How Cloud Computing Can Eliminate Counterfeit Parts through Containment and Traceability

At a Glance:

According to the U.S. Department of Commerce, there has been a 140% increase in the production and sales of counterfeit aerospace and defense-related products in the last three years. Eliminating counterfeit parts with better containment and traceability is essential to ensure product reliability and safety.

- **Traceability**: included as an integral part of the Plex Manufacturing Cloud.
- **Compliance**: Plex helps Aerospace and Defense manufacturers achieve industry compliance.
- **Suppliers**: Satisfy suppliers with real-time data from start to finish.

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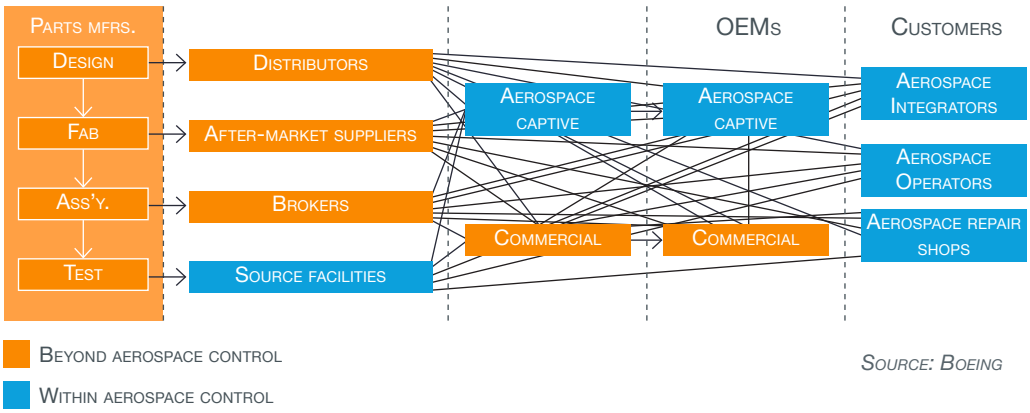
Traceability: A Core Supplier Requirement

In nearly every supplier requirements specification across the spectrum of commercial and aerospace manufacturers worked within the last several years, containment and traceability have continually increased in importance. Today, it is commonplace to see traceability specifically called out in the Product Realization and Counterfeit Parts prevention sections of supplier specifications and guidelines.

Certificates of Conformance and acquisition traceability (CoCT) are now required to do business with any of the commercial prime and subprime contractors operating in the U.S. and western nations. While there are a myriad of factors associated with why this is happening, when one takes a strategic view of a typical aerospace supply chain on a global basis, it is clear there are multiple points of possible failure and infusion of counterfeit products in the value chain. The following is a graphic of the Boeing supply chain, showing areas within and beyond their control. Each connection in this graph is a potential area where counterfeit products could be included in the overall purchase cycle.



Source: Boeing

Along with traceability, containment is also increasingly being included in supplier requirements specifications globally. For suppliers, many of which are relying on legacy systems that were implemented by brute force and lack significant process integration, meeting and exceeding both traceability and containment requirements is a challenge.

There is no simple way to completely re-wire an entire enterprise computing platform to support an entirely new set of standards. Yet to win business and

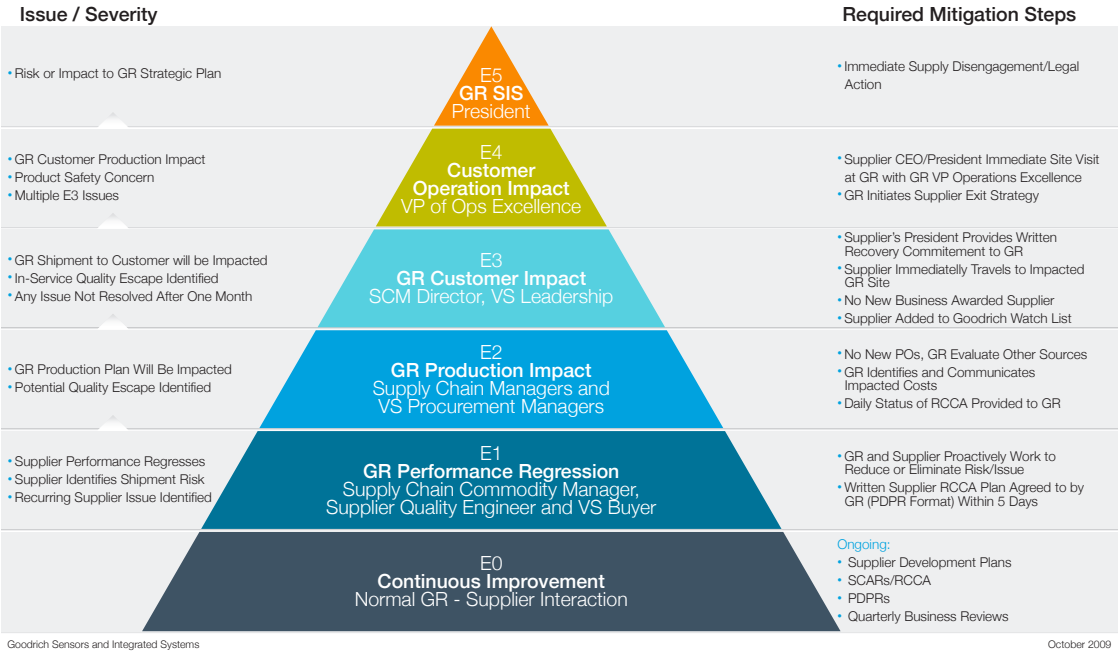
deliver in compliance to requirements, suppliers have had to do the following:

