

# Emerging Product Lifecycle Technology Market Opportunities for the A&D Supply Chain

## *CIMdata Commentary*

*Key takeaways:*

- *The tier 2's and 3's in the A&D market need product data tools that are just as capable as those their OEM customers rely on, but are more cost effective, easy to implement, and easy to support*
- *Consultants, Value-Added Resellers, and System Integrators that support the A&D supply chain seek solutions that meet their customers' requirements and rising expectations, but can still be profitably sold, implemented, and supported with less risk*
- *The special expertise solution supplier CMstat is expanding their sales and support channels by looking for partners who desire solutions that support A&D data management requirements including configuration management and deliverables management*

## **Product Data and Deliverable Management**

While the business and trade press focuses on prime contractors of the big multi-year defense projects, like the F-35, Army Tactical Wheeled Vehicle Program, and drone programs, the reality is that there are many more lucrative market opportunities serving the legions of smaller SMB manufacturers and subcontractors producing components and subsystems. The supply chain that once was make-to-print, now has full responsibility for the deliverable performance and documentation of systems. The prime contractors are responsible for the overall system definition, configuration integrity and validation, project management, and possibly field support. As primes have outsourced more manufacturing and design authority to subcontractors, and as the complexity of product configurations and variations have multiplied, their supply chain partners are facing challenges exploding across multiple fronts that defy traditional mechanisms to manage information.

While outsourcing has created opportunities, planned and proposed US defense spending cuts are putting pressure on the primes and subcontractors. According to research done at George Mason University in 2011, a potential 45 billion dollar spending reduction would induce sales losses of 164 billion dollars throughout the broader economy. So, in order to remain viable, supply chain participants will need to be agile, innovative, and improve efficiency.

## **A&D Supply Chain Issues**

Over the past few decades, most industries including Aerospace and Defense have transformed from vertical integration where most components and systems were manufactured in house to a supply chain strategy. The primary value points of this shift are reducing capital and operational costs, and increased production flexibility. In addition, suppliers with specialized technology can be leveraged by the primes. The downside of leveraging a supply chain is the loss of control. Key issues that need to be understood and managed are:

### ***Configuration management is essential***

Configuration management can be a very complex subject. While the basic rule of changing form, fit or function requires a revision can work in some industries, A&D suppliers need to manage As-Designed, As-Manufactured, and As-Maintained BOMs, over long time spans, and ensure that component and system changes are properly managed and communicated to the customer.

### ***Contract Data Requirements List (CDRL)***

The CDRL is defined within a Statement of work (SOW) providing a consolidated list of what data the government requires as a part of the project, and how it is to be delivered. Typically, this list is

extracted from the SOW and managed in Microsoft Excel or Project. This is problematic because the SOW is not linked to the product data. Common problems with this approach include the manual effort required to determine CDRL status, and the manual collection and organization of the deliverables when project milestones are reached.

### ***No tolerance for big IT projects***

The lower tiers of a supply chain are typically small or medium sized businesses (SMB). SMBs typically range in size from 10 to 1000 employees, have annual revenues from 1 million to 1 billion USD. These businesses will have a small IT staff, or outsource IT support. The cost and effort required to implement a complex system to communicate and exchange data with a single customer are not feasible.

### ***Small budgets, but the demand for full features***

SMB's struggle with the cost and effort necessary to implement required systems, they are obligated to fulfill requirements just as larger companies must. In fact, the requirements of the SMB's are commonly almost as complex as those of large companies. The main difference is they operate at a lower volume of work or with fewer people.

### **Value-Added Reseller Issues**

The companies that make up the lower tiers of the A&D supply chain are commonly small and medium size businesses. They tend to use value-added resellers (VARs) to purchase technology and support services, and many rely on their VAR's to provide strategic council. The key issues resellers face include:

- Limited and focused investment capacity
- Differentiating themselves among competitors
- Acquiring products to represent that are unique yet without requiring long evangelizing sales cycles
- COTS balanced with follow-on service revenue opportunities
- Maintaining profitability of services and software with falling margins
- Right sized or symmetric relationships with providers and customers that don't swamp the boat

The product definition in an A&D component or sub-system is significantly larger than just CAD models and CAD file management. Data can include performance specifications, certification data, material specifications, test requirements, test results and a myriad of other documents and data. Data is stored in many formats and the relationship between data elements can be very complex.

