

the Company has competitive, mature products that are far from the end of their lifecycle.

The Company prepares for the future by creating more sustainable and environmentally sound products that will use modern Unmanned Traffic Management / Air Traffic Management (ATM) systems and respond to new challenges, such as for example a potential pilot shortage. Innovation has as an underlying target to respond to the Flight Path 2050 targets cutting CO₂ emissions by 75%, NO_x emissions by 90% and noise emissions by 65% compared to levels from the year 2000. The Company is committed to these targets and will contribute to transforming the aerospace industry, its business conduct and pursue its ambition to build the future of flight.

The Company is excelling in innovation and exploring cutting-edge technologies enabling to create platforms that are easy to manufacture, more automated and more connected:

- easy to manufacture: define new ways of working, switching from product performance to industrial performance;
- more automated, with state of the art computer vision techniques for taxi, take-off and landing;
- more connected: anywhere, anytime, at the gate and in the air, and over oceans, *via* satellite and direct air-to-ground link, enabling enhanced passenger experience and more efficient operations and maintenance.

2019 set the technical foundations for neutral / zero emission commercial aviation led by the inauguration of the E-Aircraft System facility and working with European industry on shaping the next EU Aviation research programme:

- Urban Air Mobility: Vahana has flown over 80 full-scale test flights. CityAirbus full-scale demonstrator conducted its first take-off in May 2019;
- Inauguration of the Airbus China Innovation Center in Shenzhen;
- In-flight trials of connected cabin technologies and in-flight demonstration of autonomous take-off;
- Launch of “fello’fly” flight demonstrator project inspired by nature to flying in “V” shape to save energy and benefit from the “air up wash” of the leader to reduce fuel consumption and CO₂ emissions.

10. Customer Centricity

The Company's platforms, product solutions and services are designed with the customers in mind, helping them operate their products more efficiently and serve new markets, providing the best experience for their end users.

Throughout the Company, the Company continuously focuses on enhancing customer trust and loyalty, concentrating on both performance and behaviours leading to:

- improving customer satisfaction before, at, and after delivery;
- putting customer intimacy (understanding) at the centre of the Company's strategy and actions;
- delivering increased support and service offering.

In 2019, Airbus' transformation initiative Next Chapter helped to sharpen the Company's focus on end-to-end delivery and value creation, including customer value.

Taking advantage of digital technologies, Airbus streamlined its ways of working, thus improving transparency to the customers during the delivery process and in-service operations.

Airbus' exchange programme with customers ensured that the products and services address needs of customers and generate value for the business.

The focus was on sharing (promoting) the voice of the customer inside Airbus, giving its employees a better understanding of customer operations and needs.

Organisation of the Company's Businesses

The Company has organised its businesses into the following three operating segments: (i) Airbus (formerly Commercial Aircraft), (ii) Helicopters and (iii) Defence and Space. Beginning in 2017, the Company merged its Group structure with its largest division Commercial Aircraft. The merger provided the opportunity to introduce a single Airbus brand for the Company and all its entities, effective since January 2017. The segment formerly known as “Airbus Commercial Aircraft” is referred to as “Airbus”. The Company retains Airbus Defence and Space and Airbus Helicopters as Divisions. The chart set out in “— General Description of the Company and its Share Capital — 3.3.6 Simplified Group Structure Chart” illustrates the allocation of activities.

Airbus (Commercial Aircraft)

Airbus is one of the world's leading aircraft manufacturers of passenger airliners. Across all its aircraft families Airbus' unique approach ensures that aircraft share the highest commonality in airframes, on-board systems, cockpits and handling characteristics. This significantly reduces operating costs for airlines.

Since it was founded in 1970 and up to the end of 2019, Airbus has received net orders for 20,108 commercial aircraft from 421 customers around the world. In 2019, Airbus delivered 863 aircraft (compared to 800 deliveries in 2018) and received 1,131 gross orders (compared to 831 gross orders in 2018), or 82% of the gross worldwide market share (in terms of units) of aircraft with more than 100 seats (compared to 43% in 2018). After accounting for cancellations, net order intake for 2019 was 768 aircraft (compared to 747 aircraft in 2018). As of 31 December 2019, Airbus's backlog of commercial orders was 7,482 aircraft (compared to 7,577 aircraft in 2018).

