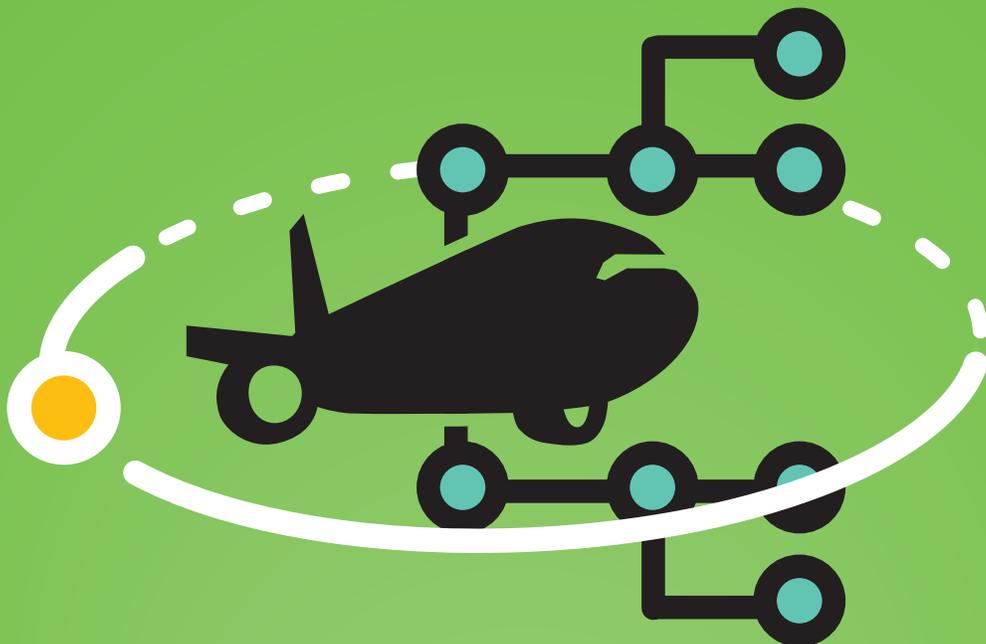




Aerogistics

Insight on Emerging Markets
and Supply Chain Complexity





Introduction

This white paper discusses the current state of the aerospace and defense (A&D) industry and how the rise of emerging markets is leading to new opportunities and new supply chain complexities. A number of market dynamics unique to A&D are reshaping supply chains for emerging markets, and A&D companies are compelled to respond. These dynamics present multiple challenges for companies throughout the A&D value chain that must mitigate the impact on their businesses. Leading A&D companies are partnering with external providers for transportation, logistics and production support to overcome barriers and ensure that their initiatives in emerging markets are successful.

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 and defense supply chains

The aerospace industry is experiencing a prolonged surge in growth, with the commercial side of the industry currently in its third consecutive year of record sales. Major original equipment manufacturers (OEMs) Airbus and Boeing reported combined net-new jet orders of 2,888 in 2014. These orders represent over \$1 trillion in sales and bring book-to-build ratios higher than 2:1 as order backlogs continue to grow. This large backlog should translate to profitable growth in 2016 and 2017 as A&D companies ramp up to meet new orders. Globalization — with the majority of new orders on the commercial side of A&D coming from countries outside traditional regions — combined with the ongoing export of military weapons platforms is having a transformational impact on the structure of the industry.

Emerging Market Growth

Much of the growth in the A&D industry can be attributed to emerging markets, especially Asia/Pacific and the Middle East. This growth is being driven by a burgeoning middle class in emerging countries, driving demand for more flights. The rate of air travel in the Asia/Pacific region will grow at almost three times the rate of air travel in the United States through 2030, with more than one-third of all planes delivered going to the fleets of Asian carriers. China will have 13 airline carriers with more than 100 planes in their fleets by the end of this decade.

In what has become a growing trend, manufacturers are moving key supply chain activities into emerging regions to respond to this growth. These activities include production of parts; maintenance, repair and overhaul (MRO) services; and even (as Airbus has done in China recently) aircraft assembly. In February 2015, Airbus announced an agreement with an India-based component manufacturer that elevated the company to a global tier 1 supplier and will eventually make the company the single-source supplier for flap track beams for the A330 wide-body jet. As this example illustrates, product strategies to support growth in emerging markets by sourcing and manufacturing locally will have an increasing impact.

