

## UKCeB Excellence Awards - 2009 Winner

LSC Group/Submarine Support Management Group/Submarine Support IPT  
At UKCeB Good Practice Marketplace - 20<sup>th</sup> October 2009, hosted at HP Bristol.

### Submission Title & Category

A Collaborative Working Environment for the Submarine Support Environment in category *Business Improvement & Transformation*

### Submission Overview

This submission describes the collaborative working environment (CWE), delivered and supported by LSC Group, to link the UK MoD Submarine Support Integrated Project Team (SubIPT) and their industrial partner, the Submarine Support Management Group (SSMG), in an extended business enterprise.

The MoD required the capability to securely share information throughout the joint MoD/Industry enterprise to manage the first of class refit and refuel of the Vanguard Class Trident submarines. A key feature of this requirement was the capture, refinement and automation of the complex engineering business processes that linked the SubIPT, SSMG and DML, the industry partner based at the refit centre in Devonport. A key objective was to make these processes joint and seamless where this was appropriate. LSC Group has worked over the past 6 years to design, develop, deliver and support a CWE that has grown incrementally as the business enterprise has been extended to include BAES, Rolls-Royce, Babcock Marine and VT. Across this extended enterprise, some 17 automated processes have been implemented to meet the customer business priorities

Business benefits accruing to the adoption of the CWE are:

- It facilitated enterprise collaboration and provided the project with a single view of the “truth”.
- Workflow allowed business processes to be quickly re-engineered across the MoD / Industry boundary, without the need to customise expensive IT systems.
- The electronic audit trail improved safety management and provided assurance that SQEP requirements for submarine and nuclear safety were being met.
- Technical decision-making was enhanced through the automated data capture of the ‘Material State’ of the Platform.
- Visibility of business performance (both MoD and Industry) was improved through enhanced reporting, with rapid identification of process bottlenecks that would impact Platform delivery.
- Overall process times were significantly reduced.

In summary, these benefits resulted in the first of class Vanguard refit being completed in two years instead of the three for refit of the previous class of nuclear submarine, with hard financial savings resulting from overall process improvements and more accurate spares ordering.

The engine that drives the CWE is an integrated suite of COTS applications:

- Oracle Enterprise 2.0 Portal
- Tibco Workflow
- Oracle 10g database
- Formtek:Orion Vault
- IBM Cognos Business Intelligence Application

Based on this successful deployment across the Submarine Support Environment (SSE), the capability has subsequently been extended to encompass the provision of logistics information services to other classes of submarine e.g. Trafalgar and Astute Classes. The success in these classes has led to the deployment of the CWE to support the Future Submarine Programme (Successor)

The success of the CWE within SSE led to deployments in the Surface Ship and Combat systems environments notably the Major Warships Design Support Alliance (includes industry partners FSL, BAES and BVT). Future deployments are being discussed with Future Carrier project and other surface ship project teams.

### ***Degree of collaboration involved***

*Describe the nature of collaboration: this may include working with Customers, Partners and/or Suppliers. How did this collaboration enable your work?*

LSC Group was responsible for the design, development and support of the Collaborative Working Environment (CWE), which forms the core of the value-adding services delivered to the SSMG, the SubIPT and the refit industrial partners at Devonport and Rosyth/Faslane Dockyards.

The CWE offers a proven solution to:

- Capture, automation and use of agreed processes for end-to-end business management across the MoD and industry boundary; connecting all stakeholders and allowing faster process execution timescales
- Best practice process management across an extended enterprise linked to cost effective information exploitation and robust configuration and change management for improved data accuracy and integrity
- Exploitation of information through effective search capabilities across a federation of legacy databases and repositories, avoiding rework and re-creation of data
- Measurable and auditable project performance management, linked to digital dashboard and a balanced scorecard for exception-based executive reporting

The initial Project Definition Study identified enterprise business process constraints and proposed improvements that would return quick wins in reducing cost, improving quality and giving greater efficiency. Stakeholders each had their own processes, systems and applications which held information on different aspects of the lifecycle management of equipment or in-service platforms. There was an identified requirement therefore to develop coherent processes that would link the stakeholders in a more efficient manner and ensure effective communication and management of information across the enterprise.

Two main perspectives were considered:

- the need to share information effectively and efficiently, and
- the need to exploit the available data to drive out inefficiencies and speed up processes, monitor trends, enhance through life management, and ultimately, drive down cost of ownership.