- **Define a secure, stable system of record that is accessible by any suppliers who are members of their purchasing consortium or buying group.** This system of record also needs to provide for traceability of each part, assembly and subassembly to the lot level, in addition to containment of specific lots. Of specific interest is the ability to contain down to the processor or chip level as there continues to be an epidemic of counterfeit electronics production globally that puts avionics systems in jeopardy of not working once in operation. To ensure each system and component is in compliance, traceability back to the point of origin is required in nearly all supplier requirements specification.
- **Clear visibility back to the supplier of origin, regardless of host nation.** This requirement also calls for both manually-based and electronic source certification of each part.
- **Life of aircraft or subassembly validation including flight-ready audit validation.** It is common to see suppliers required to file electronic source certification and also provide a very clear standard date of retention for all materials in their response to supplier requirements specifications. Legacy systems, many of them siloed and lacking real-time or even batch integration with each other, fail to provide audit validation and sufficient support for workflows. Cloud-based platforms provide a greater level of process integration and agility, providing a common system of record and greater flexibility in providing audit data.
- **Auditable, verifiable workflows for inclusion of distributors and brokers in the supply chain.** This is where the DOD reports counterfeit products, most often including the entire supply chain of both aerospace and defense suppliers. Incoming inspection and greater focus on creating audit trails to further strengthen traceability are critically important in this area of supplier requirements specification compliance.
- **Define clear parameters that denote counterfeit status for a given part, lot and shipment.** Surpassingly, there is often much debate about this specific point as suppliers don't have a clear workflow defined to specifically track aberrations as potential counterfeits. Determining if a product simply has bad quality or is in fact counterfeit requires a very specific set of parameters that can provide clear definition of the origination, infusion of the part into the

supplier's inventory, and trace back to the distributor or broker who sold it to them.

- **To fully meet the supplier requirements specification of any given contractor, suppliers must confirm and ideally validate document control systems with their suppliers.** This is especially the case with FAA-regulated parts, subassemblies and components. All components, across the entire supplier's base of partners, must be in compliance with FAA-defined procedures. This is an area where manual processes are just not scaling fast enough to support compliance, and legacy systems are often not well integrated enough to deliver the required registrations with the FAA. The result is lost business and potentially fines on contracts. Cloud-based systems are more adept at managing this specific type of workflow, enabling more document control accessibility across a broad base of suppliers on a global basis.
- **Averting supply chain issue escalation through more effective collaboration and communication both between suppliers and customers is critical.** The costs of not implementing an effective collaboration platform can be seen in the following supply chain issue escalation prioritization taken from a supplier requirements specification. Clearly a cloud-based approach to enabling greater integration can lead to less costly escalation over time.

Supply Chain Issue Escalation



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Conclusion

Reducing the cost of quality, improving time-to-market performance and meeting compliance requirements for Aerospace and Defense manufacturers is our passion at Plex. Our customers are achieving lot traceability, document control and audit trails, all in compliance with the International Traffic in Arms Regulations (ITAR) specifications. The Plex Manufacturing Cloud enables suppliers to attain AS 9100 Rev. C and Defense Contract Audit Agency (DCAA) compliance, both of which require fully auditable, traceable accounting workflows linked to operational and manufacturing systems.

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About Plex

The Plex Manufacturing Cloud is the first and only cloud ERP built to meet the tough requirements of today's manufacturers. Hundreds of innovative companies, across industries including aerospace and defense, food and beverage, and motor vehicles, rely on Plex to operate their manufacturing businesses and generate profit from every inch of the plant floor. With insight that starts on the production line, Plex helps manufacturing companies see and understand every aspect of their business, enabling them to lead in an ever-changing market.