Aerogistics
Insight on Market Dynamics
Reshaping MRO Activities
Introduction

This white paper discusses the current state of the aerospace and defense (A&D) industry and how market dynamics are reshaping maintenance, repair and overhaul (MRO) for global markets. These underlying forces present a variety of challenges for MRO participants that are eager to capitalize on the growth trends currently taking place in this market but must contend with ongoing complexities. A&D companies that provide MRO services, from materials management to overhaul and remanufacturing, are being compelled to seek strategic partners to align logistics efforts to streamline their global MRO activities for continued success.

Methodology

UPS worked with IDC Manufacturing Insights, which utilized a combination of existing resources and research as well as new primary research, to develop this white paper. On behalf of UPS, IDC Manufacturing Insights fielded a survey of 76 United States-based A&D firms with annual revenue greater than $10 million. In addition, IDC Manufacturing Insights analysts conducted an in-person focus group with seven participants from United States-based A&D firms with annual revenue greater than $10 million. IDC Manufacturing Insights utilized additional data and intelligence from its Supply Chain Strategies research program.

Market dynamics reshaping global aerospace & defense MRO activities

The aerospace industry is experiencing a continued period of healthy growth, with steady revenue gains and solid profitability for more than five years. According to industry data, during the next decade, the global commercial fleet of aircraft is projected to grow from the current 29,909 to 40,638 in 2024. This includes more than 20,000 new aircraft entering service and just over 9,000 retiring from service.

For the MRO market, this translates to significant churn as aftermarket providers ramp up capabilities to service next-generation aircraft even while deciding when to phase out MRO services for some of the older models. The impact of these decisions will be far-reaching, from spare parts planning and management to tooling, technician training and technology infrastructure. For example, European MROs are shifting toward providing more engine and/or component work and moving away from the more labor-intensive airframe maintenance. This requires different skill sets, however, including competence in global logistics to efficiently move parts, tools and components through the network. Considering that the MRO market for aerospace and defense is expected to grow more than 50% from $56.3 billion today to $85.2 billion in 2024, providers stand to win big or fail strikingly, based on how they execute their strategies in the coming years.
Emerging Market Growth and Demanding Customers

As discussed in Aerogistics: Insight on Emerging Markets and Supply Chain Complexity, much of the growth in the A&D market can be attributed to emerging markets, especially Asia/Pacific and the Middle East. This growth is impacting the entire supply chain and notably where and how A&D companies shift their MRO activities, including production of parts, location of facilities and staffing. In addition, customers of A&D companies are becoming increasingly demanding as they struggle to meet the growing needs of their own downstream customers, which range from governments to airline passengers. Service-level agreements are reshaping how A&D companies deliver MRO services, which has a direct impact on the structure of their logistics networks. Technology is critical to providing visibility into operations and product performance for MRO providers to meet customer demands.

Changing Business Models Impact Complex, Dynamic Value Chains

A&D companies participate in complex, overlapping value chains with rapid change and are constantly searching for ways to improve their business and uncover new opportunities. In MRO particularly, a transition is occurring with the roles of various providers throughout the MRO service chain. For example, aerospace OEMs are looking to capture a greater share of depot-based overhaul activity, flight-line level repair and preventive maintenance. In addition, MROs are assuming greater financial risk as they stock key parts inventory in strategic locations to be able to deliver them quickly to customers when needed. In doing so, they must also invest considerable capital in facilities that can handle the influx of new aircraft models coming into the market in the next decade. All of these factors are contributing to an MRO environment that is dynamic and challenging.

A closer look at how aerospace and defense companies are altering MRO activities to reflect global expansion and changing business models

Because of the multifaceted nature of how MRO services are delivered in the A&D industry, it is difficult to gain a clear picture of how each category of providers is responding to the changes taking place. When focus group participants were asked whether they had made changes to their MRO efforts in the past 12 months, only 30% answered affirmatively. However, among airline/operator companies, 53.3% answered “yes” — they had shifted their MRO efforts to reflect changing business models/customer demands. So the “consumers” of MRO services are seeing a significant amount of activity around changing MRO efforts, while the actual providers predominantly indicate that there haven’t been considerable changes. But those changes are coming. Focus group participants confirmed that MRO activities are shifting, and A&D companies are working to meet the new requirements from their customers. Many of those requirements center on having the right parts and tools on the flight line or at the repair depots at the right time to minimize flight time disruptions.
As Figure 1 shows, among companies that have shifted MRO efforts to reflect changing business models and customer demands, increasing spare parts replenishment activities was the top change cited. Focus group participants also indicated that the industry as a whole has seen a shift in how spare parts are stocked and distributed across an MRO network. Today, A&D operators want to ensure that the parts are in close proximity and available for their service providers, so many are moving to a model where they stock multiples of key parts at one of the service provider’s nearby warehouses or depot locations. Then the provider uses ground transport to expedite getting the parts to the aircraft for repair. Orchestrating more of the spare parts logistics and assuming a greater share of flight line were the second-highest-ranked responses to how companies are shifting MRO activities. A&D companies are moving outside their comfort zones in an effort to respond to business demands, and some are having difficulty keeping pace. The results of this survey reflect this reality.

