

Portal Technology For Military Supply Chain ERP Solutions

By Robert L. Sullivan and Robert B. Stevens

Today's Army logistics applications and systems are moving across enterprise boundaries on a global scale, which means that business process owners are pivotal in facilitating collaboration within the Army and other enterprise stakeholders. Collaboration requires integration and, integration requires a comprehensive understanding of applicable business processes. The Army Logistics Modernization Program (LMP) will network business process owners across enterprises that provide input to the development of standard work processes and solution sets. This allows innovative thinking and organizational differences to be captured at initial design, rather than implementation.

To capitalize on this innovation the Program Manager for the Army's newest rocket delivery system, the High Mobility Artillery Rocket System (HIMARS), is teaming with the University of Maryland (UMD) Supply Chain Management Center (SCMC) and the Center for Public Policy and Private Enterprise for one year on a Supply Chain Management demonstration project to identify portal technologies for solving supply chain issues. This project will leverage the Supply Chain Portal technology built for the Office of the Secretary of Defense (OSD) that is currently being transitioned into production in the U.S. Air Force.

The project will be developed by proven technologies to establish the foundation of a best practices supply chain and sustainment network to support the Army venture into Life Cycle Contractor Support (LCCS). The Portal initiative is an outgrowth of the HIMARS Milestone C Decision. The Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)), the Honorable Claude Bolton, directed the HIMARS Product Manager to evaluate the benefits and risks associated with Contractor Logistics Support (CLS) and publish the results Army-wide.

Logistics supply chain efficiency comes from making good decisions based on accurate knowledge delivered in near-real time. There is always an inherent tension between the cost of gathering data and the measurable improvement in efficiency, operational needs and readiness goals. The Army is moving toward Performance Based Logistics (PBL) for more accurate predictions of impending failures based on condition data obtained in near-real time. Implementation of PBL will result in dramatic cost savings and improved weapon system availability. PBL focuses on inserting technology into both new and legacy weapon systems that will support increased stock availability, improved maintenance capabilities and business processes. It also involves integrating and changing business processes to improve the responsiveness of the logistics system. The Army's HIMARS weapon system is a PBL initiative, Section 912 Pilot Program, designated by the Department of Defense (DoD).

To support PBL, the HIMARS Program Office is defining capabilities such as enhanced prognosis/diagnosis techniques, failure trend analysis, logistics decision support systems, serial item management, automatic identification technology and data-driven interactive maintenance training. The UMD Portal initiative is designed to support LCCS, but will also enhance the characteristics of PBL. The ultimate intent of the portal initiative is to increase operational availability and readi-



Soldiers from Charlie Company, 3/27 Field Artillery Regiment, Fort Bragg, N.C., get ready to aim their High Mobility Artillery Rocket System (HIMARS) as part of the Rapid Force Projection Initiative field experiment (RFPI). This experiment is being used to test new equipment and its usefulness with light forces in the field. Photo by Spc. Russell J. Good.

ness throughout the weapons system life cycle at a reduced cost without adversely affecting readiness. Data visibility and enhanced data management are key to solving the Army's ability to implement PBL on a grand scale. It must also include data accessibility at the vendor level. After high-level analysis of applying PBL to the HIMARS sustainment strategy it appears that an Access Portal architecture implementation within the electronic Supply Chain Management (eSCM) infrastructure can support these integrated scenarios — with some issues to be worked by the Program Office before implementation.

A crucial goal of the project is to develop best practice supply chain strategies for HIMARS, placing an emphasis on real-time links between key suppliers and end users that will result in a significant reduction in time for supply/resupply and more accurate demand forecasting. The UMD plans to design the enhanced supply chain architecture leveraging OSD and Air Force efforts, to optimize the physical, distributed network of warehouses, distribution centers, stocking points and transport flows. To accomplish this, the UMD technical team in conjunction with software integration companies, will build and test an initial HIMARS Supply Chain Portal capable of executive decision-making support, advanced planning/forecasting and workflow automation. It will serve as a showcase for the Army's LMP effort.

The UMD's HIMARS project will be conducted in five phases beginning with an accelerated research and planning effort taking less than 90 days. The University technical staff has only weeks to fully recognize and adapt military supply procedures and functions into standard commercial practices that can be networked and programmed into COTS applications. The Supply Chain Strategy Development phase will begin even before the research and planning efforts are complete, taking less than five months. Inputs from the initial phase will be used to construct a HIMARS Supply Chain Network Map that defines key actors, supply nodes and interdependencies. This map will be accompanied by a strategy to optimize HIMARS/industry interactions, product/information flows and chain-wide business rules.

Since HIMARS is a highly deployable system mapping supply chain alternatives, it provides a real challenge for software developers to build a network that is constantly moving toward multiple military and political objectives. Unlike commercial enterprises that are built around stable nodes, the HIMARS supply chain is highly mobile.

