servers, queues etc.
- Security environment
 - Anti-virus software
 - Mail scanning
 - Firewalls etc.
- User operating environment
 - PC hardware specifications
 - Operating System
- Data centre environment
 - Power
 - UPS
 - Cabling
 - Racks
- Any network diagrams
- Organisational layout
 - Functions / roles / geography
- Other Backend Infrastructure.

APPENDIX C – SERVER BASED COMPUTING DISCUSSION AREAS

Server-based Computing Discussion Areas

Topics to be covered

- WAN infrastructure
 - Bandwidth available / in use
 - Detailed typology
 - Physical / geographical layout
 - Routers
 - Known traffic types
 - Internet connectivity
- Domain / directory infrastructure
 - Directory / Domain controller servers
 - Structure
 - Policies
 - Groups
 - Naming conventions
 - Login scripts
- Network infrastructure
 - Switches / hubs
 - Network protocols
- Backend services
 - Mail environment
 - Database environment
 - File & print environment
 - Backup environment – hardware & software
 - DNS, WINS, DHCP
- User environment
 - Mapped drives
 - Applications in use (list of users mapped to the applications they use)
 - Desktop configuration
- Printing environment
 - List of users mapped to the printer models and names
 - Print server queues etc.
- Security environment
 - Anti-virus software
 - Mail scanning
 - Firewalls etc.
- User operating environment
 - PC hardware specifications
 - Operating System
- Data centre environment
 - Power
 - UPS
 - Cabling
 - Racks
- Any network diagrams

APPENDIX D – GENERAL TERMS AND CONDITIONS

Execute has provided a proposal which outlines the required server hardware, software and services to achieve the specified solution. Whilst we are extremely confident that this is an accurate estimate there may be additional work or software to replace once the project has been initiated. If this is the case Execute will inform the client immediately of the extra hours or cost immediately and will not proceed further until the extra cost has been agreed.

A formal purchase order detailing all the services and products required for the specific phase of the project must be submitted prior to the work commencing. This is to ensure that Execute can order any goods required and schedule the necessary technical consultants to perform the work.

Once the work has been completed as per the specification Execute will issue a company invoice to the client, which must be paid within 30 days of the date of issue. Please be aware that all the quoted pricing for products and services do not include VAT (17.5%) and is valid for a period of thirty (30) days. All carriage and delivery charges are included in the quoted pricing unless indicated otherwise.

Execute will also require advance notice of when the work is likely to take place and a formal company purchase order detailing the services and products required. This is to ensure that Execute can order the goods and schedule the necessary technical consultants to perform the work.

All Execute Professional services are exclusive of mileage, accommodation and sustenance. Execute will re-charge these at cost, to the client upon completion of the project.

The company may also from time to time request that client acts as an informal reference site for its services and technical ability. Execute understands that this at times will be difficult and will consult the customer prior to each occasion.

All software, hardware and services remain the sole property of Execute until the associated invoice has been paid in full and are without discrepancy.

Whilst every care has been taken and every detail of this document has been checked the company cannot be held liable for any errors or unforeseen changes. Errors & Omissions Exempt.

SUPPLIER DETAILS: -



Execute (UK) Limited
Rimani House
14-16 Hall Street
Halifax HX1 5BD

Tel: 01422 253700

Fax: 01422 253701

Http: www.execute.co.uk

1. Hardware & System Software

1.1. Assumptions

See previous document for assumptions, warranty details and notes.

Frontstep can supply 3rd party software licences, installation, support and other services if required.

1.2. SyteLine Database and Progress Appserver Server

Description	Costs
Hardware IBM xSeries 232 Dual PIII 1.13GHz Open Bay, Tower 1.25 GB Ram, expandable 8 x 18.2GB Ultra-160 SCSI hot-swap drives 1 x ServeRAID-4Mx Ultra160 SCSI RAID 1E controller (Includes optional hot spare drive) Netfinity 3-Pack Ultra160 Hot-Swap Expansion Kit IBM 20/40GB DDS/4 Internal Tape drive External Half High SCSI Storage Enclosure PCI SCSI card and cables 100baseT Ethernet controller 15" monitor Modem	6550
3rd party software (Not quoted) Windows 2000 Server (preferred) or NT Server 4 Veritas Backup Exec, or similar PC Anywhere remote support software	

