



# Systems for Project and Job Based Organisations

White Paper

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## **Abstract**

We are often reminded that the UK economy is becoming increasingly dominated by service industries at the expense of manufacturing. Yet most major IT solutions and systems are based around Enterprise Resource Planning systems that, more often than not, are focused on the manufacturing environment and are not suitable for project and job based organisations such as those found in the service and construction sectors.

This white paper looks at what a project/job based system should provide, what it can do, who benefits and what the return on investment from implementing one can be.

## **Project Based Organisations**

Many companies are essentially project based and their entire existence consists of the delivery of multiple, simultaneous jobs. Even in large, non-project based organisations it is common to have departments that are providing project based services to the rest of the organisation, the classic example being the IT department. A project based organisation is, in many ways, the sum of the projects that it is working on.

Whilst the nature of the projects in these companies and departments may vary widely, from creating new media artwork to the demolition of buildings, many fundamental similarities exist due to the project based nature of the work. These similarities are not always obvious and evident on the surface and the systems used in these situations will differ in detail and the relative importance of the various constituent components that are discussed later.

Project based organisations can range in size from the one-man consultant to global service organisations with multiple practices. Whilst the large practices have been long time users of project accounting and related software, many mid-size and smaller firms have relied on primarily paper or spreadsheet based systems for large parts of their internal systems and have not been aware of the availability and benefits of systems that are available and affordable.

## **What is PSA?**

PSA stands for Professional Service Automation and is a specialist subset of the project/job based systems available that is specifically targeted at professional service organisations. This includes design companies, high tech firms, legal firms, consulting engineers, architects, elements of public sector and utility organisations and many others.

A PSA system is a project based system specifically designed to deal with the requirements of these types of organisations. This will put the emphasis on areas such as timesheets, billing, resource utilisation, project management and knowledge management. Billing is a complicated area within service organisations and a powerful, flexible system is required that can deal with varying rates and methods of charging and properly deal with the accounting of these projects. A standard accounting solution or a job cost module more suited to the construction industry will not provide the flexibility, accuracy or speed of billing that a true PSA solution can.

Many service firms will also need to incorporate a service management solution which will vary in nature depending on the service being provided. For an IT company a helpdesk solution might be required, for a legal company a case management system is essential and for an equipment maintenance firm it would be a register of clients' assets under maintenance agreements.

Once a service organisation reaches a certain critical mass the analysis and reporting of the progress and profitability of individual projects, members of staff and other resources becomes essential to keep the organisation on track. This is where a full PSA solution becomes an indispensable tool and one of the best investments a service firm can make.

## **Construction**

The construction industry is the classic example of a project based environment. At all levels of the industry, and for all sizes of companies everything is based around discrete jobs that are accounted for separately. Whilst the job based systems that are required are essentially project accounting systems, construction has its very own, unique requirements that differ markedly in their detail from other project based companies.

The areas that are key in a construction project system include purchasing, subcontract, valuations and estimating. Where a PSA solution will focus heavily on billing and resource management, a construction solution will tend to be more biased towards cost control and budgeting.

The construction industry also has a heavy reliance on the use of subcontractors and dealing with these properly, including the operation of the Construction Industry Scheme for tax in the UK, is an essential part of a comprehensive solution.

## **System Components**

Project and job based systems comprise many components with some organisations requiring only a few, whilst others might need the majority. The list that follows is not meant to be comprehensive but does cover the main components and provides a brief description on how they might be used.

### **Project Accounting**

At the very heart of most project systems resides the project accounting or job cost system. This will typically be the hub and focus of most of the other

system components and take information directly from them. A good accounting system will either be fully integrated with or very closely coupled to an organisation's main general ledger and other core accountancy modules.

The profit (hopefully!) on each project that is undertaken should be easy to track and report on using a suitable system and it should record and measure financial information against estimates and budgets. It will be usable by both accountancy and project staff and should incorporate all necessary billing methods. The system should also allow an organisation to control how and when profits are taken and how any work in progress is measured with a minimal amount of user intervention.

