



IT'S ALL ABOUT MANAGEMENT!

An expert panel discusses the common challenge facing designers of old and new aircraft systems – obsolescence management. Mike Richardson reports.

Many years ago, obsolescence management (OM) and technology refreshment plans were rarely discussed when aircraft programmes were agreed, whereas they are now a fact of life. Phrases like lifecycle management processes and through-life management have become common industry terms as companies grow familiar with the ways in which to prepare compliant bids.

In an effort to reduce time to market and product cost, many companies are keen to reap the benefits of the performance advantages of commercial-off-the-shelf (COTS) products. However, consumer COTS parts are increasingly showing early failure mechanisms as demand pushes the technical capabilities to design faster and smaller devices.

Aware of the dangers ahead, design engineers must be vigilant against the constant threats posed by the dark side of COTS: those components that can be rendered obsolete even before an aircraft leaves the drawing board!

1) What can design engineers do to stay ahead of the obsolescence cycle, particularly when

some of today's aircraft programmes are older than many of the designers working on them?

Ian Blackman, CEO, Component Obsolescence Group (COG) UK (www.cog.org.uk): “Ensure you design with alternatives for critical parts or store designs in high level languages so that you can emulate key parts as they become unavailable. Monitor obsolescence risk using obsolescence prediction tools during the design cycle and define the obsolescence strategies based on the overall risk identified. Finally, build a through-life support plan and consider redesigns or technology refreshes and engage with the supply chain for the most appropriate choices for a particular design.”

Nigel Wallis, COG chairman and business development manager, CMCA (UK) (www.cmcauk.co.uk): “Implement a successful obsolescence strategy and the mitigation of risks are improved as you will be aware of the problem before it impacts your business, giving you time to prepare the appropriate solution. This plan can involve designing

systems in a way that replacement components can be accommodated in the future; or for component monitoring, BoM monitoring or monitoring of complete systems.”

Kim Allen, development manager, Avnet Memec (www.avnet-memec.eu): “Design engineers can select components from manufacturers that have a well defined mil-aero strategy as they understand the demand for long lifecycle products. These companies can have obsolescence mitigation strategies; for example die banking and pre-testing of new die revisions. Engineers can also call on the expertise of distribution's field application engineers who can advise and support the 'design in' of the latest offerings, but also pass on information regarding the most popular devices that would be available for longer.”

Adam Fletcher, chairman, the Electronic Components Supply Network (ECSN) (www.ecsn-uk.org): “Designers must communicate their



SUPPLY CHAIN | OBSOLESCENCE



Adam Fletcher: Chairman, ECSN



Ian Blackman: CEO, COG UK



Ed Coady: Sales director, Charcroft Electronics

design and systems life to potential suppliers at the outset of their design cycle and then only specify products from suppliers that are willing to meet them. This may initially reduce the choice of suppliers, but they will narrow their selection down to organisations who understand their systems lifecycle needs. This does not entirely remove the problem of potential obsolescence of components within COTS, but puts the responsibility for modification of the system to meet the specification with the supplier, rather than the customer.”

2) *How can aerospace companies mitigate obsolescence problems associated with using smaller subcontractors? Although they lack, or cannot afford obsolescence information services, they still provide low cost and fast turnaround services that larger OEMs find hard to ignore. Is it a case of sticking with the larger suppliers?*

Blackman: “OEMs need to offer their own services or the tools they own to help smaller companies reduce risk and manage obsolescence. They can also encourage smaller companies to join trade associations such as COG where expertise and experience is available.”

Wallis: “OEMs will need to support smaller enterprises by managing the obsolescence strategy themselves. Whilst OEMs are now pushing the obsolescence

risk down the supply chain to their sub tier suppliers, in most cases the OEM will be the design authority and has the overall decision on the final solution. I envisage a time when every organisation will be contractually required to have an OM strategy in place. It will become a prerequisite of supplier selection.”

Allen: “Aerospace manufacturers could establish a three-way partnership with smaller subcontractors and the distributor and influence where the subcontractor procures components from. Should the distributor have a robust obsolescence notification procedure, both the OEM and the subcontractor will be informed.

The danger lies in the subcontractor buying products on the grey market or unauthorised sources that may not be informed of obsolescence or have a lifetime buy notification procedure.”