1.3. Fileserver, Forms Server and Workflow Server

Description	Costs
Hardware IBM xSeries 220 Single PIII 1.13Ghz, dual capable 512MB Ram, expandable 4 x 18GB Ultra-160 SCSI drives Optional ServerRAID-4Lx Ultra-160 SCSI RAID 1E controller 100baseT or 1000BaseT Ethernet controller 15" monitor	2790
3rd party software (Not quoted) Windows 2000 Server (preferred) or NT Server 4 Veritas Backup Exec Remote Agent	

1.4. MS Exchange Server

Description	Costs
Hardware IBM xSeries 220 Single PIII 1.13Ghz, dual capable 512MB Ram, expandable 4 x 18GB Ultra-160 SCSI drives Optional ServerRAID-4Lx Ultra-160 SCSI RAID 1E controller 100baseT or 1000BaseT Ethernet controller 15" monitor	2790
3rd party software (Not quoted) Windows 2000 Server (preferred) or NT Server 4 MS Exchange Server 5.5 (Exch 2000 downgraded) Veritas Backup Exec Remote Agent or similar Optional: Veritas Backup Exec Exchange Agent or similar	

Contact Frontstep UK if Exchange Server 2000 is required.

GEORGE ALLAND

From: Simon Wheeler [simon.wheeler@added-dimension.co.uk]
Sent: 07 May 2002 11:24
To: 'GEORGE ALLAND'
Subject: RE: Frontstep Systems Specification



Exchange Server
1.4.pdf



Fileserver 1.3.pdf



Syteline 1.2.pdf



Ultrium 230.pdf



LC2000 Nov-00.pdf



tc2100_technical.pdf

George,

I have finally compiled the various quotations for servers listed on the Frontstep systems criteria. You will also see that i have attached copies of the product PDF files for each server for your reference but if require any further information then please don't hesitate to contact me.

1.2 SyteLine Database and Progress Appserver Server:

The only issue with have with this unit is that we can no longer provide 9.1GB Hotswap drives as HP have now discontinued them. Therefore i have quoted on 18.2GB 10K Ultra 160 hotswaps. I have put a quantity of 5 initially on the quotation as the hardware requirement looks as if you may not wish to set them up in a disk array. However, i have also included the Netraid controller so you had a reference to it's price so if you need me to amend the quote please let me know.

1.3 Fileserver, Forms Server and Workflow Server:

No issues with fixed 9.1GB SCSI drives as we still have plenty in back stock. The TC2100 is the most entry level machine we currently have available but because it is such a new product line, i have nothing below 1.3Ghz. However, it is by far the cheapest server we have in stock.

1.4 MS Exchange Server

Again the LC2000 is a good solid machine that is going to be ideal in a MS Exchange environment. No 933Mhz options left in stock i'm afraid but we do have the 1GHz versions readily available. The situation on 9.1GB Hotswaps is identical to the initial LC2000 quote hence why i have quoted on the 18.2GB options instead.

Ultrium 230.

I only have the external options available on these drives at the moment. I seem to be having major trouble trying to find out the system requirements for these units as it is not listed on either the HP web site or the product PDF. As i find out I'll compile an additional quote detailing a machine to hang it on.

Kind Regards

Simon Wheeler

Sales Account manager

Tel: (0118) 9458628

Fax: (0118) 9458681

Web: www.added-dimension.co.uk

<<Exchange Server 1.4.pdf>> <<Fileserver 1.3.pdf>> <<Syteline 1.2.pdf>>
<<Ultrium 230.pdf>> <<LC2000 Nov-00.pdf>> <<tc2100_technical.pdf>>

> -----Original Message-----

> From: GEORGE ALLAND [mailto:georgea@rmlmallock.co.uk]

> Sent: 01 May 2002 16:20

> To: 'simon@added-dimension.co.uk'

> Subject: Frontstep Systems Specification

>

> << File: Frontstep Systems Specification_.doc >>

This E-mail and its attachments have been scanned for viruses before delivery.
We recommend that all attachments are also checked by recipients before being viewed.
For more information contact postmaster@added-dimension.co.uk.