### **About CMstat**

CMstat has been delivering products that support the A&D industry for over 20 years. The products have been used domestically and internationally and support the relevant standards including:

- ANSI/EIA 649-B Standard for Configuration Management
- ISO 10007 Guidelines for Configuration Management
- ANSI/EIA 859 Standard for Data Management
- ANSI/EIA 836
- MIL-STD-3046 (ARMY) Interim Standard on Configuration Management

In addition to supporting government standards, CMstat's products are certified by both of the configuration management training organizations. [The Institute of Configuration Management](#) gives

CMstat a 4 star rating. [CMPIC, \(Configuration Management Process Improvement Center\)](#) includes CMstat as a [Preferred Vender](#). CIMdata has attended conferences from both of these organizations and CMstat is a very active participant, delivering presentations that demonstrate the depth of their CM knowledge as well as the capabilities of their solutions.

PDM<sup>Plus</sup> is a software product that manages parts, documents, changes and deliverables, not just files. CAD data, documents and metadata are related to completely describe parts. The configurations of parts are managed over the complete product lifecycle including as-designed, as-planned, as-built, as-tested, as-shipped, as-maintained, as-modified, and as-retired. Key configuration management concepts supported include traceability and audit to interrogate what happened in the past, status accounting to assess the state a project is in today, and impact assessments to understand the ramifications of potential changes. In addition, Earned Value Computational Data Collection is supported, a key reporting requirement for defense programs.

The Epoch DM product is a software product designed to help customers manage CDRLs. It functions as a portal to decompose contracts into a database driven list of deliverables that can be distributed within a supply chain. Assignments are tracked and deliverables are consolidated for final customer delivery. While Epoch DM can function as a standalone solution, it has a tight integration with PDM<sup>Plus</sup> so it can function as a complete data and deliverable management solution.

CIMdata's customers using CMstat's products have commented that they have deep respect for the capabilities provided by the products. They state that they address their core CM needs and work in a direct, efficient manner in accordance with industry accepted best practices. CMstat claims that they have a robust deployment methodology that leverages the software configurability to offer a "60 Days to Live" implementation service. Several customers that CIMdata talked with validated the "60 Days to Live" claim and had minimal training and support requirements. They also stated that CMstat provided exemplary support.

At CIMdata we see a significant segment of the A&D that is focused on managing product configurations of which CAD data is only a single element. CMstat is focused on ensuring their products support the configuration management requirements of complete products including CAD data, throughout the product lifecycle while ensuring that deliverables are properly managed. The deep expertise of CMstat's staff and CM capabilities built into their products help customers solve real world problems quickly and cost effectively.

According to Steve Easterbrook President of CMPIC, "CMstat has a thorough understanding of the best CM processes and techniques that are essential in developing successful automated CM (PLM) solutions. CMstat personnel have in-depth knowledge and experience in CM process and automation, and have incorporated that know-how into their products and services. When considering CM (PLM) solutions, CMstat should be on everyone's list."

### **CMstat Plans**

CMstat is working hard to expand its sales via a partner channel. They are looking for partners who can sell and support PDM<sup>Plus</sup> and Epoch DM in the A&D industry. Potential partners may have several profiles:

- CAD or engineering VARs that need a solution that can manage complex configuration relationships out of the box, going beyond basic CAD file management
- Consultants or system integrators that support configuration management within design, manufacturing, quality or service organizations within the A&D industry
- Consultants or system integrators that support process optimization within design, manufacturing, quality or service organizations within the A&D industry

Joining the CMstat partner program provides several key benefits and opportunities to partners:

- Proven, respected products that solve customer CM, PDM and deliverable challenges

- A predictable, fast deployment process that ensures profitable implementations
- The opportunity to provide additional consulting services to their customer including integrations to other solutions like ERP and Integrated Logistics Support (ILS) and upgrade support
- A responsive support organization that can quickly answer deployment or support questions
- Partner support resources to get your organization up to speed quickly
- Well defined territories, good margins and incentives

## **Conclusion**

If you are supporting the A&D supply chain, you feel your customers' pain. They depend on you for advice and support. To be successful you need to deliver quality tools and services and need to be efficient so your profitability is assured. CIMdata sees CMstat's technology as stable and proven with deep expertise in configuration management and deliverables management. The software is easy to install, configure, and minimal training is required so your customers can become productive quickly. The partner program they are developing should provide the savvy implementer a great toolset to profitably support their customers' requirements.

## **About CIMdata**

CIMdata, an independent worldwide firm, provides strategic management consulting to maximize an enterprise's ability to design and deliver innovative products and services through the application of Product Lifecycle Management (PLM). CIMdata provides world-class knowledge, expertise, and best-practice methods on PLM. CIMdata also offers research, subscription services, publications, and education through international conferences. To learn more about CIMdata's services, visit our website at <http://www.CIMdata.com> or contact CIMdata at: 3909 Research Park Drive, Ann Arbor, MI 48108, USA. Tel: +1 734.668.9922. Fax: +1 734.668.1957; or at Oogststraat 20, 6004 CV Weert, The Netherlands. Tel: +31 (0) 495.533.666.