Business rules are constantly changing due to operational and political diversions, which affect supply flow and distribution points.

Based on the Network Map developed in Phase Two, detailed functional specification of the prototype Supply Chain Portal will be developed as the third phase. The functional specifications will identify the entire portal configuration with linkages to specific data systems and the specific software to be used.

A prototype Supply Chain Portal, employing Collaborative Forecasting, Advanced Planning and Enterprise Resource Planning (ERP) software, will be rapidly designed, stood up in a test environment and delivered to a sample of key HIMARS users. This will mirror Army LMP efforts directed by the Army Material Command (AMC). The HIMARS Program Office is working closely with AMC's LMP vendors and architect designers to insure collaboration. Synchronization between the two efforts is key to completing Phase Four.

Success is achieved when UMD delivers a HIMARS Supply Chain Roadmap Document defining the processes and policies the Army must follow to maximize the investment on a portal strategy. This document is accompanied by a prototype access portal with applications and capabilities to evaluate contractor logistics support benefits and risks. The success of the project is expected to galvanize interest from the U.S. military to portal applications for developing future ERP initiatives.

Total Life Cycle Management (TLCM) is a critical business process to the HIMARS Program Manager and the future of Army acquisition logistics. A current review of commercial supply chain portal architectures reveals that TLCM is an end-to-end business process that flows across all levels of the organization. It also interacts at the vendor and sub-vendor level. In the Army today, the TLCM process is disconnected and incomplete, which is partly due to stovepiping and the lack of cross-functionality among logistics providers. In the UMD portal architecture the TLCM process will be completely integrated with business processes enabled by ERP solutions (such as SAP). Thus, HIMARS TLCM business processes must be managed as part of the overall Army ERP integration effort.

The HIMARS improved SCM efforts will be realigned as an end-to-end business process that is implemented jointly with all other business processes in the Army integration domain. On the management side, eSCM implementation (and all variants) will be managed by the Program Management Office in accordance with the architectural guidance from the LMP working group. Under this architecture the Army can avoid customization of SAP solutions and COTS applications. Instead, the Army can focus on reengineering business processes to align with COTS solutions and industry best practices. This trade-off is cheaper in terms of avoiding the costs of software development, long-term support and upgrades. In addition, it will also enable the Army to drive architectural design toward a single solution and enhance its investment. This recommendation results from the success of the HIMARS eSCM portal application.

Today's eSCM technology can pave the way for rapid logistics automation and true integration of information across multiple military functions, even in a legacy IT environment. Portal technology provides the extended enterprise with a personalized single point of entry to enterprise information via the World Wide Web. But the real potential for the technology goes beyond the portal as just a window to the Web. Behind the HIMARS eSCM portal will reside a set of applications that offer a wide array of technologies developed over the past decade and employed as an integrated suite of COTS mod-

ules. The eSCM suite combines sophisticated integration technology with powerful Web-based search, collaboration and categorization tools to simulate true integration of disparate Army IT systems and databases.

The eSCM modernizes the user's view and information process, while facilitating migration from legacy to modern IT — often transparently to the user. In facilitating modernization, the UMD eSCM technology incorporates modular integration design to enable plug-in replacement of application systems and databases as the system is modernized. Plug-ins use COTS integration modules capable of tying into virtually any database and application — even Army legacy systems, many of which are unstructured textual information sources. Because the technology provides for initial application in a legacy environment, users can anticipate more rapid development of business applications and early access to a fully integrated, commonly shared information warehouse. The HIMARS acquisition program has been a leader within the Army in developing and showcasing technology enablers to support advanced business applications, defining measurable performance metrics and reducing total ownership costs over system life cycle.

Applied globally to the military's expanded supply chain, eSCM technology can facilitate horizontal and vertical integration. Integration would apply to Army retail, wholesale, contracted operations, supply, maintenance, transportation and ultimately procurement (cross-functional integration), with controlled access to various levels of the Internet — corporate, enterprise and public domain. Other benefits to the military logistics enterprise community include enhanced end-to-end visibility of assets throughout the supply chain and concurrent access to federal and commercial supply data, resulting in streamlined requisition and other critical business processes.

Anticipated benefits of the eSCM Portal include increased adaptability to respond quickly in changing operational environments; ability to identify the best alternatives when unplanned events occur; increased customer satisfaction through shorter lead times; improved service; ability to provide customers with accurate updates and commitments; increased responsiveness and operating velocity due to the ability to manage inventory, processes and network design — not just the movement of goods.

Other expected benefits of the eSCM Portal include: enhanced operating efficiency from downtime reduction, workload leveling and proactive response to plan shortfalls, reduced inventory levels due to greater predictability, reduced uncertainty and improved control — all of which stem from being able to see the supply chain network all the way to the final customer — the Soldier.

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