COMPETITIVENESS OF EUROPEAN AEROSPACE SUPPLIERS
A JOINT ANALYSIS OF FRANCE AND GERMANY
PREFACE

Over the last five years, we have seen the impact of increasing internationalization on the aerospace industry. Many European suppliers have been able to develop a global footprint – either with their own operations abroad, through partnerships, or simply by exporting their goods. On the other hand, competition in this global market is increasing, since other regions have ramped up their capacities and developed new capabilities.

Recent consolidation trends are creating new Super-Tier-1 suppliers, who are taking a huge share of the market and at the same time becoming new potential customers for SME suppliers. However, the level of performance has risen with regard to technological and SCM capabilities as well as the internationalization expected from all suppliers, but from SMEs especially.

A new aspect we see in all industries is the impact of digitalization. Completely different skills are required to compete in future markets. Data and interconnected systems (Industry 4.0 and IoT) will be key.

Based on the previous studies from Germany in 2012 and France in 2013 we are looking forward to the results of this joint study. The framework of the study has been retained for the most part so that we can draw precise conclusions about what has happened over the last five years.

As representatives from BDLI and GIFAS, the two leading aerospace associations in Europe, we hope to boost the discussion and joint effort on developing this industry and all its players from OEMs to Tier-n and increasing the global competitiveness of the whole European supply chain.

Patrick Daher
DAHER Chairman of the Board
GIFAS Deputy Chairman – Chairman of GEAD

Arndt Schoenemann
Liebherr-Aerospace Lindenberg Managing Director
BDLI Vice President Equipment and Materials
In recent years, the aerospace industry has undergone an important transformation: globalization has progressed further with the growing role of emerging markets, which consequently has led to overcapacities in the market and cost pressure. Additionally, the production ramp-up in Airbus programs has impacted all actors in the supply chain. Moreover, digitalization has become a required lever of transformation and performance improvement. Thus, the ability of the European aerospace suppliers to meet customer expectations and develop the required skillset to compete against international newcomers has become increasingly important.

In 2012 under the patronage of BDLI and ISC (International Suppliers Center) and in 2013 sponsored by GIFAS, we conducted a comprehensive and systematic analysis of the international competitiveness of aerospace suppliers in France and Germany by comparing the viewpoints of both sides – suppliers and customers. We defined a strengths and weaknesses profile of the supplier industry and a future competitiveness portfolio showing the degree to which suppliers already meet or exceed customer expectations for 22 competitiveness criteria.

The presentation of the study at the Berlin Air Show and the Salon du Bourget prompted many discussions between participating stakeholders about how to increase the industry competitiveness to face the market evolutions. Many initiatives have been undertaken by all stakeholders: customers, suppliers, but also support organizations in each country.

The aim of this publication is to deliver a comprehensive update of the industry competitiveness based on a common frame of reference. Sponsored by GIFAS and BDLI, French and German aerospace suppliers responded to a detailed online survey and OEMs and Tier-1 suppliers were interviewed to identify and understand their expectations as customers.

The motivation behind this study is to draw up a synthesis of the supply chain development over the past five years, identify the remaining challenges to compete in the future, and determine joint actions to succeed.

The h&z and Kea & Partners study team
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1 MAIN CONCLUSIONS OF THE 2013 STUDY
In 2013, French and German aerospace suppliers were struggling to cope with the challenges of an industry that was undergoing significant changes.

At that time, 60% of suppliers in both countries were able to meet some customer expectations and show development potential in other areas. Moreover, approximately 10% of the suppliers possessed the broad skillset to meet and exceed customer expectations. In addition, we suggested that suppliers would need to improve Enabler processes & skills in order to secure attractive work shares in future global aircraft programs.

Our results indicated that both French and German aerospace suppliers were still organized following an outdated aerospace supply chain environment. They focused on their technological expertise and left many management-related tasks primarily to the OEMs/Tier-1. These expected more mature suppliers in all dimensions with regard to competitiveness and internationalization.

To maintain a high level of competitiveness, we recommended that suppliers should demonstrate their ability to take over new responsibilities. Individual efforts had to be complemented by joint actions throughout the entire aerospace supply chain, including at the OEM level, by empowering suppliers beyond manufacturing areas. Support organizations should continue their efforts in lobbying for financing R&D projects and in supporting the industry with its internationalization and maturation efforts.
2 REVIEW OF THE LAST FIVE YEARS
Only five years – many differences

The key topics of the past five years are industrialization, a more capable global competition, ongoing adjustments of OEM product and supply chain strategies including taking back control of the aftermarket business, and the increasing impact of digitalization.