Ultrim

ADDED DIMENSION

EXCELLENCE IN DEMONSTRATION STOCK MANAGEMENT

Added Dimension Ltd
Unit 19-21 Deacon Way
Tilehurst
Reading
Berkshire
RG30 6QG

Tel: 0118 945 8688
Fax: 0118 945 8681

VAT Registration No: GB 641 8532 39

Invoice Address:

Ray Mallock Limited
6-10 Whittle Close
Park Farm Industrial Estate
Wellingborough
NN8 6TY
Northants

QUOTATION

Our Ref : 71997/0

Date : 07/05/2002

Your Ref : N/A

To : George Alland
Tel : 01933 402440
Fax : 01933 676519

From : Simon Wheeler
Tel : 0118 945 8688
Fax : 0118 945 8681

We have pleasure in supplying our quotation for the following Ex-Demonstration stock equipment

Quantity	Product	Description	Unit Price	Total Price
1	C7401A	SureStore Ultrium 230e	£1,999.00	£1,999.00
This pricing includes your agreed customer discount of 4.00%			Net amount	£1,999.00
			VAT	£349.83
			TOTAL	£2,348.83

Notes:

I agree to accept the above quotation:

Signed: _____ on behalf of Ray Mallock Limited

Purchase Order No: _____ Date: _____

This quote is valid for 5 days

All the above products are supplied with FULL MANUFACTURER'S WARRANTY

PAYMENT TERMS: Payment due within 15 days of invoice date

ADDED DIMENSION

EXCELLENCE IN DEMONSTRATION STOCK MANAGEMENT

Added Dimension Ltd
Unit 19-21 Deacon Way
Tilehurst
Reading
Berkshire
RG30 6QG

Tel: 0118 945 8688
Fax: 0118 945 8681

VAT Registration No: GB 641 8532 39

Invoice Address:

Ray Mallock Limited
6-10 Whittle Close
Park Farm Industrial Estate
Wellingborough
NN8 6TY
Northants

QUOTATION

Our Ref : 71976/0

Date : 07/05/2002

Your Ref : N/A

To : George Alland
Tel : 01933 402440
Fax : 01933 676519

From : Simon Wheeler
Tel : 0118 945 8688
Fax : 0118 945 8681

We have pleasure in supplying our quotation for the following Ex-Demonstration stock equipment

Quantity	Product	Description	Unit Price	Total Price
1	C5686A	SureStore DAT40i	£439.00	£439.00
1	D8268A	1GB 133mhz SDRam Dimm	£799.00	£799.00
1	D9164A	LC2000 PIII800/128Mb/NIC	£629.00	£629.00
1	D9185A	PIII800 CPU-LC2000/LH3000	£179.00	£179.00
1	MODEM	Modem Cards	£25.00	£25.00
5	P1166A	18GB Ultra3 HotSwap 10,000RPM LowProfile	£179.00	£895.00
1	P3410A	NetRAID 1M Controller	£299.00	£299.00
1	P4795A	15" Flat Square CRT Monitor	£59.00	£59.00
			Net amount	£3,324.00
			VAT	£581.70
This pricing includes your agreed customer discount of 4.00%			TOTAL	£3,905.70

Notes:

1.2. SYTELINE DATABASE AND PROGRESS APPSERVER SERVER.

I agree to accept the above quotation:

Signed: _____ on behalf of Ray Mallock Limited

Purchase Order No: _____ Date: _____

This quote is valid for 5 days

All the above products are supplied with FULL MANUFACTURER'S WARRANTY

PAYMENT TERMS: Payment due within 15 days of invoice date

1-3

ADDED DIMENSION

EXCELLENCE IN DEMONSTRATION STOCK MANAGEMENT

Added Dimension Ltd
Unit 19-21 Deacon Way
Tilehurst
Reading
Berkshire
RG30 6QG

Tel: 0118 945 8688
Fax: 0118 945 8681

VAT Registration No: GB 641 8532 39

Invoice Address:

Ray Mallock Limited
6-10 Whittle Close
Park Farm Industrial Estate
Wellingborough
NN8 6TY
Northants

QUOTATION

Our Ref : 71988/0

Date : 07/05/2002

Your Ref : N/A

To : George Alland
Tel : 01933 402440
Fax : 01933 676519

From : Simon Wheeler
Tel : 0118 945 8688
Fax : 0118 945 8681

We have pleasure in supplying our quotation for the following Ex-Demonstration stock equipment