Ed Coady, sales director, Charcroft Electronics (www.charcroft.com):

“Size matters, but by integrating mechanisms for supporting release products into their core business systems, a specialist distributor can support all levels of aerospace manufacturing. Charcroft’s aerospace orientated system automatically includes a request for Certificate of Conformity

documentation when placing an order for a release part. Without this, there’s no traceability and little chance of back ordering the correct paperwork. We can undertake regular audits of a customer’s parts list to identify components which are at risk of obsolescence. This crucial difference underlines why supporting smaller manufacturers is much easier for a specialist than for a consumer orientated distributor.”

3) *Is there any case for combating obsolescence by making a component lifetime buy when a vendor announces that it will become obsolete, or is this a short term fix rather than a long term solution?*

Blackman: “Many people think this is the easy answer, but arriving at an accurate lifetime buy projection is very hard and people often cut corners. You need to know the out of service date, current repair data, any assets that may be reusable, reliability data, the performance of possible alternatives and any imminent product upgrade, before committing to a quantity. A single lifetime buy may not cover the whole risk of a design regarding the risks for other components. And how do you intend to store or protect the devices as they will deteriorate over time without proper care? Each lifetime buy is different, so generic rules are impossible.”

Wallis: “Lifetime buys can be a valid way to solve obsolescence, but be careful. If it’s a legacy programme, and the remaining requirements can be calculated, then a lifetime buy is sometimes a good solution. However, buying the product is only half the story. If the programme is relatively new then it’s doubtful that a lifetime buy would be the best answer. It may buy you time whilst you instigate a permanent solution, but it’s almost impossible to calculate how many parts to buy over a long period. In my experience, one thing is guaranteed - you’ll buy the incorrect amount.”

Fletcher: “A lifetime buy opportunity is really a commercial decision based on the costs and risks of being unable to secure products from a manufacturer in the future. In many cases, making a reasonable investment to cover future requirements carries the lowest cost and risk. However, most manufacturers understand the commercial needs of customers and obligations to them, and may seek to find alternative solutions, such as transferring their products and IP to a lower volume specialist who is able to produce them profitably for a smaller customer base.”

4) *Looking ahead, what do you see as the major obsolescence challenges facing the aerospace industry in 2010?*

Blackman: “More ill-thought out environmental legislation and where the effort to be compliant exceeds any probable benefit, the increasing and flexible threat of counterfeit parts being made available for obsolete parts, further rationalisation of manufacturers and distributors limiting choice and trading methods and skills shortages where engineers retire and experience is no longer available to cover their skills and new engineering graduates are scarce.”

Wallis: “The biggest issue is probably the increasing speed at which obsolescence is occurring. Widespread adoption of COTS parts hasn’t helped, as these tend to have a shorter lifetime than their hi-rel counterparts. Also, changes in legislation such as RoHS



Kim Allen: Development manager, Avnet Memec



Nigel Wallis: Chairman COG

can make whole series’ of components obsolete overnight. And things are about to get worse: threatened legislation will mean aerospace is no longer exempt, which will inevitably result in more obsolescence. Coupled with that, the very real danger of counterfeits is still present, with some counterfeits being almost as good quality as the real parts. It’s going to be a tough time.”

Allen: “During the recent downturn of the semiconductor market, component manufacturers have been more flexible in their approach to obsolescence as lifetime buy orders generally bring significant revenue. The market looks to improve in 2010, meaning that manufacturers will look to focus on newer technologies for long term growth and profitability. This will increase obsolescence of older technologies and with it, more opportunities for counterfeiters.”

Fletcher: “Product obsolescence will continue to be an issue for the aerospace industry, primarily because the lifecycle for commercial, industrial and automotive products continues to reduce, whilst the lifetime of aerospace projects have remained static or are extending. This is an industry specific problem which needs solving by the organisations operating within it, probably by greater collaboration on standardisation of

specification and products along with a specialised supply network.”

Coady: “Aerospace engineering and procurement are specialist disciplines and in many respects, their situation is similar to that of a Formula One racing team in that they need the highest levels of expertise and component reliability, and yet have the lowest production volumes. Surprisingly, one of the key trends in aerospace is the move towards placing global contracts with broad-line distributors. It’s rather like Brawn GP placing their annual tyre contract with Quick Fit. The reasons for this trend are clear: manufacturers can significantly reduce their vendor base and minimise negotiations to an annual contract award. It’s also attractive for the broad-line distributors because the aerospace market provides much needed stability to offset downturns in the more volatile consumer sector. However, unlike the specialist, the broad-liner may not have the knowledge or flexibility to identify and source alternatives to obsolete components. This could leave aerospace manufacturers vulnerable to the risk of unresolved obsolescence issues, particularly when high volume markets return to full strength and the focus of the broad-line distributor returns to their core customer base.”