Increasing focus on industrialization

Back in 2013 and before, the maturing of new technologies and related processes was the focus of attention. The replacement of aluminum by carbon fiber in all major structural components required new design, production and maintenance thinking. Since then the focus of attention has changed to industrialization, process stability along production and assembly in a high-cadence environment. With the Boeing B787 and Airbus A350, two challenging twin-aisle programs faced entry into service and production ramp-up. The strong demand especially from Asia, but also from North America and Europe, for the single-aisle aircraft families A320 and B737 required rate increases and lifted production and assembly to unprecedented quantities. The high production rates justified investments into process automation. The learning curve of serial production is still steep, however, with further cost-out potentials.

Changes in product strategies of OEMs

Both Airbus and Boeing have failed with market estimation for their biggest aircraft, the A380 and B747-8. Orders for both programs are completely behind expectation. Whereas Boeing has already moved on and switched the B747 assembly line to focus on freight only, Airbus still hopes to get orders on top of the current rate of 0.8 aircraft per month. In addition, both the B787 and the A350 required much higher investments than planned. This resulted in a low cash flow not sufficient to support a clean sheet design in the single-aisle segment. At the same time, demand for the current single-aisle aircraft of both Airbus and Boeing was very strong. In addition, new technologies required for a step change in performance were not available. Therefore both OEMs decided to relaunch their single-aisles as A320neo and B737MAX featuring new engines and some aerostructural changes in the wing. By doing so, the OEMs can bridge the gap until at least the late 2020s, when new engine technologies will be available and a new clean sheet single-aisle design will be inevitably required by airlines.

With the integration of the Bombardier C-Series into the Airbus portfolio, Airbus is able to offer the full range of aircraft in commercial aviation. Airbus obtains a modern design in the single-aisle segment, which is also beneficial in terms of data generation. The C-Series can be part of the recently launched Skywise open data and analytics platform to strengthen the aftermarket business. Boeing is still working on closer cooperation with Embraer to draw level with Airbus. Both strategic moves offer new options for product portfolio strategy not available before.
OEM supply chain strategies move to a middle ground of vertical integration and system integration

The ramp-up of the new programs as well as the rate increase of single-aisle aircraft is a major driver for the OEM-led supply chain transformation. The implementation of an automotive-like tier structure, with clear responsibilities along the supply chain and the pushing down of supply chain management responsibilities from OEMs to suppliers is still in progress. It requires competence, know-how and agility of all stakeholders. Both OEMs are working on stabilizing this setup. At the same time we see both OEMs moving in the opposite direction. For strategic reasons, OEMs start to insource, or at least secure associated rights related to key systems formerly bought from Tier-1 partners as design and build work packages. This is to secure high-margin aftermarket business and to capture and capitalize on data generated by systems. The business models of suppliers may be disrupted thereby with severe long-term consequences for their profitability and ultimately competitiveness.

THE AIRCRAFT SUPPLY CHAIN TRANSFORMS AGAIN INTO A MIDDLE GROUND OF OEMS AS SYSTEM INTEGRATORS AND OEMS AS VERTICALLY INTEGRATED

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**Aircraft supply chain transformation**

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<tr>
<th>Aircraft</th>
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<th>Modules</th>
<th>Parts &amp; components</th>
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<td><strong>Up to early 2000s</strong></td>
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<td>OEM</td>
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- OEMs are vertically integrated
- OEMs manage the entire supply chain
- Many, small, direct suppliers to OEMs
- OEMs source regionally

- OEMs are system architects and integrators
- Few large Tier-1 suppliers act as RSP (Design & Build)
- Tier-1-Tier-2 suppliers manage their sub-supply chains
- OEMs source globally

- OEMs are system architects and integrators
- OEMs insource strategic systems (high aftermarket revenue, big data generation)
- Few large Tier-1 suppliers act as RSP (Design & Build) or Build to Print factories
- Tier-1-Tier-2 suppliers manage their sub-supply chains
- OEMs source globally
Global competition on a higher level than before

Competition has become more global, and especially in Europe new big players from North America and Asia have entered the supplier market. They have an offering that combines very competitive pricing with sufficient performance and concessions to OEMs when it comes to the aftermarket revenue stream.

In the past years we have seen significant initiatives by associations and clusters in France and Germany to support local companies along the supply chain in improving their operational performance and obtaining the required political support such as state-backed financing for R&D, operations transformation, and internationalization.