Quantity	Product	Description	Unit Price	Total Price
1	D8267A	512MB 133mhz-LC2000 LH3000 LH/LT6000	£249.00	£249.00
4	P1166A	18GB Ultra3 HotSwap 10,000RPM LowProfile	£179.00	£716.00
1	P2478B	LC2000 PIII1000/128mb/NIC	£999.00	£999.00
1	P3410A	NetRAID 1M Controller	£299.00	£299.00
1	P4795A	15" Flat Square CRT Monitor	£59.00	£59.00
			Net amount	£2,322.00
			VAT	£406.35
This pricing includes your agreed customer discount of 4.00%			TOTAL	£2,728.35

Notes:

I agree to accept the above quotation:

Signed: _____ on behalf of Ray Mallock Limited

Purchase Order No: _____ Date: _____

This quote is valid for 5 days

All the above products are supplied with FULL MANUFACTURER'S WARRANTY

PAYMENT TERMS: Payment due within 15 days of invoice date

1.4

ADDED DIMENSION

EXCELLENCE IN DEMONSTRATION STOCK MANAGEMENT

Added Dimension Ltd
Unit 19-21 Deacon Way
Tilehurst
Reading
Berkshire
RG30 6QG

Tel: 0118 945 8688
Fax: 0118 945 8681

VAT Registration No: GB 641 8532 39

Invoice Address:

Ray Mallock Limited
6-10 Whittle Close
Park Farm Industrial Estate
Wellingborough
NN8 6TY
Northants

QUOTATION

Our Ref : 71982/0

Date : 07/05/2002

Your Ref : N/A

To : George Alland
Tel : 01933 402440
Fax : 01933 676519

From : Simon Wheeler
Tel : 0118 945 8688
Fax : 0118 945 8681

We have pleasure in supplying our quotation for the following Ex-Demonstration stock equipment

Quantity	Product	Description	Unit Price	Total Price
1	D8267A	512MB 133mhz-LC2000 LH3000 LH/LT6000	£249.00	£249.00
4	P1213A	9GB Ultra3 7,200RPM CommonTray	£115.00	£460.00
1	P3410A	NetRAID 1M Controller	£299.00	£299.00
1	P4648A	TC2100/PIII -1.3GHz CPU/128MB SDRAM	£549.00	£549.00
1	P4795A	15" Flat Square CRT Monitor	£59.00	£59.00
			Net amount	£1,616.00
			VAT	£282.80
This pricing includes your agreed customer discount of 4.00%			TOTAL	£1,898.80

Notes:

I agree to accept the above quotation:

Signed: _____ on behalf of Ray Mallock Limited

Purchase Order No: _____ Date: _____

This quote is valid for 5 days

All the above products are supplied with FULL MANUFACTURER'S WARRANTY

PAYMENT TERMS: Payment due within 15 days of invoice date

GEORGE ALLAND

From: Howard Oldham [holdham@digi-tech.co.uk]
Sent: 23 July 2002 18:02
To: GEORGE ALLAND
Subject: Re: Quote

George,

As requested, quote for rack etc.

42U, 600 x 600 rack. No fans but with a couple of shelves, cage nuts and bolts to mount your hardware, 8 outlet power strip, 24 way patch panel cabled in screened cable to 24 port patch panel (D link 10/100)

Delivery installation etc. 1850.00 + vat

UPS. What size do you want?

eg. 500 VA 120 min, about 1700.00 + vat

~~500 VA, 60 min, about 1000.00 +vat~~

You'll have to work out what the load will be (overspec, not under!) and how long it has to last...

Can't imagine that the switch would take more than 75VA so it depends on the servers really. They are the main power drain. ----- Original Message -----

From: "GEORGE ALLAND" <georgea@rmimallcock.co.uk>
To: <holdham@digi-tech.co.uk>
Sent: Tuesday, July 23, 2002 12:48 PM
Subject: Quote

H,

We are looking to upgrade our ERP system. Unfortunately this involves some additional servers. I would like you to quote on the following equipment.
(Supply and Install)

- * 24 Port Switch
- * Pre wired Ports as previously supplied for above
- * Rack mount UPS
- * Cabinet 600 x 600 x 2M 60

Further to our conversation, I would like a full height cabinet as I would like to have the space to install additional rack mounted equipment.

George

This communication is confidential and intended only for the use of the individual or entity to which it is addressed.

If you have received this communication in error please notify us immediately and destroy the original.

Any copying or dissemination of this communication is unauthorised.