In 2019, Airbus (Commercial Aircraft) recorded total revenues of €54.77 billion – representing 77% of the Company's revenues. See “— 1.1.2 Airbus”.

Helicopters

Airbus Helicopters is a global leader in the civil and military rotorcraft market, offering one of the most complete and modern ranges of helicopters and related services. This product range currently includes light single-engine, light twin-engine, medium and medium-heavy rotorcraft, which are adaptable to all kinds of mission types based on customer needs.

Airbus Helicopters delivered 332 helicopters in 2019 (356 in 2018) and received 310 net orders in 2019 (compared to 381 net orders in 2018). Order intake amounted to €7.18 billion (2018: €6.33 billion). Civil contracts accounted for 45% of this order volume, with military sales representing the remaining 55%. At the end of 2019, Airbus Helicopters order book stood at 695 helicopters (2018: 717 helicopters).

In 2019, Airbus Helicopters recorded total revenues of €6.01 billion, representing 8% of the Company's revenues. See “— 1.1.3 Helicopters”.

Defence and Space

Airbus Defence and Space is Europe's number one defence and space enterprise, one of the world's leading space companies and among the top 10 global defence enterprises. Defence and Space puts a strong focus on core businesses: space, military aircraft, missiles and related systems and services.

Airbus Defence and Space is organised in four Programme Lines: Military Aircraft; Space Systems; Connected Intelligence and

Unmanned Aerial Systems. Airbus Defence and Space develops, produces and maintains cutting-edge products, systems and services, enabling governments, institutions and commercial customers to protect people and resources.

In 2019, Airbus Defence and Space recorded total revenues of €10.9 billion, representing 15% of the Company's revenues. See "— 1.1.4 Defence and Space".

Summary Financial and Operating Data

The following tables provide summary financial and operating data for the Company for the past three years. See "Management's Discussion and Analysis of Financial Condition and Results of Operations".

REVENUE BY BUSINESS SEGMENT

<i>(In € million)</i>	2019	2018	2017⁽¹⁾
Airbus	54,775	47,970	43,486
Airbus Helicopters	6,007	5,934	6,335
Airbus Defence and Space	10,907	11,063	10,596
Subtotal segmental revenue	71,689	64,967	60,417
Transversal / Eliminations ⁽²⁾	(1,211)	(1,260)	(1,395)
Total	70,478	63,707	59,022

(1) 2017 figures are restated due to the application of IFRS 15.

(2) "Transversal / Eliminations" comprises activities not allocable to the reportable segments, combined together with consolidation effects.

ORDER INTAKE BY BUSINESS SEGMENT

	2019		2018		2017⁽¹⁾	
	<i>(In € billion)</i>	<i>(In percentage)⁽²⁾</i>	<i>(In € billion)</i>	<i>(In percentage)⁽²⁾</i>	<i>(In € billion)</i>	<i>(In percentage)⁽²⁾</i>
Airbus	65.8	80.7%	41.5	73.7%	143.4	90.3%
Airbus Helicopters	7.2	8.8%	6.3	11.3%	6.5	4.1%
Airbus Defence and Space	8.5	10.5%	8.4	15.0%	8.9	5.6%
Subtotal segmental order intake	81.5	100%	56.3	100%	158.8	100%
Transversal / Eliminations	(0.3)		(0.8)		(1.1)	
Total	81.2		55.5		157.7	

(1) 2017 figures have not been restated to reflect the application of IFRS 15.

(2) Before "Transversal / Eliminations".