Digitalization

Digitalization in the industry mainly refers to two topics: First, exchanging transactional data via IT platforms to increase operational efficiency including transparency of sales and operations planning. Second, increasing data collection and analytics to drive improvements of aircraft flight operations, maintenance, manufacturing and engineering. This is made possible with new data rich systems in modern aircraft programs. With recently launched initiatives such as Skywise at Airbus and AnalytX at Boeing, both OEMs will collect, analyze and make use of the data. The Internet of Things (IoT), however, does not yet play a major role.
3 STUDY FRAMEWORK
140 suppliers from France and Germany have been assessed

Since this publication follows the initial studies from 2012 and 2013, we focus on the aerospace supplier industries in France and Germany and compare the markets of both countries. The methodology adopted for the 2018 survey is in principal the same as the one followed in 2012 and 2013. However, we have added one additional segment on digitalization to the survey for both countries. The scoring system, interview guide for customers, and calculation assumptions have been adapted accordingly.

The structures of the samples from France (n=74) and Germany (n=66) are very similar in terms of company size, levels of the supply chain, activities and technical segments. The samples are representative of the French and German aerospace industries.

Looking at overall revenue, slightly more than half of the companies in the sample are SMEs (61% in France, 54% in Germany; 58% in total); larger companies (>€50M in revenue) make up 39% in France and 46% in Germany (42% in total) of the sample. The sample structure is different from the 2012/2013 study. In 2018 the overall share of SMEs is 18 percentage points smaller (58% instead of 76% in 2013).

**GEOGRAPHICAL SPREAD AND REVENUE OF COMPANIES ANALYZED (N=140)**

SMEs = companies with total revenues ≤€50M
Large companies = companies with total revenues > €50M
Digitalization has been added as a new segment; overall 29 criteria for supplier competitiveness were defined

In the 2012/2013 studies we defined 22 competitiveness criteria organized into three segments. The criteria are used to systematically assess whether the aerospace suppliers in Germany and France already have the well-rounded skillset needed to successfully compete for attractive work packages in future aircraft programs.

In this year’s study, we defined 29 competitiveness criteria. We used the same criteria set for the three original segments and added a new segment on digitalization with seven additional competitiveness criteria.

**SUPPLIER COMPETITIVENESS CRITERIA**

A comprehensive framework based on 29 competitiveness criteria

1. Competitor & market intelligence
2. Tender experience
3. Aerospace audit experience
4. Export / import regulations
5. Operations experience abroad
6. Customer portfolio
7. Technology competitiveness
8. Technical co-development
9. Flexibility
10. Offshore / offset capability
11. Supply chain management
12. Quality management
13. Risk sharing
14. Pricing power
15. Risk management
16. Intellectual property protection
17. Legal experience
18. Financing experience
19. Currency hedging
20. Receivables risk management
21. Language skills
22. HR capacity
23. Digital awareness
24. Digital integration with clients
25. Digital integration with suppliers
26. Level of investment in digitalization
27. Digital coverage
28. Use of data
29. External support and partnerships
Customer & market access
Suppliers’ own operations and sourcing capabilities in international growth regions as well as market knowledge and tender/audit experience

These criteria focus the capability of suppliers to retain existing customers and acquire new domestic and international customers. The customers expect suppliers to be well-informed about market trends, able to run tenders professionally, and to have aerospace audit experience. A supplier has to know their own country’s export regulations and the import regulations of target countries. A certain experience in manufacturing operations abroad is also desired. Additionally, the supplier is expected to have a balanced customer portfolio with each customer not contributing more than one third of revenue.

Product & service offer
Capability to differentiate through technology; manage a supply chain, quality, and risk independently

These criteria focus the core products/services and value-added services of an aerospace supplier. Customers increasingly expect suppliers to contribute to their product differentiation. Technical co-development, flexibility in customer service, and quality management certifications are other important criteria. Increasingly, risk and revenue sharing partnerships, the management of sub-suppliers, and the ability to provide offshore content or take over the customer’s offset obligations are sought after.

Enabler processes & skills
Professional skills in the areas of project and risk management as well as HR, finance, and legal capabilities

These criteria focus on internal management processes and skills relevant for internationalization and competitiveness. Increasingly, customers expect suppliers to have a professional risk management and IP protection, as well as an understanding of the content of increasingly complex contracts, including those of foreign customers. In addition, suppliers should be experienced with a range of financing instruments and currency hedging. Also, qualified staff proficient in English is a requirement for processing international orders.

