



Counterfeits, Compliance and Continuity – The A&D Sustainability Paradox

Manage through-life support and availability while controlling costs, complying with regulations and mitigating risk in the aerospace and defense supply chain

By Andrew K. Reese, with Scott Wilson and Rory King

Paradoxically, security risks and threats to supply chain continuity like counterfeit parts and EU REACH compliance come at a time when A&D competition is intensifying, customers are seeking availability contracts, and through-life performance is critical. Learn how to achieve product lifecycle sustainment and:

- Enable a comprehensive sustainability and obsolescence strategy based on an effective compliance strategy.
- Speak to executives about the risks and opportunities of compliance for sustainability and obsolescence management.
- Fund the compliance project as the foundation for the sustainability and obsolescence strategy.

Competing Priorities, Looming Threats

The \$700 billion global Aerospace & Defense industry came through the recent global recession better than many sectors but still facing flat growth, downward pressure on margins and profits, and intensified competition for increasingly scarce sources of revenues. In addition to these economic pressures, A&D companies face the dual pressures

of having to maintain support for aging platforms while also continuing to innovate and bring new systems to market.

With competition intensifying in A&D, contracts are being awarded to companies that can demonstrate performance and availability with superior design, through-life sustainability, cost-containment and consistency. And yet fierce market competition may appear relatively insignificant when compared with other threats looming on the A&D battlefield. Global workforce churn, business complexity and increasing environmental regulations, economic instability and counterfeit electronics are commonplace risks that fly in the face of availability and performance. Always important, obsolescence planning and supply chain risk mitigation are now critical and must unify regulations, standards and supply management as a necessity to through-life sustainability.

This whitepaper explores this paradox facing A&D companies as they grapple with the challenge of managing obsolescence, through-life support and availability while controlling costs and mitigating risk in their supply chain. We will outline new and essential methods

for obsolescence management, risk mitigation and document notification to ensure next-generation through-life sustainability of A&D programs. These measures will be critical to address next-generation complexities that threaten availability and performance.

Paradoxical Pressures

OEMs and suppliers in the A&D supply chain face both heightened requirements and increased continuity risks that together pose serious – and conflicting – challenges.

Requirements

Sustainability is more and more often coming in the form of “through-life performance” and “availability contracts.”

Through-life contracts transfer more responsibility to industry to provide performance-based support, with a customer typically paying the contractor based on aircraft performance, such as the number of completed flying hours. Examples of recent through-life contracts include Boeing’s five-year, \$800 million performance-based contract, awarded in January 2010, for support of the Royal Australian Air Force’s Wedgetail Airborne Early Warning & Control aircraft. This contract covers logistics, training, spares management, aircraft deeper maintenance, engineering and supply chain management.

The movement to increasingly rely on performance-based contracts poses a significant challenge to the A&D industry given the many opposing forces working against them, particularly with regard to obsolescence.

Continuity Risks

Economy: In the wake of the economic recession, manufacturers across the supply chain saw massive demand shortfalls. The sudden drop in demand reverberated throughout the supply chain, as can be seen, for example, in the rash of end of life (EOL) notices

that swept the electronics component market. The number of end-of-life notices attributed to demand-side issues rose from an average of about 17 percent of total EOLs from 2004 to 2008 to a remarkable 90 percent in 2009. This rapid turn of events served as a wakeup call highlighting the continuity risks complicating the challenges of through-life sustainability.

Workforce Issues: Workforce churn and generational change also are a risk to through-life sustainability. Companies already have been contending with the retirement of the engineers, maintainers and other support staff who have been keeping aircraft flying and ancillary systems running throughout extended product lifecycles. The recession has exacerbated this talent drain as a result of redundancies that placed additional strains on the workforce.

Environmental Regulation: The recession served to compound the obsolescence issues that already were affecting manufacturers as a result of environmental regulations. Despite A&D exemptions, for example, manufacturers’ supply chains still had to contend with just six relatively manageable substances regulated under the European Union’s Restriction of Hazardous Substances (RoHS) regulation, which caused price increases, reliability concerns and a proliferation of counterfeit parts.