One of the most important things to look at in a project accounting system is the flexibility that is provided in the Work Breakdown Structure (WBS), i.e. numbers of tasks allowed in a project and whether they can be nested. Also important is the flexibility of the cost codes or service types that time and costs can be recorded against and how these are recharged to the customer.

### **Project Management**

Whilst project accounting aims to help with managing the financial side of the equation the project management component will deal with delivery and the monitoring of progress. An integrated and well implemented project management solution should have a positive impact on financial management and the quality of service provided to customers.

By providing all project team members (both inside and outside your organisation) with a single source for up to date project status you improve communication, allow accounts to forecast revenue and costs more accurately and let management focus on those projects that are slipping or running over budget.

A comprehensive project management solution should be integrated into your timesheets and project accounting solution and provide a complete resource management solution to help forecast and monitor your utilisation of staff and other valuable resources.

### **Time Sheets**

For many project based companies, especially the purely service focused ones, the time sheet is the most vital document in the company. The time sheets are literally the life-blood of the organisation and yet many smaller and mid-sized operations use non-integrated or even paper based systems to collect this vital information.

A proper electronic time sheet system should restrict what projects, tasks and activities a member of staff can book time for and should provide at least some level of workflow approval process. Ideally they should feed straight into the other components of the project system to allow billing to occur automatically where possible and provide instant measures of utilisation and profitability for each member of staff.

It is common for features to be provided that allow the entry and approval of other employee incurred costs so that mileage, travel and other expenses can be captured by the system. These expenses can then automatically be associated with the relevant project and recharged to a customer as and when it is relevant to do so.

Whilst computer based time sheet systems used to be difficult to use or could only be used by staff based in an office, this is no longer the case with the advent of wireless networking, better portable PCs and even PDAs/smart phones.

### **Estimating**

The start of any project is usually the provision of an estimate for the work to be undertaken which consists of both the cost for the supplier and the price that will be charged to the customer.

The estimating (or budgeting) process varies significantly from one organisation to another. For some organisations the estimate may be a very simple process, for example where fixed price services are offered, but for others it is a complex, time consuming process, for example in major construction projects. The nature of the estimating step means that a different sort of system component is required from one organisation to another.

The estimating process hopefully leads to the start of a project and it is important that the estimate details can be used to create the initial budget for a new project which the project can be measured against. One of the most important steps that a project based company can take is to have a consistent way of creating estimates and a review process to measure the accuracy of estimates compared to actuals so the estimating process can be improved in the future.

### **Service Management**

For many project based companies there is a need to deal with discrete issues or problems raised by a client that are either part of a project or part of a

support or maintenance service provided after a project is complete.

For an equipment installation and maintenance company there is usually a need to provide engineers who can respond to faults with supplied/leased equipment or perhaps measure and record its usage. For an IT firm there is usually a need for a helpdesk system that records all reported problems or questions that are asked on the usage of a system.

A service management system should do much more than simply record the incidents as they are logged. For instance, whilst recording the solutions to the issues logged, a system should be creating a knowledge base so that the next time the same problem occurs the appropriate solution can quickly be found. Many service companies also have to adhere to a service level agreement (SLA) with their customers. A service management solution should be able to report on whether that SLA is being met and provide automatic escalation routines for individual issues as agreed with a client.

For many organisations it is necessary for on-site or travelling staff to have the ability to use the service management system. This can be done using an internet connection from the customer's site or via a wireless mobile device such as a PDA connected using GPRS. Alternatively, some service management software can provide 'off-line' solutions that can be used on a laptop or PDA that can be taken back into the office at a later date and 'synchronised' with the main system.

### **Customer Relationship Management**

As well as managing the details of each project, it is essential that a service led organisation should also manage its customers. Customer retention and high conversion rates for sales leads are essential to long-term success. A CRM solution should help monitor and achieve these aims through the management and automation of aspects of the sales and marketing process.

Through the capture and retention of information on customers and leads both sales and delivery staff can provide a more tailored, customer centric service that addresses the concerns of the individual customer. Often, information discovered by delivery staff about a customer can lead to a new project being sold. Such 'cross selling' is a very cost-effective way for many organisations to win new business and a CRM solution can help identify and convert these opportunities.