Digitalization
Awareness, know-how and competencies in digital areas; being able to exchange and process data plus ideally leveraging data for business

These criteria focus on the ability to leverage digitalization to improve processes as well as supply chain management. Customers expect suppliers to have a high level of awareness on digital issues as well as to have started internal digital initiatives in Finance & Controlling, Sales, R&D, Engineering and Manufacturing. Moreover, digital integration is a key issue, mostly with customers but also with suppliers.
4 AEROSPACE INDUSTRY TODAY
In 2018, suppliers are meeting 65% of customer expectations on average

COMPARISON OF 2013 AND 2018 AEROSPACE SUPPLIER PROFILES

Overall view

The strengths and weaknesses of suppliers follow the same pattern and have not changed much over the last five years, with a minor performance increase overall. For two thirds of the criteria, suppliers are still far from meeting customer expectations, represented in the 100% circle line of the chart. There are some notable exceptions to the stagnant pattern, which are outlined per segment below. Expectations from OEMs and Tier-1 are somewhat higher; they have increased by about 4% since 2013.
Customer & market access segment

“Companies approach customers globally, but few really made the step to set up a plant abroad”
(Aerostructures Tier-2)

Overall the maturity in this segment is still far from customer expectations at 62% and the pattern is very similar to 2013. However, we see a significant improvement in export/import experience. Suppliers have realized that they need to approach OEMs and Tier-1 abroad and deliver globally. Yet more than half of the suppliers (53% of respondents) still do not have operations abroad. In addition, the increase in export/import experience has not yet materialized into significant revenues. Suppliers’ revenue dependency on a key customer such as Airbus has even increased compared to 2013.

On the upside, overall tender experience has increased. Over the last years, suppliers have improved their capability to compete in the global market for new OEMs/Tier-1 contracts. Therefore, we expect to see more balanced customer portfolios and less dependency on one single OEMs/Tier-1 in the future.

Product & service offer segment

“In recent years our industry has become global, suppliers from new aerospace locations are entering the market with attractive offers and stronger innovation”
(Aerostructures Tier-1)

Overall maturity is close to customer expectations at 75%. Suppliers have technological unique selling points and leverage them. They are very flexible in responding to customer requirements in comparison to their global competitors. This is also reflected in their still-high pricing power, despite tough competition arising from new suppliers coming from nations aspiring to have a strong aerospace industry, especially from Asia.

Technology competitiveness overall has increased. Over the past few years, suppliers have improved their technological capabilities and are now able to provide a better product and service portfolio. However, technical co-development of suppliers and OEMs/Tier-1 is decreasing, especially participation in early product development. We see two key reasons for that: First, in the past five years there were no clean-sheet large commercial aircraft programs in the design phase. Second, 2018 OEMs are now well aware of many suppliers’ limited capacity to be involved in co-development activities.
Regarding supply chain management, steering of the upstream supply chain remains a challenge for suppliers. On average, only 63% of customer expectations are met. This also means that OEM initiatives such as Airbus D2P Program have not paid off so far – at least not for suppliers.

**Enabler processes & skills segment**

_“We need suppliers which are strong in managing projects and sub-suppliers, not only technology specialists”_  
(_Equipment Tier-1_)

In comparison to the other two segments, Enabler processes & skills shows the lowest overall maturity with suppliers meeting only 58% of customer expectations. These weaknesses persist from a time when suppliers were rather extended workbenches of OEMs/Tier-1 with a focus on technological expertise.

Risk management maturity has slightly increased but is still lagging behind customer expectations. 37% of companies still do not systematically take risks into account and do not manage them proactively. Apparently suppliers do not see a real benefit in establishing it internally. After all, OEMs manage risks and have proven to be reliable customers in a stable and growing industry.

The maturity of financing experience remains at a very low level compared to 2013. Suppliers still mostly rely on company cash flow and traditional bank loans to finance growth. State-backed instruments and equity investments only play a minor role since many suppliers are family owned and very skeptical of private equity investors.

There has been a decrease in maturity over the past five years regarding IP protection. This can be explained by rising customer expectations in this field. In addition, IP protection was less of a concern in recent years with only very few new product-related technologies introduced. Also, process know-how, where suppliers are traditionally strong, usually cannot be formally protected.