Demanding Customers

In an industry where some players are far removed from the end customer, customer experience takes on a different meaning for A&D manufacturers than for traditional consumer-focused manufacturers. When the move to emerging markets is added to the mix, delivering on customer expectations becomes even more challenging. New requirements in emerging markets range from what the aircraft OEMs are demanding of their suppliers to what the airlines are demanding of their OEMs and their MRO service providers. Many manufacturers in the supply chain see aftermarket parts and services as an area ripe for greater profitability and are expanding services to capture the growth in this market. Additionally, as some state-owned airlines in regions such as Asia/Pacific increase their orders for aircraft, they are adding requirements into contracts for local customer support services, in addition to local manufacturing efforts. Similarly, with international defense contracts, customer countries are demanding that suppliers establish production for certain parts or assemblies locally.

A closer look at how aerospace and defense companies are responding to opportunities in emerging markets

As growth within A&D continues to come from emerging markets, members of the entire value chain are feeling the impact. Survey results indicate that a large majority of A&D companies have already made significant moves into emerging markets, and therefore, most do not have additional plans to enter new markets in the coming years. For companies that do plan to enter new markets, Russia (7.9%), India (6.6%), Brazil (5.3%) and China (5.3%) were most often mentioned. These four countries, commonly referred to as BRIC (Brazil, Russia, India, China), have offered the greatest opportunities for growth on a macroeconomic scale across many industries. On average, fewer than 5.0% of companies have plans to enter new countries in the coming five years.

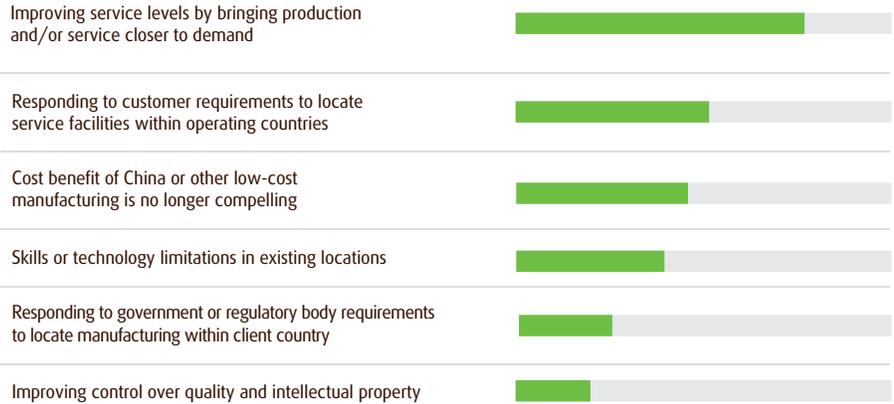
These low numbers reflect the reality that many A&D companies are already positioned in these new countries, while others have no intention of expanding into them in the coming years. For example, 56% of companies already have a presence in “other APAC” countries, and another 40% of companies do not plan to enter this market within five years. That leaves only 4% of companies that are planning to move into “other APAC countries” within the next five years. There is a similar story in Mexico, where 60% of companies have already moved into the country. Another 36% have no plans to enter Mexico, leaving 4% that are planning to move into the country in the next five years.

Each country presents its own opportunities and challenges, and the A&D companies we spoke with are busy navigating these nuances. Among the decisions these companies are making is whether or not to move their manufacturing or service operations closer to the demand in these markets. The top three drivers for companies that are planning to locate manufacturing/service operations within emerging markets are as follows: improve service levels, respond to customer requirements, and the cost benefit of China or other low-cost manufacturing is no longer compelling (see Figure 1). As stated previously, the customer is increasingly key for A&D manufacturers, and placing the needs of the customer first is a primary driver for making changes to manufacturing/service operations in emerging markets.