ORDER BACKLOG BY BUSINESS SEGMENT

	31 December					
	2019		2018		2017⁽¹⁾	
	<i>(In € billion)</i>	<i>(In percentage)⁽²⁾</i>	<i>(In € billion)</i>	<i>(In percentage)⁽²⁾</i>	<i>(In € billion)</i>	<i>(In percentage)⁽²⁾</i>
Airbus	424.1	89.7%	411.7	89.1%	950.4	95.1%
Airbus Helicopters	16.6	3.5%	14.9	3.2%	11.2	1.1%
Airbus Defence and Space	32.3	6.8%	35.3	7.7%	37.4	3.8%
Subtotal segmental order backlog	473.0	100%	461.9	100%	999.0	100%
Transversal / Eliminations	(1.5)		(2.4)		(2.1)	
Total	471.5		459.5		996.8	

(1) 2017 figures have not been restated to reflect the application of IFRS 15.

(2) Before "Transversal / Eliminations".

Relationship between Airbus SE and the Company

Airbus SE itself does not engage in the core aerospace, defence or space business of the Company but coordinates related businesses, sets and controls objectives and approves major decisions for the Company. As the parent company, Airbus SE conducts activities which are essential to the Company's activities and which are an integral part of the overall management of the Company. In particular, finance activities pursued by Airbus SE are in support of the business activities and strategy of the Company. In connection therewith, Airbus SE provides or procures the provision of services to the subsidiaries of the Company. General management service agreements have been put in place with the subsidiaries and services are invoiced on a cost plus basis.

For management purposes, Airbus SE acts through its Board of Directors, Executive Committee, and Chief Executive Officer in accordance with its corporate rules and procedures as described below under “— Corporate Governance — 4.1 Management and Control”.

Within the framework defined by Airbus SE, Airbus, each Division, Business Unit and subsidiary is vested with full entrepreneurial responsibility.

1.1.2 Airbus (Commercial Aircraft)

Airbus is one of the world's leading aircraft manufacturers of passenger airliners. In order to help shape the future of air transportation and drive steady growth around the world, Airbus seeks incremental innovative technological solutions and the most efficient sourcing and manufacturing possible – so airlines can grow and people can connect. Airbus' comprehensive product line comprises successful families of jetliners ranging in capacity from 100 to more than 600 seats: the A220 Family; the A320 Family, which is civil aviation's best-selling product line; the A330 Family, including the advanced A330neo; the new-generation widebody A350 XWB; and the double-deck A380. Across its aircraft families Airbus' solutions ensure that aircraft share high commonality in airframes, on-board systems, cockpits and handling characteristics. This significantly reduces operating costs for airlines. See “— 1.1.1 Overview” for an introduction to Airbus.

Airbus' global presence includes activity in Europe (France, Germany, Spain and the UK), as well as in Canada, and more globally at fully-owned subsidiaries in the US, China, Japan, India and in the Middle East, and spare parts centres in Hamburg, Frankfurt, Washington, Beijing, Dubai and Singapore. Airbus also has engineering and training centres in Toulouse, Miami, Mexico, Wichita, Hamburg, Bangalore, Beijing and Singapore, as well as an engineering centre in Russia. There are also hubs and field service stations around the world. Airbus also relies on industrial co-operation and partnerships with major companies and an extensive network of suppliers around the world.

Strategy

Airbus' primary goal is to deliver strong results in a sustained manner, while commanding a further increased share of the worldwide commercial aircraft market over the long-term and expanding its customer services offering. To achieve these goals, Airbus is actively:

Developing the Most Comprehensive Line of Products in Response to Customer Needs

Airbus continuously seeks to develop and deliver new products to meet customers' evolving needs, while also improving its existing product line. Programme highlights for 2019 included:

- launch of increased range capability for the A220 to over 6,000 km from 2021;
- first flight of the ACJ319neo in April;
- delivery of the 12,000th Airbus aircraft in May;
- launch of the A321XLR variant to meet the needs of the rapidly developing mid-capacity, mid-range market;
- launch of high-density A330neo variant, offering over 440 seats;
- delivery of the first A350-900 Domestic variant;
- delivery of the 1,000th A320neo Family aircraft in October.

To support the A350 XWB ramp-up and other production increases, a new super transporter has been developed, with the first of six Beluga XL aircraft entering into service in January 2020.