LSC Group led a subsequent process analysis exercise to identify the requirements for data management and information sharing. This was conducted through a series of stakeholder workshops to determine the degree of adherence to formal processes and identify where everyday practice varied from documented procedures. Revised processes were documented and the derived logic used to inform the design of automated process workflows.

Automated business processes that spanned the business enterprise were implemented in an incremental manner, with each process taking approximately 90 days from analysis to go-live. By adopting this step-by-step approach the user community was able to adapt to the new business model without being faced with a big-bang approach. As users adopted the new system, they identified improvements which were incorporated in the design of subsequent processes, giving them a degree of ownership of the business change at an early stage. The staged approach also allowed the enterprise to address and revise the order of process implementation to accord with evolving business priorities.

The overall business benefits delivered from this approach are:

- Reduced support costs through the availability of reliable and current data to define the refit activities, together with their associated material requirements
- Rapid engineering decisions within concurrent activities, reducing the time taken to maintain existing capability and support new technology insertion
- Improved reliability and integrity of data through the “enter once but use many times” philosophy coupled with the clear identification of those responsible for the input and subsequent management processes.

### ***Impact of work***

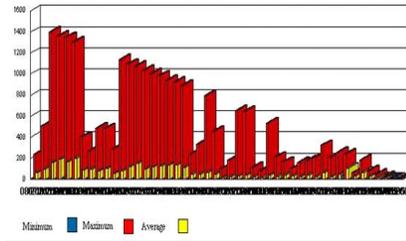
*Describe the effect of the work undertaken – what has been the impact on business? This might include more efficient working, reduced costs, improved product quality etc.*

Identified benefits resulting from the introduction of the CWE are:

- Closer working relationships established by bringing together all enterprise stakeholders as part of the analysis and delivery phases to discuss problems and to work together to understand each other’s needs.
- Faster decision turnaround timescales result in reduction of rework as a result of being able to plan and batch work more effectively.
- Provides greater visibility of the end-to-end process with step-by-step measurement, enabling identification and resolution of bottlenecks.
- Provides a way of de-risking the project by ensuring adherence to the business process in a timely manner.
- Dynamic centralised reporting has removed numerous spreadsheets and databases and the inherent dangers of inconsistencies between them.
- Provides a powerful search engine which enables detailed searches across platform (e.g. all surveys where cracks have appeared irrespective of platform).
- Created an easily accessible knowledge base for the more efficient refit and refuel of second in class submarines.
- Provides a fully auditable system and removes the need for paper signatures.
- Removes rework costs of re-raising lost items (CWE automated processes replaced original paper based processes).
- Provides secure backup of data with the CWE being hosted at the Keynsham Data Centre (a MoD type 1 trusted site)
- Provides a method of re-using data and updating other systems without the need for manual input.
- Removal of paper processes and storage facilities that need to be maintained.

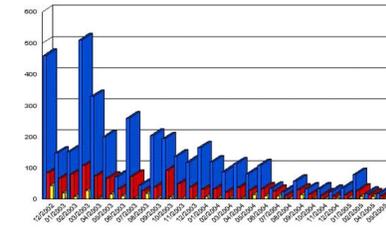
Examples of process delivery efficiencies are shown in the figures below:

### Actual Workflow turnaround improvements



#### Specification Change Inquiry

- 2000 SCIs
- Averaged 28 days
- 50% turnaround improvement from the paper system
- Removal of paper system
- Quickest SCI – 1hr 2 mins



#### Concessions Approval

- 1300 Concession
- Averaged 20.62 days
- 83% turnaround improvement from the paper system.
- Quickest concession 44 mins.

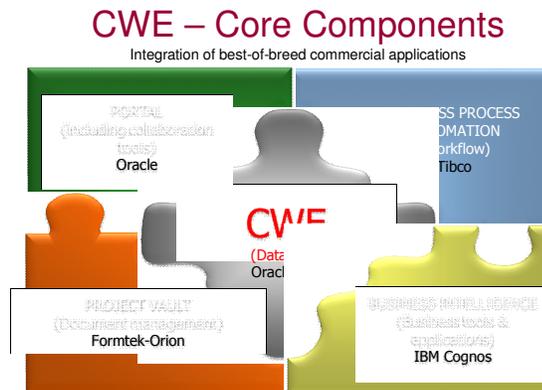


### Innovative approach

Describe how your work has been innovative – what is different about the way you worked, or the product/service provided that others could learn from?

The main building blocks of the CWE solution are shown below.