A good CRM solution must be highly customisable as no two organisations will manage their customers and prospects in the same way. The level of information held and the categorisations required for market segmentation and other purposes are rarely the same, even in businesses that are otherwise very similar.

Other features that should be looked for in CRM software include sales force management, bulk email and mail shot generation, pipeline forecasting, off-line operation, quotation generation and integration to the rest of the project systems.

### **Business Intelligence**

In IT terms business intelligence (BI) is generally acknowledged to cover those parts of a system that provide a manager with the ability to generate reports and analyses on which they can base business decisions. This will include the ability to create reports which pull information from different components of the project based system and filter, analyse and present them in an appropriate manner.

The BI software for doing this must be simple enough for somebody outside the IT department to use whilst providing the functionality required to generate the necessary information from the raw data. There are a wide range of Windows based products on the market which range from simple report generators to sophisticated tools with features such as 'slice and dice', 'drill down' and 'scenario modelling'. Which one is appropriate is dependant on the expected information that will be required (which is usually difficult to predict in advance), the way the project system stores its data and the sophistication of the end-user. If an organisation already has a BI solution in place then a project system needs to be selected that will operate with it and hence is based around common technologies or uses appropriate recognised standards.

### **Knowledge & Document Management**

Most projects and jobs seem to attract a large amount of associated paper work. Whether it's CAD drawings, technical specifications, project plans, manuals or standard forms, managing and searching all this information can be a major overhead on a project.

Electronic document management systems are a long established technology but recent advances in search techniques along with the use of cost effective internet-based technologies have made them much

more usable and cost effective. A project based system should allow anybody in an organisation to quickly and simply find the information they need whether they are in the office or out on site.

As well as advanced searching and usability other features that should be looked for in a knowledge/document management solution include security, workflow approval, versioning and document categorisation. It is also usually advantageous if the system is browser based and hence can be integrated into existing browser based systems, in particular corporate portals.

### **Purchasing**

The procurement part of any project is key. It is often a large determinant for the profit of the project and can also have a significant effect on the satisfaction of the customer with late or faulty deliveries being a significant risk. In the construction industry in particular this is probably the most important part of the project system and it also has to deal with subcontractors and associated issues such as CIS and retentions.

The purchasing system should be linked with the project accounting and estimating systems and provide a simple and easy way to handle purchase approval processes and purchase order generation, including the ability to submit orders electronically where appropriate.

For many companies involved in maintenance work a stock of commonly used items will be held and a request for one of these should identify where such a part is held and automatically order replacements when re-order levels are reached.

### **Who Benefits?**

In a project-driven environment there are a significant number of project stakeholders who can benefit from a comprehensive project based system. These stakeholders include people both in- and out-side the organisation that can be affected by the project. The list that follows is not intended to be comprehensive but gives an indication of the range of people who can benefit.

#### **Directors**

If you are a director, partner or senior manager of a project based organisation then you know that the success of your organisation is based on the success of all its projects. Having a 360° view of all your projects based on current, accurate information from a comprehensive, integrated project system allows you to

quickly evaluate projects from financial, quality and other viewpoints. You will make extensive use of the business intelligence component of your system to draw together all the immediate, high-level information that you constantly need to be available.

#### **Project Managers**

Whether managing a single project or overseeing multiple projects simultaneously the project manager usually takes ultimate responsibility for the overall success or failure of that project. A system that allows a project manager to not only plan and measure his or her project but supports work allocation and information dissemination is going to save time and allow them to concentrate on delivery. The more complex the project the more essential this sort of system support becomes.

#### **Project Workers**

The individuals who work on a project want to know what they have to do and when. If they can be given prioritised 'to do' lists and have access to all the technical and other information they need to perform their tasks then they can help deliver a project more efficiently. Whilst most project workers are not provided with access to financial information they will generally need to know the timescales for the overall project and what deadlines they are working to. The one 'chore' that most individuals in a project do not appreciate is the completion of timesheets, although expense claims are usually quickly forthcoming! The systems to allow people to enter this information has to be user friendly and quick to use whilst providing as many controls and checks as possible, usually through subsequent approval by a direct line manager. Although it isn't always appreciated, it is this information that is the lifeblood of most project based organisations and it drives all the subsequent financial calculations.