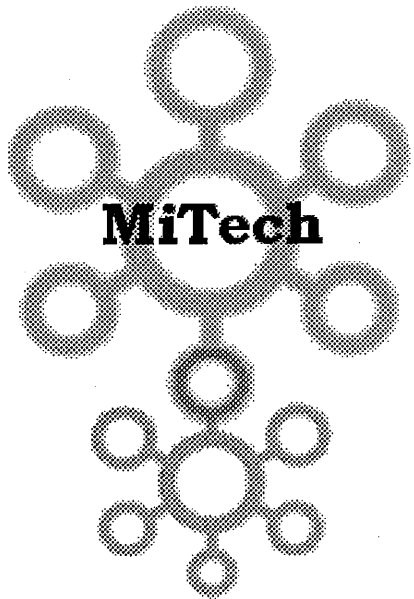
To: George Alland

From: Ben Nicklin

Company: Ray Mallock Ltd

Date: 25/7/02

Ref: Quote for 24 port switches



Dear George,

Further to our conversation I have put together prices for both Cisco and 3Com 24 port switches and have also included prices for 48 port switches.

Part No.	Description	QTY	Unit Price	Total Price
3C16980A	3Com 3300, 24 port 10/100 Switch	4	£748.66	£2994.64
3C17100	3Com 4400, 48 port 10/100 Switch	2	£1171.09	£2342.18

2950-24	Cisco Catalyst 24 port 10/100 Switch	4	£632.22	£2528.88
2950-48-EI	Cisco Catalyst 48 port 10/100 Switch	2	£2195.56	£4391.12
TOTAL				

without c.bis reduce by 1 (probably)

Please note that the above prices are quoted in pound sterling and are exclusive of VAT which will be charged at the prevailing rate. MiTech standard terms and conditions apply.

If you have any question please feel free to contact me, my direct line is 01494 839737 or e-mail at ben.nicklin@Mitech.co.uk

Yours

APPENDIX 10: COMPUTER SYSTEM COSTING

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	GRAND TOTALS
Base Symix Requirements	32,659.05	1,880.00	1,880.00	1,880.00	1,880.00	1,880.00	42,059.05
Non-Citrix Option (Inc Symix Reqs)	86,659.05	1,880.00	1,880.00	1,880.00	1,880.00	1,880.00	96,059.05
Citrix Option (Inc Symix Reqs)	101,976.17	6,880.00	6,880.00	6,880.00	6,880.00	6,880.00	136,376.17
Difference	15,317.13	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	40,317.13

Symyx Upgrade Requirements

Symix Upgrade Requirements	YR0 £	YR1 £	YR2 £	YR3 £	YR4 £	YR5 £	TOTALS
Total Symix Installation (10 days at £767 per day)	7,670.00						
SyteLine Database & Progress Appserver	3,905.70						
Fileserver, Forms Server and Workflow Server	2,782.35						
MS Exchange Server	1,898.80						
Maintenance Costs (£40 per server)	1,440.00	1,440.00	1,440.00	1,440.00	1,440.00	1,440.00	
Microsoft 2000 Server (incl 5 licenses) (3 of)	2,382.86						
Microsoft 2000 Client Access Licences (35 of)	891.83						
Backup Exec Software	574.58						
Backup Exec (Exchange Server)	386.58						
Backup Exec (SQL Server)	381.88						
Backup Exec (Open File)	339.58						
Backup Exec extra server Licences (7 @ £100)	700.00						
Backup System	2,348.83	440.00	440.00	440.00	440.00	440.00	
Tapes	880.00						
Rack	1,850.00						
Cisco Catalyst 24 port Switches (3)	2,228.58						
UPS for second room	1,997.50						
TOTAL (£):	32,659.05	1,880.00	1,880.00	1,880.00	1,880.00	1,880.00	TOTAL SYMIX COST 42,059.05

OPTION 1: Upgrade Client PC's

OPTION 1: Upgrade Client PC's							TOTALS
	YR0 £	YR1 £	YR2 £	YR3 £	YR4 £	YR5 £	
26 PC's for client @ £1000	26,000.00						
10 CAD workstations	20,000.00						
8 Laptops	8,000.00						
Plus Symix upgrade requirements	32,659.05	1,880.00	1,880.00	1,880.00	1,880.00	1,880.00	
							Fat Clients
TOTAL (£):	86,659.05	1,880.00	1,880.00	1,880.00	1,880.00	1,880.00	96,059.05