- Oracle Portal: provides access to secure single sign on, ‘community’ announcements, project-specific links to other web sites, extensive search capability, role-specific access to shared project information, discussions and documents.
- Formtek-Orion Vault: provides secure storage and access to electronic documents, standardised procedures to create, edit and review documents, document version control and extensive document search capabilities.
- Tibco Workflow: addresses complex business processes that span organisational boundaries. This capability incorporates user-defined business rules, authorisations and delegations.
- IBM Cognos Business intelligence: a comprehensive reporting capability delivering KPI and performance management functionality.
- Oracle 10g Database:



The secret of the success of the CWE has been LSC Group's willingness to work as a part of the business enterprise to continuously develop these technical components to deliver an integrated service that meets evolving user requirements. This has required the combined efforts of technical and domain experts working as a team to understand the business drivers and develop a solution that meets these needs in a way that the users will understand and accept. Whilst this sounds simple, delivering a service that satisfies the needs and aspirations of such a wide business community requires continual customer engagement underpinned by a flexible and agile approach, and a willingness to stay the course when the going gets tough.

An example of our innovative approach was in working with the users to develop the application processes and user interface so that use of the system was intuitive thereby reducing user training down to two hours.

A key part of the innovative deployment was to offer an Application Service Provision (ASP) commercial model for a hosted service from the Keynsham data centre which precluded the need for major capital investment. The ASP service is role based with charges tailored to the user needs under a 'one month to join, 3 months to leave' arrangement. This has allowed incremental growth as new processes come on line, and the adoption of the CWE by smaller IPTs who cannot afford large scale IS projects.

### ***Potential for application in other areas***

*Describe how your work, or lessons learned from it, could be transferred to other teams or organisations for application in other areas.*

From the initial CWE deployment for the SubIPT/SSMG enterprise, LSC Group has offered a range of related services that allow users to take up only those CWE components that their businesses demand. As a consequence, from an initial deployment of 80 CWE seats for the SubIPT/SSMG enterprise, LSC group now supports 1600 seats deployed across the SSE being used by MoD and industry users across 30 CWE communities.

With the addition of other submarine project teams (such as the Astute and Future Submarines), and use of the CWE within the Surface Ship environment, the total Maritime user base is approaching 3500 users.

LSC Group has also applied the same techniques to the Hercules IPT and the DE&S LogNEC Programme Management Office, taking a core CWE application developed for Hercules and adapting and enhancing it for the LogNEC PMO.

In essence, the LSC Group CWE model is applicable to any extended business environment which incorporates complex business processes.

### ***Ease of implementation***

*Describe features of your work that assisted implementation, and how this might influence future applications.*

The key feature that eased implementation and ongoing system deployment has been the ability to deliver the service through the Keynsham data centre as a hosted service without the users needing to consider infrastructure and licence procurement. Whilst this has required users to be able to access Keynsham through the MoD RLI, future CWE developments will enable Internet access, thereby removing the requirement for an RLI/SMI connection. This will open up the CWE access to a much wider community of SME companies who form an essential part of the OEM supply chain but who cannot justify the cost of RLI connectivity.

The application is developed with ease of use in mind, thereby reducing the training burden down to two hours for users to be able to perform their respective functions. In addition, the application can be quickly and easily 'branded' to represent specific communities; this helps to gain instant ownership and buy-in, and is supported with a proven on-line set-up and deployment process.

As a result of using the CWE on the RLI several project teams are now looking to use the CWE on the SLI, the MoD's Secret network. This will endorse the CWE as a key business application for all processes where security is paramount

### ***Application of past learning***

*Describe any examples where learning from past activities or from other teams influenced and improved your work and the impact of doing so.*

Key lessons from the progressive development and support of the CWE can be summarised as:

- Partnerships and collaboration bring added value – where the combination of skills, knowledge and experience is greater than the sum of the parts
- Collaborative working is not just an IT problem – success depends on a holistic approach involving people, process and technology - consider implementation as a change programme – ignore the 'softer' people issues at your peril
- It is important to spend time deriving a clearly defined Statement of Requirements – this will involve working closely with the customer and challenging the process to ensure you fully understand the way things are done – which does not always align to the documented process
- Adopt a phased implementation approach - be realistic about the pace of change and do not under-estimate the importance of continuous communication
- Plan for and anticipate a Continuous Improvement programme – once users become familiar with the system, they will always find ways of exploiting it that weren't obvious at the start. Having a small budget that can be accessed for rapid, minor changes engenders ownership of the system by the users.