Figure 1

Top Drivers for Moving Manufacturing/Service Into Emerging Markets



Source: UPS Aerospace & Defense Survey, IDC, April 2015

0% 25% 50% 75% 100%

Some of the decisions to move manufacturing/service operations closer to demand are being made by the customer rather than the manufacturer. A&D companies that support defense programs internationally reported being required to move production to or source parts or components within the region to win the business. In some cases, these activities have become contract stipulations in certain emerging markets. As one company shared, "I just see [certain parts] being outsourced even more, where it makes it more difficult to build a final product where your final assembly is. You have all these supply chains you have to deal with because everything is outsourced, and you're just really putting the parts all together." This added layer of complexity is one of the barriers in moving into emerging markets.

Challenges Exist for Expanding into Emerging Markets

The examples shared previously highlight a few of the challenges A&D companies face when they attempt to move into new markets and some of the reasons why a significant percentage of respondents indicated they have no plans to move into certain markets. Our discussion with A&D companies revealed that additional challenges with expanding to emerging markets are achieving quality and acquiring technology talent. Because of the complexity of many of the parts and assemblies manufactured in this industry, superior design and technology skills are paramount. However, many emerging markets do not have this level of talent locally. Therefore, some companies have sent engineers and scientists to customer locations to support development efforts and ensure quality coming off the production lines.

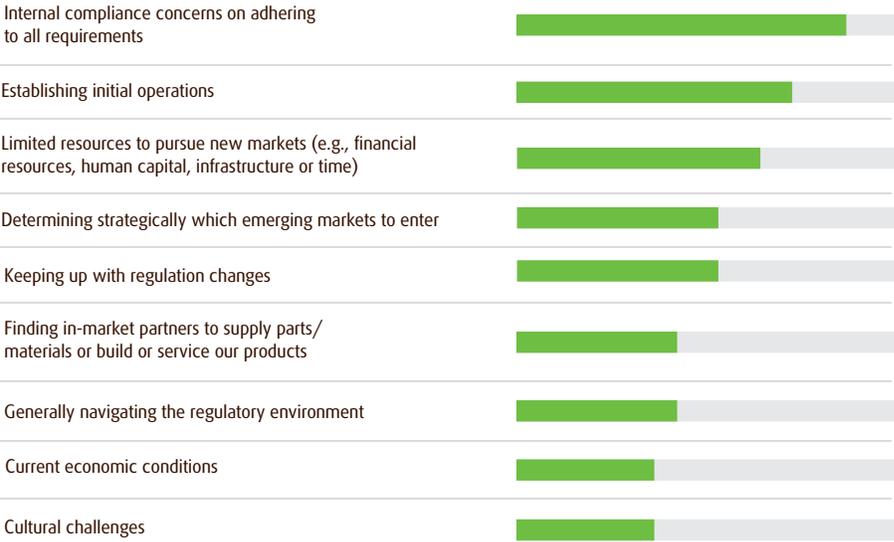
The top three key barriers that A&D companies have identified in expanding into emerging markets are as follows: internal compliance concerns on adhering to all requirements, establishing initial operations and limited resources to pursue new markets (e.g., financial resources, human capital, infrastructure, or time) (see Figure 2). While the financial costs and lack of human capital to expand are limitations that can be difficult to overcome, compliance and establishing operations can be addressed, often with the help of a logistics and global trade partner.

"The cost of having your own operation there in another country can exceed the profit, so you always have to be careful. It just depends on the country. We pulled out of China because of operating costs."

A&D COMPANY

Figure 2

Key Barriers to Expanding into Emerging Markets



Source: UPS Aerospace & Defense Survey, IDC, April 2015

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Future outlook: Building agility and responsiveness into supply chain efforts

Emerging markets present a promising opportunity for established A&D companies and represent the greatest areas of growth in the coming decade across the industry. To respond to these opportunities, A&D companies will need to ensure they are positioned to be both agile and responsive throughout their supply chain. This requires them to build a level of agility, risk mitigation and resilience into their value chains, enabling rapid response and aligning resources with market demands in as close to real time as possible. An example of building resilience is designing a supply chain so that it can contain or minimize the impact of a disruption. For example, consider events in Asia such as the devastating tsunami in 2011, as well as more recent earthquakes. A&D companies can build resilience into their supply chains by building contingency plans to respond to disruptions in a particular region. This prevents a more significant impact worldwide and reduces the negative impact on the business.