Last but not least, the gap in the maturity level of HR capacities between 2013 and 2018 means that it is even more difficult for suppliers to hire qualified staff. A key reason is that overall economic growth drove qualified technical staff away from the aerospace industry towards other industries and services.
French and German supplier profiles are almost equal with a mere 2% difference in overall maturity (French suppliers meet 64% of customer expectations on average; German suppliers meet 66% of customer expectations on average). In terms of evolution, it appears that French suppliers’ maturity remains stable, whereas German suppliers have increased their level of maturity overall.

German suppliers’ maturity is slightly higher than that of the French in Customer & market access. French suppliers have a head start in building a broad customer portfolio because of a sizable number of OEMs/Tier-1 headquartered in France. German suppliers lack a strong home market, and consequently have invested in international business development and improved their market intelligence, tender experience, and export/import experience.

With respect to Product & service offer, French suppliers appear to be more mature in supply chain management and in quality management. Lastly, regarding Enabler processes & skills, an important gap between the French and German level of maturity is noticeable in HR capacities – German companies find qualified staff more easily.
Digital transformation has begun

**DIGITAL MATURITY OF SUPPLIERS (N=140)**

- **Digital awareness**: 71%
- **Digital integration with clients**: 66%
- **Digital integration with suppliers**: 53%
- **Level of investment in digitalization**: 51%
- **Digitalization of processes and functions**: 37%
- **Usage and leverage of data**: 35%
- **External support and partnerships**: 27%

In 2018 we added digitalization-related questions. Again, French and German strengths and weaknesses are highly similar.

*“Digitalization priority topics are performance improvements in manufacturing and supply chain management. Suppliers will achieve strong improvements thanks to digital”*

*(Aerostuctures Tier-1)*

Digital transformation has been initiated. Suppliers have a high level of awareness of the importance of digitalization for their business. They invest over 10% of their total annual CAPEX in digitalization on average. They have understood the importance of digital integration with both clients and suppliers and they are implementing related tools (e.g., Airsupply). The next challenge is to extend this integration to all levels of the supply chain.

In terms of digital coverage, suppliers are focusing on a limited number of functional domains, mostly on operations. This shows a very pragmatic approach in line with the priority to optimize operational performance.

In the near future, they should leverage the whole available digital ecosystem (e.g., startups, universities, etc.) to sustain their digitalization efforts. Furthermore, usage and leverage of data will become more important and is currently too low a priority.
5 ROADMAP FOR SUPPLIERS
In the current market environment, access to the future order qualifying and winning zones is more challenging: only 50% of the suppliers are likely to remain business partners.

As in 2013, we combined several criteria for the future competitiveness portfolio showing all suppliers. The position of each supplier is based on the supplier’s average score achieved for the Enabler processes & skills (including Digitalization for 20% of the total score) and Product & service offer criteria sets. Again, supplier scores were adjusted by the average customer expectation score set at 1.0 to see which companies are above or below customer expectations.

**FUTURE COMPETITIVENESS PORTFOLIO**

### Enablers & Digitalization

![Graph showing future competitiveness portfolio](image.jpg)

- **Future order winning zone**
  - Suppliers fulfill 100% of customer expectations in the segment Product & service offer and at least 80% regarding Enabler processes & skills and Digitalization.
  - Suppliers in this zone are primarily companies with a “Tier-1 profile” with respect to their very competitive product and service offer, but still with some weaknesses in financing experience and risk management.
Suppliers in this zone show weaknesses across most criteria. Although they currently have a high utilization rate, they are likely to lose aerospace orders when more efficient suppliers increase their capacities and/or when legacy programs end. With no significant improvements of their skillset they will be considered less and less attractive suppliers by OEM and Tier-1 companies.

**Main Differences: 2013 versus 2018**

Whereas 60% of the suppliers were eligible as future business partners in 2013, only 50% remain in the future order winning or future order qualifying zone in 2018.
The future order winning zone decreased from 9% to 7% and is now composed of large-sized companies only. Four suppliers widen the gap to other companies by outperforming almost all customer expectations. One significant change compared to 2013 is that only larger suppliers (no SMEs) are now in this zone.

The future order qualifying zone shrank by 8 percentage points. 40% of the suppliers in this zone are SMEs; 60% are large companies. Most of the suppliers still live on the legacy that their product and service offer are attractive for customers. Compared to 2013, we estimate that close to 10% of suppliers have shifted down to the exclusion zone. This demonstrates the difficulties for suppliers to reach the winning zone or to stay in the qualifying zone.