RoHS essentially was a wakeup call for manufacturers. It sparked greater issues around diminishing manufacturing sources and material shortages (DMSMS), obsolescence and counterfeits. But it also was just the tip of the “environmental transition iceberg.” RoHS, in fact, dwarfs in comparison with the EU’s Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and other environmental regulations threatening supply chain continuity,

risk and material integrity.

Companies must ask themselves, if dealing with just six RoHS substances was “costly” to the supply chain, what will be the impact of REACH as potentially up to 100 or more chemicals are added to the Substances of Very High Concern (SVHC) list and become subject to limitations? As an example of how seriously A&D companies are taking the impending impact of environmental compliance, Airbus UK has said the cost of EU REACH to their company alone had been evaluated at several million euros over three years, with provisions up to hundreds of millions of euros over five years as more chemicals are added to the SVHC list.

Counterfeits: US Government data show a tripling of incidents of counterfeits from 2006 to 2009. These pose significant threats to quality, reliability and security, and they can easily lead to budget overruns and schedule delays, let alone mission failures, grounded aircraft and the potential loss of life. Counterfeiters prey on volatility surrounding excess obsolescence the proliferation of product change notices (PCN), product discontinuance notices (PDN), EOL notices or regulatory compliance declarations.

Prevail over the Paradox

There is a price for success and a price for failure, yet given the choice, the price of success has the best return on investment. An effective sustainability strategy for A&D companies will require effectively managing obsolescence, through-life support and availability while controlling costs and mitigating risk. This includes establishing an active and well-defined capability that allows companies to anticipate or foresee problems and to deal with those problems preemptively – or, in any event, before they become disruptions.

C-level executives across industry verticals are recognizing sustainability and obsolescence management as strategic opportunities to win market share while also optimizing the supply chain. These executives are taking their cue from leaders in other industries – e.g., high tech and electronics. These leaders are being recognized for enabling competitive advantage through increased efficiencies and reduced total costs, accelerated time to market and lower supply chain risks:

Increased Efficiencies/Reduced Total Costs: A comprehensive sustainability and obsolescence strategy provides for the aggregation of item-level data across the company as a preliminary step toward either verifying compliance or redesigning parts and products for compliance. This step also serves as the foundation for material and part rationalization, as well as supplier rationalization.

Accelerated Time to Market: Tech industry estimates are that engineers in companies without PPLs can spend as much as one-quarter or more their time searching for parts during design/redesign. The improved information flows and availability associated with an optimized, compliant supply chain also increases supply chain speed. All these incremental benefits can add up to a significant impact on the bottom line benefit, with one tech sector OEM estimating that improving time to market by one month can increase profits by greater than 10 percent.

Lower Supply Chain Risks: A manufacturer that gains comprehensive visibility into its parts lists and leverages that visibility to create AVLs and PPLs can see higher material availability and reduced supply chain risk. Complete parts visibility means that obsolete, end-of-lifed, last-time/lifetime-buy and non-compliant parts and materials

can be avoided and/or designed out as necessary. This ensures that parts will be available when and where required for production, minimizing plant downtime, and, at the same time, reduces supplier lead times – not to mention overall supply chain complexity. In addition, product recalls due to non-compliant materials can be minimized.

Improved Supplier Performance, Innovation, and Joint Development Collaboration: By virtue of gaining parts visibility and increasing communications with suppliers and partners around compliance issues, manufacturers have the opportunity to increase their overall level of supply chain collaboration, thereby helping to total reduce risk in the supply chain, achieve greater adherence to supplier scorecards and performance criteria, and expand opportunities to innovate and improve responsiveness.

The Road to Sustainability

A comprehensive strategy for sustainability and obsolescence management can deliver benefits similar to those of an enterprise strategic sourcing and supplier management exercise, and the steps to move are similar as well:

- Consolidate parts data across business units to gain full visibility across the company.
- Cleanse data to identify duplicates.
- Identify at risk parts, including parts that are non-compliant, obsolete or sole-sourced; parts that have a shorter lifecycle than the anticipated lifespan of the end product (plus redesign time); parts from suppliers that are out of business or that are risk of failure.