#### **Accounts**

The accounts department can realise significant benefits from a fully integrated system with all transactions (such as project purchases, expenses and timesheets) not only automatically feeding into a job costing/project accounting system but then subsequently feeding straight into the general ledger. The reporting tools provided by the system should provide automatic generation of suitable financial reports for the managers/directors/partners of a firm and the timesheet system should make the monthly/weekly payroll runs much less labour intensive.

## **HR**

For larger organisations with a significant number of staff the HR function can be aided with project based systems that replace or integrate with existing HR software. This will allow HR staff to see what projects an individual has worked on and what role they played in them. Some systems may also allow access to timesheets and expense claims if necessary.

## **Quality Assurance Team**

For some types of projects the QA role is an essential and integrated part of all work undertaken. The QA team members usually require all the same information that a typical team member will and they benefit from quick access to the project's technical and other documentation so they can dedicate as much time as possible to ensuring that relevant quality standards are being met, including the standards of the documentation and project information itself.

## **Maintenance Team**

Once a project is complete or even whilst it is underway it is common that a maintenance team or help desk must be provided. The maintenance team will use the service management component to ensure that they provide the necessary quality of service as quickly and efficiently as possible. They will also benefit from all the documentation held about the project they are working on in the knowledge management system as this information should help them resolve problems sooner than would otherwise be possible.

## **Sales & Marketing**

The account manager that is assigned to a client will always need to be aware of the current status of all the projects that are underway so they can answer any queries and pre-empt any problems that may arise. They should also be provided with access to the service management system to see what all the outstanding issues are for a given client for the same reasons. When an organisation is trying to win new business a project system can provide the necessary detail on similar previous projects allowing more accurate and quicker estimates to be prepared.

## **Buyers**

For many types of project organisation it is the buyers that can determine the profitability, particularly in construction. By providing an integrated system from the estimation stage onwards the systems can support the buyers in the work they have to undertake. Access to information on suppliers and previous similar purchases for other projects help the buyer ensure the cost and

quality of what they purchase is appropriate. As they can also have access to the planning and financial information for a project they can make sure they get the necessary goods delivered at the right time to the right cost.

## **Suppliers & Subcontractors**

In many projects organisations will need to work in collaboration with other direct or indirect suppliers to their client. This may be through the use of subcontractors or involvement in a consortium delivering a project. In either case a fully integrated, easy to use project system that can be shared by all relevant parties will make the collaboration much easier.

## **Customer's Management**

Whilst a customer often may not want to know the detail of how you are doing a project and all the technicalities (although this differs from one organisation to another), they certainly want to know how the project is progressing and whether it is proceeding to budget in terms of both cost and time. If they know that you have a comprehensive project management system in place then they will feel more reassured and it should be simple to provide them with automated reports that show progress with time scales, costs incurred and cost to complete.

## **Customer's Staff**

Many projects are done in conjunction with the customer's staff and by allowing them suitable access to the project system it can not only improve their efficiency through access to required information, it can also lead to them feeling that they are 'part of the team'. It can often also improve their perception of you if they see the use of advanced systems and tools to help complete the project.

## **Extending Outside The Organisation**

As you can see from the list of potential users provided above, it is not just those inside your organisation who will benefit from a project based system you put in place. By choosing a system which you can extend outside your own staff you can:

- benefit from better collaboration with the customer and other suppliers on the project
- improve the external perception of your organisation with current and prospective customers.

To achieve these aims you will need a project system that not only has the necessary technology but also provides sufficient security and is simple enough to use that the cost of any training to external users does not outweigh the benefit.

## Working With Existing Systems

It is highly probable that any project based organisation looking to put a full, integrated project system in place already has a number of the various components automated to some extent. These may be purchased solutions or something developed 'in-house'. It is not unusual to retain some of these existing components and create the rest of the system around them but to do this requires careful evaluation of the proposed solution to ensure that it will fit existing components from process and technology perspectives.