Airbus remains at the forefront of the industry by expanding its customer services offering – see Customer Services.

Building a Leaner, More Fully Integrated Company

In order to build a leaner, more fully integrated company and thereby bolster its competitiveness, Airbus is adapting its organisation to foster an entrepreneurial spirit and empower more teams, while maintaining harmonised processes across all sites. For series programmes, additional responsibilities and means have been delegated to plants for delivery at increased rates. Airbus also has become a more integrated company, working towards one common culture across its global workforce, as well as aligning processes and planning with the global supplier base.

Market

Market Drivers

The main factors affecting the commercial aircraft market include passenger demand for air travel, cargo activity, economic growth cycles, oil prices, national and international regulation (and deregulation), the rate of replacement and obsolescence of existing fleets and the availability of aircraft financing sources. The performance, competitive posture and strategy of aircraft manufacturers, airlines, cargo operators and leasing companies as well as wars, political unrest, pandemics and extraordinary events may also precipitate changes in demand and lead to short-term market imbalances.

According to internal estimates, demand for 39,200 passenger and freight aircraft is forecast in the next 20 years with Asia-Pacific accounting for over 40% of deliveries. In recent years, China and India have emerged as significant new aircraft markets. As a result, Airbus has sought to strengthen its commercial and industrial ties in these countries.

The no-frills / low-cost carriers also constitute a significant sector, and were expected at the end of 2019 to continue growing around the world, particularly in Asia, where emerging markets and continued deregulation could provide increased opportunities. While single-aisle aircraft continue to be a popular choice for these carriers, demand for Airbus' range of twin-aisle aircraft may also increase as some of these carriers develop or further develop their long-range operations.

In addition to these market drivers other factors can serve to constrain growth. These include but are not limited to infrastructure constraints, slot availability at some airports and pilot availability. These particular constraints are often limited to specific markets or regions.

Overall growth. The long-term market for passenger aircraft depends primarily on passenger demand for air travel, which is itself primarily driven by economic or GDP growth, trade, fare levels and demographic growth. Measured in revenue passenger kilometres, air travel increased in every year from 1967 to 2000, except for 1991 due to the Gulf War, resulting in an average annual growth rate of 7.9% for the period. Demand for air transportation also proved resilient in the years following 2001, when successive shocks, including 9/11 and SARS in Asia, dampened demand.

At the end of 2008 and in 2009, the financial crisis and global economic difficulties witnessed resulted in only the third period of negative traffic growth during the jet age, and a cyclical downturn for airlines in terms of traffic (both passenger and cargo), yields and profitability. Despite these perturbations, the market recovered, driven by the underlying demand for air transport. After 2009, the industry benefited from a prolonged period of stability which enabled airlines to collectively deliver profitability at historically high levels.

More recently, air travel demand growth had maintained solid momentum despite a certain weakening of the global economic growth at 2.5% in 2019 versus 3.2% in 2018. In 2019, Airbus operated in a challenging macro environment mainly driven by geopolitical instability, uncertainty around Brexit and imposition of tariffs of 10% on Airbus aircraft imported from the European

Union to the US in October 2019. At the end of 2019, world real GDP growth was projected to be at +2.5% in 2020, and forecast to remain positive with +2.7% in 2021 and +2.7% in 2022.

Preliminary figures released in early 2020, by IATA (International Air Transport Association), estimated that some 4.5 billion passengers made use of the global air transport network for their business, tourism needs or for simply visiting friends and relatives (VFR) in 2019. The annual passenger total is estimated to be up 4.0% compared to 2018. World passenger traffic, expressed in terms of total scheduled revenue passenger-kilometres (RPKs), posted an estimated increase of 3.5% for 2019.

Through its analysis Airbus continues to believe in the long term growth potential of our industry. The commercial aviation industry has been resilient to external shocks and traffic has grown 2.5x since 2000. Based on internal estimates, Airbus forecasts a growth rate of 4.3% annually during the period 2019-2038. If the actual growth rate equals or exceeds this level, Airbus expects that passenger traffic, as measured in revenue passenger kilometres, will double in the next 15 years.