Consequently, the exclusion zone is growing fast (+10 percentage points in five years). Companies there will remain in the market for the time being due to capacity demand from customers and existing contracts.

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<th>Zones</th>
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<td>Future Order Qualifying Zone</td>
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<td>Future Exclusion Zone</td>
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Case Study: The way to the future order winning zone

To showcase the effort needed to become a future order winner, we would like to follow the journey of a European-based SME in the aerostructures business. The family-owned company was founded approximately 15 years ago as an extended workbench with a strong focus on machining parts for civil and military aircraft.

From extended workbench to Tier-2 supplier

In 2012 the company owner realized the upcoming global competition in the existing business environment. There was increasing customer pressure to take over supply chain responsibility as well as to offer more advanced logistic concepts. For that reason, the owner invested in setting up a management organization with professional processes backed by an ERP system. Training the employees to fill their new roles was an important element, as well as monitoring and controlling the supplier base very professionally.

Challenges and solutions in winning Tier-1 orders

By demonstrating these capabilities in practice the company won significant orders from large Tier-1 aerostructures companies. During 2013/14 the major challenge was the acquisition of funds to finance the required working capital for new orders, while at the same time remaining financially strong and flexible for future growth. Together with a traditional but creative bank, a concept for financing raw material as well as ready-to-deliver material was set up. This was combined with a new logistics center, helping the Tier-1 always to get their parts on time and have a safety stock for additional demands as well.

Furthermore, the company set up its own scrap recycling process to improve the cost position. But these were only the first steps. In order to become more independent from Airbus programs, the company owner decided to dedicate a major portion of his capacity as well as an additional business development manager to identifying and winning orders outside the Airbus program ecosystem. Participating in trade missions to the United States, Brazil, China and India organized by regional and federal associations, he built up know-how and strong networking links in these countries.
As a result of these activities, strong production partners in India were identified and the first products have already been transferred to these new partners to ensure future cost savings in the supply chain. Contacts for future orders from North America have also been established.

**Technical focus and efficiency**

In 2015/16 the company strategy was completely reviewed, and the decision was made to concentrate fully on the aerostructures business. The second major business stream with a focus on the aero engine business was discarded.

On this basis the company started to execute a lean transformation program to continuously reduce working capital and render the planned high output rate sustainable. These activities were rewarded with sufficient IPCA+ ratings from Airbus. The company also applied to become a D2P supplier for Airbus.

In 2017 Airbus awarded the company D2P supplier status. Later that year the first contract with a US OEM was signed, with deliveries to start soon.

**Insights**

What we can learn from this company in particular is that to become really successful, a company should focus its development efforts on areas in which it is strong and which are important to its customers at the same time. All of these activities require a great deal of investment in people, equipment and working capital and can only be conducted by a professional and ambitious leadership team.

Today, the journey is only half over. For this company really to become a future order winner, additional orders need to boost it above €100 million in revenue, and production sites outside Europe need to be set up.
Case Study: The way from future order winning zone to a leading worldwide position in the aerospace industry

To illustrate how it is possible to consolidate the industry and become a leading worldwide group, we look at the example of a mid-size family-owned company. The group was established many years ago in another industry. Being firmly rooted in an industrial culture, the company’s aerospace activity was established through both strong organic growth and an ambitious acquisition strategy. The group has achieved a compound annual growth rate of more than 10% over the last 15 years with strong resilience to manage downturn periods, and has thus grown from a mid-size group to a large international company.

Technical focus and operational efficiency as foundations for the group’s development

The group first managed the transition from subcontractor to an innovative partner for OEMs. Consequently, its pricing power and ability to win new markets and programs increased. In parallel, the group focused on operational efficiency, which was at the core of its DNA. These two initiatives resulted in a reinforced investment capacity for acquisitions and organic growth.

New market strategies for acquisition and development

The group developed operations abroad in both mature and emerging markets through acquisitions and development initiatives. This resulted in access to new OEMs, operations in growing aerospace areas and new plants with very competitive cost structures. Acquisitions and developments were undertaken to both reinforce and develop traditional activities in aerospace as well as balance the group’s portfolio with activities in new aerospace segments.

Skill and process excellence to support development initiatives

A structured organization and resources that were set up progressively, which came more easily with the company’s increasing size, allowed the company to focus on operational performance and development and cope with complexity (e.g., activities turnaround and restructuring, new program development, industrial investments).