The benefits of this process can make sustainability and obsolescence management initiatives “self-funding,” so that projects in response to

customer requirements or regulatory mandates can be viewed or positioned as a net value-add rather than purely as a “cost of doing business.”

5 Critical Steps to Deliver Through-life Sustainment

Building support for an effective compliance strategy across the enterprise requires five essential steps linking the initiative to value drivers that are important to specific stakeholders and constituencies within the company as a whole and within the individual business units/functions. These steps are depicted in Figure 1 and described below:

Step 1. Identify Regulations

Document the key regulatory drivers influencing you, your customers and suppliers, as they apply to your company’s markets, supply chain and products. Note that the Aerospace and Defence Industries Association of Europe (ASD) has published a Priority Declarable Substances List (PDSL) in an attempt to provide a longer-term view of substances impacting the lifecycles of products and particularly hazardous substances relevant to A&D processes. This can be a great resource to expedite your understanding of materials at risk and a means to standardize with industry.

Step 2. Identify Key Customers and Markets

Understand current and anticipated customer requirements for through-life sustainment (e.g., availability contracts) and environmental compliance (e.g., related to REACH). Calculate the revenue and market share at risk from a failure to support those requirements, or from threats or inability to support and deliver capabilities to new or changing theaters of operation. Also, calculate the potential revenue or market share to be gained through an effective regulatory compliance and sustainability/obsolescence management strategy.

**Step 3. Identify Organizations/
Stakeholders Impacted**

Both supplier- and customer-facing organizations must be engaged and collaborating with one another on an ongoing basis as part of the compliance process in support of sustainability and obsolescence management. Document the impact and benefits of compliance on each of the affected stakeholder groups, and prepare a “communications strategy” to engage with these groups around compliance if an effective cross-functional process is not already in place to do so.

**Step 4. Identify Redesign
Implications and Risks of Product
& Material Exposure**

An understanding of compliance deadlines and customer requirements provides a foundation for identifying redesign implications, including which products and materials are at risk. Working backwards based on those cut-off dates, you can “reverse engineer” a timeline for redesign broken down by product or assembly, based on the lifecycle of each given product, and then link these to supply risk, revenue at risk and legal risk.

**Step 5. Identify Opportunities
for Rationalization**

Companies today face a proliferation of systems for the management of parts and materials, bills of materials, standards and suppliers. Consolidating those systems across the company can form that basis for the supply chain optimization benefits described earlier. Consolidation also can yield direct savings of as much as 25 percent or more of the costs of maintaining multiple systems. And moving to a consolidated process for managing information around standards as part of the compliance strategy can produce six-figure savings for a Global 2000 OEM. These kinds of savings

can provide “seed funding” for the compliance initiative from the systems standpoint.

**Navigating the
Organizational Realities**

As with any similar initiative in the company, a comprehensive sustainability and obsolescence strategy built on the foundation of an effective compliance strategy must take into account the organization’s culture (the people) as well as the processes and technology that form the environment in which change will take place.

Managing the People Change: The challenges involved in overcoming organizational resistance for this kind of effort clearly cannot be minimized. However, executives who build the business case as outlined in this paper will be prepared to educate key stakeholders across the BUs and product lines on the opportunity and benefits of the compliance process.

Managing the Process and Technology Change: A&D companies often are saddled with archaic and heterogeneous IT landscapes encompassing multiple product data management (PDM), product lifecycle management (PLM) and other product information management systems and approaches. Generally companies will maintain product and division lists, but parts lists are sparse and harder to come by, while the idea of a preferred parts list is rare.

Bottom line: One has to keep an “eye on the prize.” And that “prize” is the material compliance and composition information that customers and regulatory authorities are increasingly demanding. Much of the information on parts and materials can be found in drawings or locked in product data,

Figure 1. Five Critical Steps to Deliver Through-life Sustainment



enterprise resource planning or other software packages, but another “black box” software application or database is not the solution to compliance.

Those business leaders who quickly recognize, and can convey to internal stakeholders, that material content enables decisions around supply chain optimization, which in turn deliver real value to the bottom line (and to shareholders), will gain from appropriately funded projects and executive engagement. And these leaders’ companies stand to gain the most in adopting a comprehensive sustainability and obsolescence strategy.