## Return On Investment

If you are looking to implement a new system then obviously you expect to achieve a return on that investment. As with any IT system there are both tangible (measurable financial) returns and intangible (soft) benefits. Whilst we will not look to provide any form of ROI calculations in this white paper some of the tangible benefits that can be measured include:

- Efficiency of project invoicing
- Improved resource utilisation
- Time saving for project staff on information retrieval
- Time saving for accounting staff on data entry
- Reduction of inappropriate (cost, quality and timing) purchases

The intangible benefits that can lead to a non-measurable financial gain include:

- Improved external perception due to the use of advanced systems.
- Improved quality of work due to project information access.
- More informed management decision making due to accurate information and comprehensive, flexible reporting.
- Improved customer service through better provision of project information .
- Improved customer service through use of service management systems.

## Selecting A System

Having made the decision that a new system will produce tangible gains, how do you go about selecting the one that is right for you. The first step is to decide what system components you need and how you intend to use them. Whilst this does not have to be in any great detail you should have enough information to brief potential system suppliers before you see them. The actual selection process can be done in a number of ways and we do not intend to discuss that in this white paper but there are some core criteria you should evaluate the potential system on:

- **Completeness of functionality** – are all the components we want provided and does each work the way we need it to? Are there additional components available that we may want in the future?
- **Technology** – does the technology allow us to extend the system and customise it? Is the technology 'future proof'? Can it be accessed externally?
- **Vendor** – is the software house producing the system financially stable? Do they have a clear strategy on where the product is going and how it will be improved?
- **Supplier** – do they have the skills and resources to install the system? Do they understand our business and what we want to achieve?
- **ROI** – will the system pay for itself and if so over how long? What are the intangible benefits we stand to gain?

Selecting a system will come down to many issues but those above are usually the core ones that should be carefully evaluated.

## Implementation

Once you have selected a system the hard work of implementing it begins. Do not fall into the trap of assuming all the work lies with the supplier – you will need to work closely with them to ensure that you make the most of your investment. A common failing is to not budget for enough training for all potential system users and another is to not adapt your working practices where necessary to improve your organisation. Simply using a system to automate an inefficient process is not going to bring any great benefit.

## Summary

This white paper is too short to do justice to the variety and sophistication of project based companies or the systems that they should be using. Its intention is to give a flavour of the underlying principles and components that are similar in many cases. Project based systems can rapidly pay for themselves considering only the measurable, tangible benefits but it is in the softer, quality related improvements where the true value of these systems can be realised.

Once you reach a certain size as an organisation the number of projects, resources and customers dictate that a system must be put in place to prevent future growth being stifled. The selection and implementation of such a system may not be trivial but it is essential.

## About this series

The world of IT is very varied and continuously changing. Trying to stay abreast of all the latest technologies and their potential implications can be a full time job in itself. The aim of this series is to explain the business implications of the technologies without the jargon. By understanding how the technology could affect your business you are in a better position to decide if it is a valid investment.

These white-papers deliberately avoid becoming too heavily involved with the finer details of the solutions in question; they also avoid focusing on products. For those who would like more technical information or product information it can be found at our website, [www.perfect-image.co.uk](http://www.perfect-image.co.uk). Here you can also download previous white-papers and keep track of our other events and publications.

## About Perfect Image

Perfect Image is a Newcastle upon Tyne based IT Solutions company. Established in 1991 we have extensive experience in adapting leading technologies to meet the unique needs of individual businesses. We are Microsoft Gold Certified Partner and we pride ourselves on continuing to operate at the leading edge of new technology and developments.

At Perfect Image our strength lies in our commitment in understanding the needs of your business. Every organisation is unique and we believe that an IT solution can only be successful if it is tailored to meet those individual needs. For this reason, before a single line of code is written, we will aim to fully understand your business, your current situation and your future goals. Only then can we advise on the best solution for you. If no appropriate third-party application can be found then we can customise an existing solution or develop a completely new one from scratch. The key to our success is making the technology work for you.

## We have carried out projects for organisations such as

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