At the same time, A&D companies must be engaged in an ongoing search for process improvement, and in the areas of emerging markets, this often translates into looking outside the organization for a trusted partner. Among the A&D companies we spoke with, finding a key logistics provider that operates on a global scale is a necessity for navigating emerging markets successfully. Figure 3 highlights the key capabilities that A&D companies are looking for in a logistics provider.



Figure 3

Key Capabilities of Logistics Partners



Source: UPS Aerospace & Defense Survey, IDC, April 2015

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Essential Guidance

Selecting a logistics solution provider to support growth in emerging markets is an important factor in A&D companies' success within these markets. The provider should be able to help navigate country-specific transportation infrastructure, facilitate the establishment of initial operations and the logistics network, and provide monitoring and visibility into all activities taking place within the new countries and throughout the supply chain. While the catalyst for increasing presence in a given market differs by company, a number of common capabilities form the basis for evaluating logistics providers once a decision is made to operate in that country.

Geographic Depth of Coverage

While it is an obvious assumption that potential logistics providers for emerging markets have a presence in the new countries, not all presences are equal. Evaluating how much of a physical presence the logistics provider has within the geography — including warehouses, vehicles and port access — is important. A list of independent agents is not enough. Achieving the optimal level of support from a logistics provider in an emerging market requires a certain level of penetration across the transportation infrastructure. Additionally, one should evaluate the agility of the provider to handle unforeseen events within the geography. For example, how will the provider accommodate an act of nature that occurs while parts are in transit? How quickly can the provider respond to ensure that a delivery schedule is met? If a port strike occurs, what can the provider do to mitigate its impact on the A&D company's supply chain? Contingency planning for unplanned supply chain disruptions was one of the top three most concerning supply chain issues that A&D companies felt might impact their businesses. These are important considerations when evaluating the logistics provider's level of presence in a specific market.

Breadth of Service Across Processes

One of the primary barriers to expanding into emerging markets for A&D companies is establishing initial operations (refer back to Figure 2). Some leading companies have adopted the best practice of partnering with a logistics provider to manage the warehousing and kitting of all the parts involved in a particular process. The logistics provider handles all the parts, kits the parts when they are needed, and then delivers the kits to the main plant. Another A&D company utilizes a similar service in which the parts are brought directly to the flight line as needed. This end-to-end process coverage is integrated, making it very straightforward for an A&D company to establish operations in a new geographic location.

“We aren’t in the business of transportation, we’re in the business of products, that’s what we want to focus on.”

A&D COMPANY

Equally important is the ability of the logistics provider to offer a full range of transportation services. This means not only transporting parts from land to sea but also, once they reach the destination country, providing extended delivery to move the product across the ground to the plant or flight line. As one participant shared, “We don’t want to ship something that’s never going to get there, especially with some of these emerging markets.” Clearly, potential logistics providers should also be able to span transportation modes as well as offer additional services like warehousing and kitting.

Visibility and Relationship Management

While most A&D companies do not want to get into the “transportation business” themselves, they do expect a certain level of collaboration with their logistics providers. They expect full visibility into activities surrounding the movement of their products through the transportation process, which is often via Web portals and dashboards. The A&D company must also be able to pick up a phone when necessary to work through a potential disruption or exception. Relationship management becomes significant when there are disruptions. If a production line is waiting for a part, the ability to change transportation modes to mitigate downtime is important, and working with a customer representative to evaluate the best options is imperative. Often a logistics provider needs to be the conduit for the level of service the A&D company delivers to its own customer, and if the goal is exceptional service, then the logistics provider needs to be able to provide it.

Final Thoughts

The move into emerging markets presents A&D companies with new sources of growth but brings with it new areas of complexity. Participants up and down the A&D value chain face the challenge of establishing operations in new countries, and many lack the internal experience to navigate the accompanying supply chain intricacies. Leading A&D companies have quickly learned that partnering with a key logistics provider to facilitate the movement of parts and products in and out of these emerging markets is critical to success on both the commercial side and the defense side of aviation. The right logistics provider can provide a global transportation network with scalability, visibility, cost control and the ability to avoid costly production delays and penalties. An experienced logistics provider will provide the agility and responsiveness necessary for A&D companies to thrive in their expanded markets and focus on their core business and customer needs.



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