In Conclusion

The pressure, consequences and pace of change continue to increase risks as well as opportunities for companies in the A&D supply chain. Managing supply chains and aligning supply with demand to deliver quality global products is a complex challenge in and of itself. But adding the element of time across and throughout product lifecycles means keeping one eye on the future – to understand impending compliance requirements – and another eye on

the past – to understand the impact of those requirements on platforms and systems that are currently in the field and that must be supported for an unforeseeable time.

In short, it's about keeping pace with change. The fact is that companies in the A&D sector face growing customer through-life availability and sustainment requirements as well as pressure to innovate with new platforms and

systems. Increasing continuity risks from the economy and workforce churn, environmental regulations like RoHS and REACH, and the rising threat of counterfeits all are challenging the ability of A&D companies to meet these customer requirements. In today's market, product sustainability has taken on a whole new meaning. A&D companies have no choice but to move to a comprehensive environmental

compliance and obsolescence management strategy in order to more effectively meet customer requirements, minimize risks, and optimize the supply chain. ■

About the Authors: *Andrew K. Reese is editor of Supply & Demand Chain Executive. Scott Wilson is a Content Solution Strategist with IHS. Rory King is Director, Global Product Marketing at IHS.*

final thoughts

A Call to Action



This Special Edition offers a unique perspective on the “sustainability” movement in the supply chain, suggesting that **social responsibility**, **environmental stewardship** and **regulatory compliance** have passed an inflection point and are producing volatile transitions to “next-gen” supply chains. The original research conducted by our magazine in conjunction with experts from leading companies like IHS suggest that sustainability is not a fixed state but rather a churning maelstrom of discontinuous events like EU RoHS and REACH that are engulfing the processes and suppliers that entire industries rely upon.

The articles in this Special Edition illustrate the escalating stakes of sustainability. The Dodd-Frank Financial Reform bill around Conflict Metals joins legislation like the proposed California Transparency in Supply Chains Act that seek to identify (and restrict) not only “What is in the supply chain” but “Where it comes from” and “Are sources and suppliers acting ethically and responsibly.” These unique requirements add to the growing need for stepped-up infrastructure in this discontinuous shift in order to capture an inordinate

amount of information and insight about your supply chain, as well as to audit and certify the authenticity of that information.

The time is now for supply chain leaders to control their own destiny. AMR Research in 2006 noted that responding to increasing regulations by retrofitting existing operations is a sure way to keep costs high without adding any benefit to the consumer. AMR also showed us how supply chain leaders capitalize upon superior responsiveness to market opportunity to grow and, in many cases, acquire or destroy the laggards. The wrong way to view compliance is a series of high-cost, low-reward, one-off projects. Tackle it as a supply chain risk issue and you may be rewarded handsomely.

If I were to ask a dozen practitioners how much money they saved last year on compliance projects, experience suggests that the majority would look at me strangely and grumble about the additive cost of compliance. But if I were to ask those same executives, “How many non-compliant parts do you have that are sole source with no supplier alternatives, and how much customer revenue depends on those parts,” they may not have an answer

but alarm bells would start to go off. “Ninety percent of leadership is the ability to communicate something people want.” This quote from US Senator Dianne Feinstein could serve as a guiding principle for supply chain executives: If you want the appropriate C-level attention, budgetary allocation and investment in people, processes and technology, sell yourself and everyone around you on compliance as a root driver of supply chain risk (and reward). The most common denominator across enabling technology projects is “risk sells.”

The bottom line is this: Sustainability is only in its infancy, but its impact is already being felt. Each new drop in the social or regulatory water has a ripple effect that will impact your ability to drive top-line growth and manage costs. Transparency across your company about your supply chain risk exposure is the mainstay of this new era, and a retooling of your infrastructure to enable this insight will be the difference sinking or swimming in the sustainability maelstrom ahead.

Do you agree? Let me know? Write me at areese@sdexec.com. I'll look forward to hearing from you. ■

- Andrew K. Reese, Editor, Supply & Demand Chain Executive

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