Insights

This company has shown that an ambitious, strategic growth plan combining organic and external growth is a driver for competitiveness. Moreover, to be a real future order winner, operations abroad and size are indispensable.
6 IMPLICATIONS FOR OEMS/ TIER-1, INVESTORS AND SUPPORT ORGANIZATIONS
Implications for OEMs and Tier-1

Current supply chain strategy not sustainable

We can see that current supplier strategies such as risk-sharing partnerships do not work out well for suppliers: we found that 50% of the suppliers are in the future exclusion zone.

In addition, some recent changes by OEMs will lead to the subtraction or reduction of supplier revenue in the aftermarket business.

As a result, suppliers are threatened in their long-term stability, and sometimes even in their existence. As we have seen over the past years, lower-tier suppliers in particular will not disappear immediately but progressively lose aerospace revenues. They may finally disappear from the OEM and Tier-1 radar when legacy programs end.

The entire supply chain is put at risk. Technological know-how, industrial capacity, innovation capacity, as well as related intangible assets are threatened.

Towards win-win partnerships with suppliers

A new partnership and collaboration model is required with a focus on win-win. Cornerstones should be to co-create innovation, to jointly develop precise sales and operations planning (S&OP) along the entire supply chain top-down and bottom-up, and to drive R&D, manufacturing and service towards Industry 4.0. This process needs to be driven actively by OEMs and Tier-1 and must involve lower-tier suppliers.

To establish the new partnership model, OEMs need to set-up strategic supplier development programs to increase their overall performance instead of focusing on their ability to improve cost competitiveness. Furthermore, OEMs should provide clear expectations but also offer suppliers enough time to adapt. In an ideal strategic supplier development program, both OEMs and suppliers will grow together.

And when this is not enough: head toward consolidation. In this case, OEMs and Tier-1 are invited to drive the consolidation of their respective supplier bases, targeting a minimum of €100 million in revenues for any supplier.
Implications for investors

The Aerospace industry overall is an attractive investment target. Product cycles of 25+ years and a high focus on R&D promise a stable environment for product and service differentiation with attractive pricing and stable, long-term aftermarket revenues. Investor funding is required to professionalize suppliers’ operations and increase the working capital required to grow a customer base outside of France and Germany.

We see three types of investors for whom the implications of the study differ:

**Aerospace industrial groups**

Aerospace industrial groups with aerospace as a core business, typically following an external growth strategy and aiming to broaden their existing aerospace footprint. They already well understand the industry environment with long development and production cycles and will not seek aggressive short-term returns on investments. They successfully build up a track record and know-how to manage aerospace-specific complexities and consolidate operational and technical redundancies. As strategic investors they look to fill the gaps in their value proposition or for an entrance into a different aerospace market segment. Suitable targets can be found in all three zones, from the future exclusion zone through the future order qualifying zone to the future order winning zone.

**Non-aerospace industrial groups**

Non-aerospace industrial groups seek aerospace targets to diversify market risks and achieve group revenue and profit growth. They should be aware that there is a high risk of only limited synergies between their traditional business and operating model and what is necessary to be successful in the aerospace market. This may lead to a costly, long-term learning curve. They should be prepared to operate their new aerospace business separately. Hence, next to technology and a service value proposition, looking for financial stability and professional operations is important. Suitable targets can be found mainly in the future order winning zone.

**Private equity funds**

Private equity funds are primarily interested in broadening and balancing their industry portfolio with aerospace companies. They see a fragmented industry with operational inefficiencies, opportunities for upsides and high returns on investment. However, they often lack understanding of aerospace industry specifics. In some cases, this leads to unrealistic short-term expectations. When strategies and return on investment expectations are tailored to the aerospace industry, they can find fitting targets in all three zones of the competitiveness portfolio.
if the market niche of the target offers enough growth potential. Buy-and-build scenarios are also an option. Regardless of the investment strategy and approach, investors should be aware that many aerospace companies have no experience with PE funds, which complicates communication and mutual understanding.

Regarding the consolidation potential of the market, the aerospace industry differs from others such as the automotive industry. The aerospace market is more stable and the small production quantities required for aircraft have thus far not required consolidation on a similar scale.

**Implications for support organizations**

**Evolving role of associations**

The role of the national industry associations BDLI and GIFAS and the role of regional aerospace clusters has changed over the last five years. Their service offerings have evolved from focusing on political affairs, lobbying for aerospace R&D funding, offering discussion platforms for the industry, and supporting fairs and exhibitions to also offering support for business improvement and operational effectiveness. Examples for this trend are SPACE in both France and Germany, the “Initiative Supply Chain Excellence” in Germany and “Performances Industrielles” in France, which all show positive impacts.

