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PDMS Ltd On-line Integrated Business Systems

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### On-line Integrated Business Systems

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Chris Gledhill, Managing Director, PDMS Ltd

Customer: Internal development project for PDMS

Profile: PDMS provide software solutions and associated services

Challenge: To develop and implement a system that integrates key business functions and is to be used by all employees on a daily basis

Solution A real time web based integrated business system based on the PDMS PageBuilder architecture

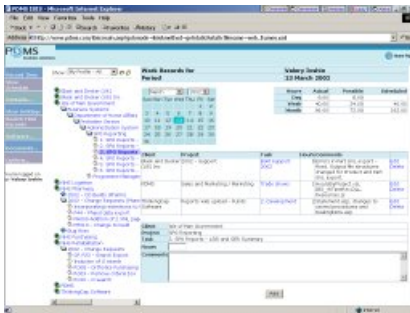
Key technologies:

Benefits:

XML

- Improved efficiency
- Wider availability of business critical information
- Positive impact on customer relationships
- Increased scalability of systems

## Background



PDMS is an IT company that provides information system solutions to a wide range of clients in both the public and private sector. PDMS does not sell off the shelf software products; instead it has applied its wide range of re-useable software components to a wide variety of development projects, ranging from dynamic database driven websites and Intranets to electronic catalogues and desktop business systems. PDMS' clients include the NHS, Black & Decker, betinternet.com plc and the Isle of Man Government.

In order to manage its projects based business, PDMS had, over a number of years, developed a series of PC based desktop business systems to, for example, record time and manage client contacts. These systems became crucial to the effective day-to-day operation and management of the company, but as PDMS expanded, both in its number of people and more critically its number of offices, the use of these systems became increasingly problematic. It became apparent that a single, integrated system was required in order that all PDMS' business related data was centralised.

## Challenge

The project team set-up by PDMS to develop its new Integrated Business System, or IBiS as it became known, was set the following challenges:

- To produce a system that replaced, integrated and enhanced all of the then current desktop systems used by PDMS, such as Time Recording, Scheduling and Contact Management.
- To expand the functions available by the inclusion of new modules, such as Sales & Leads, an Assets Register, and centralised Management Reports.
- To ensure that the system could easily incorporate future business functions as and when they are required.
- To adopt a look and feel that closely matched the corporate re-branding that PDMS had recently undertaken.
- To produce a system that was web-based and therefore is available to PDMS employees world-wide.
- To base the system on PDMS' own PageBuilder components to provide PDMS with a demonstrable, transactional, Internet based system for its own marketing purposes.

Several other benefits of this web based architecture were also identified. For example, clients and business partners of PDMS can be given access to IBiS in order to communicate with PDMS and track the progress of their projects. In addition, the information on IBiS can be accessed through different channels, such as on a PDA or a 3G mobile phone.

## Solution



For familiarity, the browser-based interface to IBiS was based loosely on the format used by Microsoft Outlook. The 3 view panes contain a menu-bar of functional command buttons, a tree-view representation of PDMS' clients and their projects, and a data-pane for data viewing and manipulation.

The menu-bar is implemented by the PDMS PageBuilder architecture, displayed in a style customized to IBiS by the use of XSL style-sheets. It is entirely data-driven, from a database containing information on IBiS users, their roles within PDMS and their security levels. This means that different users see different menu-bars, depending on their role and security level. The data-driven architecture also means that the menu-bar is extremely flexible. For example, it has been re-organised since its initial rollout, due both to feedback from the IBiS users and also

to the inclusion of new business functions, such as staff holiday module and document management module.

The tree-view is the heart of IBiS. Its roots are PDMS' clients, its branches are an indefinite structure of projects PDMS is undertaking for their clients, and its leaves are the tasks, or items of work, against which PDMS record revenue earned and time spent. The tree-view can be displayed in a variety of ways: all clients, projects and tasks can be displayed; or only those clients who have active projects; or a tree-view of clients and projects as previously configured by a particular user to their own requirement. This means that the tree-view can, in general, show information about all PDMS' clients and projects, but in practice is more usually tailored by a user for their day-to-day use. The tree-view is not relevant to all IBiS functions. For example, the PDMS Asset register has no direct relationship to PDMS' clients and projects, and in cases such as this, the tree-view is hidden from view.

The data-pane displays information relating to both the currently selected function and, where applicable, the currently selected tree-view item. For example, in the Manage Projects function, the data-pane displays information about the currently selected client, project or task depending on what is selected on the tree-view. During Time Recording, the information displayed includes a Calendar, so that the user can specify a date against which to record time, as well as information on time entered today and for the current month.

The principal functions of IBiS are as follow:

## Time Recording

It was an important design consideration that the time recording function was as easy and quick to use as possible, otherwise it would discourage PDMS staff from keeping their records up-to-date. To this end, the user-configurable tree-view (profile) of client and project information was implemented, enabling staff to restrict their view to only the projects on which they are working, and the number of keystrokes that are required to enter a time record was minimised, to prevent the repetitive task from becoming cumbersome and therefore boring.

To meet specific users requests, two alternative time-recording functions were developed. The first presents a calendar view, which allows a particular day to be selected. Tasks are then selected from the tree-view for subsequent time-record entry. The second presents the complete week as a grid for all the projects that the user has configured in their profile, which in certain circumstances supports faster entry of the records. It is the choice of the individual user which screen is used.