**Challenges Exist for Optimizing MRO Supply Chains**

The difficulties that many A&D companies face as they try to take on greater roles in managing more MRO activities are evident from the survey results. As Figure 2 indicates, the top challenge that companies are facing in optimizing their MRO supply chains is “managing the complexities of getting the parts to where they’re needed in a timely manner,” with 28.9% of respondents identifying that as the greatest challenge. Managing logistics for parts distribution is a definite pain point.
The second-biggest challenge MRO companies face highlights the realities of expanding operations to respond to global growth, as 23.7% of respondents identified “finding new suppliers/partners in markets” as their biggest MRO supply chain challenge. Often, the process of moving into a new market and establishing MRO operations to adequately service customers requires finding local suppliers to assist with many supply chain functions, such as logistics and warehousing, and even technical skills. But without local knowledge or easy ways of vetting new suppliers in an emerging market, A&D companies can expose themselves to greater risks in successfully setting up operations. Also related to emerging markets, the third-biggest challenge is “building infrastructure in new markets to adequately support our efforts,” acknowledged by 17.1% of respondents as the biggest challenge in optimizing their MRO supply chain. Successfully shifting MRO activities often involves expanding into new markets and establishing greenfield operations. A&D companies are finding it difficult to identify and locate the right partners that will help establish the support infrastructure needed.

**Future outlook: Building agility and responsiveness into MRO efforts**

The changes within MRO are rippling throughout the A&D value chain. The combination of an overall increase in the volume of aircraft fleets and the longevity of existing deployed fleets offer A&D companies an opportunity to share in the healthy profitability of the MRO market. To capitalize on these opportunities, A&D companies need to ensure they are positioned to be both agile and responsive throughout their supply chains. As Figure 3 illustrates, A&D companies see themselves as largely efficient across a number of areas in their MRO supply chains. Many feel they have worked hard to build agility and resilience, and the results reflect this perception, with 69.7% of respondents giving themselves a “10” for regulatory compliance and 56.6% rating their quality of service delivery a “10.”
The area that many A&D companies thought they need to improve on is responsiveness, namely the “ability to reach emerging markets within contract time.” In contrast to some of the other categories, only 17.1% of companies rated themselves a “10” in this category. This is an area where the right global logistics partner can assist and provide value-added services, which is something the A&D companies we spoke with indicated they are increasingly relying on to meet customer demand for higher levels of responsiveness.

### Essential Guidance

Logistics providers can help with shifting demand for MRO services, and focus group participants agreed that finding the right partners and having them assist with as many areas as possible around moving MRO parts and tools throughout their service networks is a priority. As one company shared, “Whatever [our logistics partner] can physically do, we have them do it.” For this company, “it” has included storing parts and kitting them with tools in a warehouse that is strategically located near the customer to enable timely delivery to the customer site on demand. Similarly, another respondent mentioned having “distribution centers that you hand all this stuff off to, and let them handle it. Get out of in-house.”

Outsourcing parts/kitting needs to a logistics partner can help solve what many A&D companies identified as a key priority for supporting increased capacity in their MRO value chain: better coordination of repair order parts kits and tools. Of the respondents, 34.2% identified this as their biggest priority. A look at responses by role in the A&D supply chain shows that three of the roles ranked it first: 47.1% of MRO providers, 41.7% of A&D component suppliers and 33.3% of airline/operators.

“We have outsourced all our parts to a warehouse that stores and kits them and delivers the kits to the main plant. Whatever [our logistics partner] can physically do, we have them do it.”

A&D COMPANY
Conversely, the most popular answer for A&D major components assemblies suppliers was “reduce coordination waste by eliminating excess inventory” as their biggest priority. (Note: A&D OEMs did not have enough respondents to be statistically significant.)

This last response, eliminating excess inventory, is somewhat at odds with what was stated previously in this white paper, namely that many MRO providers are shifting their activities to hold more inventory of key parts in strategic locations so that it can reach the customer faster to meet service-level agreements. Perhaps one of the greatest tasks many of these MRO supply chain players need to undertake is finding the right balance between inventory levels and responsiveness to the customer. This is yet another area where A&D companies are turning to logistics providers because one of the benefits these partners provide is visibility, which is one of the keys to identifying areas for improvement.

Visibility comes in many forms, and the A&D focus group participants were particularly interested in several levels of visibility to help optimize their MRO supply chains. Visibility into inventory/spares throughout the supply chain was the top capability that A&D companies seek out with their logistics partners. A close second is monitoring of activities to provide full visibility. And third is the ability to compile and file the necessary regulatory reports, which requires visibility into all of the information that feeds these reports. Clearly, visibility is a core requirement for an effective logistics partner, and A&D companies should evaluate candidates along these various aspects of visibility.

Beyond coordination of parts/kits and the ability to provide multiple levels of visibility, a few additional capabilities are critical for logistics partners to have in the A&D market. The partner should be able to help navigate country-specific transportation infrastructure. It should also facilitate the establishment of initial operations and the logistics network when the company is moving into new regions to establish MRO operations. And it should operate on a global level that includes understanding the unique compliance requirements for all of the locations where the A&D company conducts business. This last point will be addressed more fully in another white paper, but it is an important aspect of MRO services, and many A&D companies are increasingly seeking logistics partners to help facilitate this critical aspect of doing business on a global scale.

**Final Thoughts**

The MRO industry is in a state of transformation for A&D companies and is set to grow significantly in the coming decade. With this growth come tremendous opportunities for A&D companies that are shifting their role within the MRO supply chain. But this growth also brings with it many challenges as the roles of companies shift to meet the new demands. Successful A&D companies have learned the value of finding a key logistics partner that can offer a multitude of services around supporting their growing role in MRO activities. These companies are turning to logistics partners to help manage the storage, kitting and movement of spare parts and tools throughout their networks; provide monitoring and visibility into inventory and location of parts; and establish operations in new regions to meet customer demand for increased levels of responsiveness. Together with a strong logistics provider, A&D companies can carve out new opportunities in the MRO supply chain that will lead to measurable success in the coming years.
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