**Where to make the biggest impact**

Based on the study results, support organizations could make the biggest impact on the competitiveness of French and German suppliers with a focus on four areas:

- Facilitate the reinvention of the OEM/supplier partnership model. The neutral role of associations should be actively used to balance conflicting interests. To make progress, a joint strategic framework and a roadmap with an action plan for OEMs and suppliers is required.
- Support industry digital transformation with a priority focus on industrial performance (R&D, Manufacturing, Service) and upstream and downstream supply chain integration.
- Support SME suppliers in key improvement areas with discussion platforms, cooperation projects, trainings, and delegation journeys to international OEMs. Key improvement areas that SMEs struggle with and that hamper growth to becoming larger companies are strategy and business planning, financing, supply chain management, lean operations, and international business development.
- Continue awareness programs aimed at the general public to attract talent to meet future demand for qualified and motivated people.
7 CONCLUSION
Conclusion

Our study shows that the French and German aerospace industries have similar maturity levels and have evolved in a nearly identical way. Over the last five years, suppliers’ overall maturity has not increased enough (+2%) to meet customer expectations (+4%) and to compete against the increasing threat of new international competitors.

Half of the suppliers who participated in our study are in the future exclusion zone (+10 percentage points compared to 2013) and face severe difficulties in winning new orders. At the same time, a small group of large suppliers is leading the way and exceeding customer expectations by far.

This bipolarization will probably worsen as a new market dynamic is starting: end of the ramp-up effect, launch of new programs and digital transformation. Thus, we anticipate that OEMs and Tier-1 will soon expect a higher level of excellence from their suppliers. The period of production capacities ramp-up with forbearance from order-givers is over.

If they stand alone, many suppliers will not be able to deal with the new requirements. Now is the right moment to prepare our industry and raise the awareness of all stakeholders about the need for consolidation:

• Development of shareholders’ mindset regarding financing opportunities, especially for those of the most vulnerable companies
• Understanding of the attractiveness and specifics of the aerospace sector by the financial ecosystem (including private equity funds)
• Involvement of industrial groups in a more ambitious acquisition strategy
• Support of the consolidation process by OEMs and Tier-1 giving more medium- and long-term visibility to the stakeholders
Methodology

Survey approach

Step 1: Online survey for aerospace suppliers: Participants were asked 70 questions in four areas: company profile, capabilities, digitalization and usage/perceptions of support organizations. The answers required no exposure of critical information. Suppliers could take part anonymously. The questionnaire was distributed by BDLI and GIFAS to nine aerospace cluster associations.

Step 2: Intermediate strengths and weaknesses profile: Based on 41 questions/279 answer options of the online questionnaire, 29 internationalization and competitiveness criteria were defined. For each selected answer option, 0–20 points were given. The criteria were defined in accordance with the 2013 study and extended to digitalization.

Step 3: Customer interviews: In total, 17 customer interviews were conducted, each lasting on average 1 hour. The interviews were based on the results of the European supplier survey in 2013 and on the intermediate results of French and German aerospace suppliers in 2018. Customers were asked to interpret the results from their viewpoint, and to state what they expected of their suppliers.

Step 4: Final strengths and weaknesses profile: The average customer expectation scores (“red line”), based on the interviews with OEMs and Tier-1 companies, was defined as 100%. The supplier scores were adjusted with the customer expectation score to see if and by how much suppliers are below or above customer expectations.
Samples activity breakdown

We asked study participants to indicate their areas of business, technical service and/or manufacturing, as well as their supply chain positioning.

SAMPLE STRUCTURE N=140
In the overall sample, combined company activities in France and Germany are evenly spread between manufacturing (246) and technical services (258). The overall number of manufacturing segments per company is close for French and German samples; however their structure is different. French companies are more focused on systems and are strongly represented in engines, whereas German companies focus more on aerostructures and cabin/interior. Regarding technical services, the situation is very similar to manufacturing: French and German samples are very close together, but French suppliers are less dominant in systems and engines. The samples are consistent with the structure of the industry. The weight of aero-structures is similar in both countries, whereas the engine and systems businesses are larger in France than in Germany and vice versa for cabin/interior.
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We offer a comprehensive set of experiences, which cover the entire aerospace and aviation value chain. Our team works together with its clients day-by-day, in all major aerospace clusters of the world to help them transform, optimize their business and become a sustainable learning organization.

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