## Manage Projects

This function actually allows the maintenance of client, project and task data. Client information includes name, address and company level contact information. Each client can have one or more projects, and each project can have one or more sub-projects and one or more tasks associated with it. The flexibility of the system allows a project to be expanded and refined as it progresses. Each task has associated with it revenue information, such as whether the task is a

Time and Materials task, or whether the task is a Fixed Price task and, if so, the value of the Fixed Price. As all time records are recorded against these tasks, it enables PDMS to accurately report on its performance in meeting the estimates and quotes issued to their clients, as well as an accurate and up-to-date work in progress situation.

## Contacts

Closely associated with clients and projects are the people responsible for dealing with PDMS. The IBiS contacts system not only contains a list of these people, but also allows the recording of individual communications with these people, whether these communications are verbal, written or electronic. The contacts system integrates with Outlook to allow the easy generation of e-mails.

## Sales and Leads

Potential work for PDMS is entered using the Sales and Leads functions. This enables potential future work to be reported on, and potential future revenue estimated. This not only predicts potential shortfalls in future work, and therefore revenue, allowing PDMS to focus their sales effort, but also allows PDMS to more accurately predict when they are able to deliver completed projects to their clients. Information entered during the Sales and Leads process is, if the work has been successfully sold, converted directly into a project without need for further data entry.

## Scheduling

IBiS' Scheduling system enables PDMS' Project Managers to request the resources they deem most suitable to complete particular tasks. This enables the current and future workloads of individuals to be accurately reported and overloads, bottlenecks and shortfalls identified. As appropriate, work can be re-allocated, or potential late-deliveries identified and dealt with. Members of PDMS' development team can then be view their own completed schedules in order that work tasks are commenced as quickly and efficiently as possible.

## Holidays

A refinement to the Scheduling functions of IBiS added subsequent to its initial rollout was the implementation of functions to request and authorise holidays. Once a manager has authorised a particular holiday request, not only does IBiS automatically add it to the scheduling data to indicate that that resource will not be available for that period, but also it automatically writes the time records for that user for the holiday period.

At any time, any IBiS user can see their holiday allocation for the year and how much of this has been already used or booked.

## Documents

IBiS presents a Web-enabled view of its corporate documents, which range from a company Mission Statement to individual instructions for, for example, resetting one of the companies Hewlett-Packard HP2100 printers! IBiS picks up corporate documents from a single server-based location, so ensuring that no rogue versions appear during any future quality audit. Documents can be added to IBiS' library by simply adding them into this server-based location; no additional data maintenance is required.

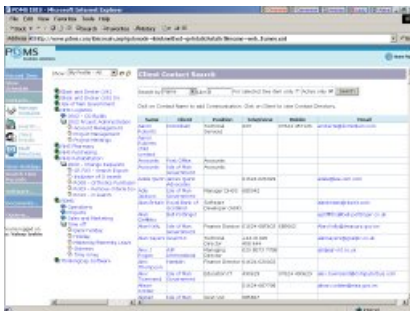
## Assets

All of PDMS' machines and their peripherals are recorded in IBiS' assets register. This means that the physical location of a machine, the person who is using it and the task for which it is being used are all readily available. In addition, PDMS is confident that it has a complete list of the hardware it owns, the value of this hardware and the serial numbers of each individual item.

## Technology

IBiS runs on a Microsoft Windows 2000 platform and uses Microsoft SQL-Server 2000 as its database. It was developed using PDMS' PageBuilder architecture, which is a framework for the design and development of scalable, interoperable and multi-channel web-based systems using a modular approach supporting the classic three-tier software architecture, where the components are separated into presentation, business and data tiers. The use of PageBuilder for the development of a system such as IBiS enables the developers to focus on the required business logic of the system, rather than more technical issues. In the case of IBiS, the business logic was developed using Microsoft development tools (Visual Basic and Visual C++) and exposed as a set of XML based web services.

## Benefits



IBiS has had a huge impact on the day to day running of PDMS. The integration of PDMS business systems and the central storage of the business data, combined with the comprehensive reporting features of IBiS, allows for much more efficient monitoring of the business. The management team can now be confident that the information they access is both current and relevant, providing for more informed decision-making.

Being web based IBiS has many additional advantages over the previous PC based business systems. One of the main benefits is that all of PDMS employees, no matter where they are located in the world, can use the system, viewing the same, consistent set of data. As IBiS can be viewed on different interfaces, PDMS staff are able to access its information from PDA's and obtain details such as a client's telephone number from their mobile phones. IBiS also allows PDMS to respond more effectively to customers' needs by giving customers direct access to pre-defined information: For example, customers can log on to IBiS and see the current status of tasks for their projects.

The development of IBiS is an ongoing process; new modules are added as and when additional business processes are identified. Because the system is scalable, it will easily be able to accommodate future growth in PDMS' business, in terms of additional business modules, new users and data and transaction volumes.

In summary, the development of IBiS has given PDMS significant competitive advantage through the more efficient running of the company, more informed decision making and improving the service provided to the customers. IBiS clearly demonstrates that a business system developed using Internet technology can be used successfully in a "real world" environment.