Cyclicity. Despite an overall growth trend in air travel, aircraft order intake can vary significantly from year to year and within different regions, due to the volatility of airline profitability, cyclicity of the economy, aircraft replacement waves and occasional unforeseen events which can depress demand for air travel. However, new product offerings and growth across the market has resulted in good levels of order activity in recent years. For example, in 2019, Airbus added 768 net orders to its order book (compared to 747 in 2018).

Despite some cyclicity in airline demand, Airbus aims to secure at least stable delivery rates from year to year, supported by a strong backlog of orders and a regionally diverse customer base. At the end of 2019, the backlog stood at 7,482 aircraft. Through careful backlog management, close monitoring of the customer base and a prudent approach to production increases, Airbus has successfully increased annual deliveries for 17 years running, even through the financial crisis of 2008-2009.

Regulation / Deregulation. National and international regulation (and deregulation) of international air services and major domestic air travel markets affect demand for passenger aircraft. In 1978, the US deregulated its domestic air transportation system, followed by Europe in 1985. The more recently negotiated "Open Skies Agreement" between the US and Europe, which became effective in 2008, allows any European or US airline to fly any route between any city in the EU and any city in the US. Other regions and countries are also progressively deregulating, particularly in Asia. This trend is expected to continue, facilitating and in some cases driving demand. In addition to providing greater market access (which may have formerly been limited), deregulation may allow for the creation and growth of new airlines or new airline models, as has been the case with the no-frills / low-cost airline model, which has increased in importance throughout major domestic and intra-regional markets since deregulation (e.g., in the US and Europe).

Airline network development: “hub” and “point-to-point” networks. Following deregulation, major airlines have sought to tailor their route networks and fleets to continuing changes in customer demand. Accordingly, where origin and destination demand prove sufficiently strong, airlines often employ direct, or “point-to-point” route services. However, where demand between two destinations proves insufficient, airlines have developed highly efficient “hub and spoke” systems, which provide passengers with access to a far greater number of air travel destinations through one or more flight connections.

The chosen system of route networks in turn affects aircraft demand, as hubs permit fleet standardisation around both smaller aircraft types for the short, high frequency and lower density routes that feed the hubs (between hubs and spokes) and larger aircraft types for the longer and higher density routes between hubs (hub-to-hub), themselves large point-to-point markets. As deregulation has led airlines to diversify their route network strategies, it has at the same time therefore encouraged the development of a wider range of aircraft in order to implement such strategies.

Airbus, like others in the industry, believes that route networks will continue to grow through expansion of capacity on existing routes and through the introduction of new routes, which will largely be typified by having a major hub city at least at one end of the route. These new route markets are expected to be well served by the latest product offering, such as the A350 XWB and A330neo. Airbus believes that it is well positioned to meet current and future market requirements given its complete family of products.

Alliances. The development of world airline alliances has reinforced the pattern of airline network development described above. According to data from Cirium, a UK-based aviation industry consultancy, one-third of the world’s jetliner seats being flown today are operated by just 15 airlines. In the 1990s, the major airlines began to enter into alliances that gave each alliance member access to the other alliance members’ hubs and routings, allowing airlines to concentrate their hub investments whilst at the same time extending their product offering and market access.

Market Structure and Competition

Market segments. According to a study conducted by Airbus, some 20,900 passenger aircraft with more than 100 seats were in service with airlines worldwide at the beginning of 2019. Currently, Airbus competes in each of the four principal market segments for aircraft with more than 100 seats.

“Small” aircraft, such as the A220 and A320 Families, having 100 to more than 200 seats, and which are used principally for short-range and medium-range routes of up to 3,000 nautical miles.

“Medium” aircraft typically offering up to 300 seats on routes of up to 5,000 nautical miles. This includes long range versions of the A321 as well as the A330 family.

“Large” aircraft, such as the A350XWB, are wide-body twin-aisle which seat more than 350 passengers on routes of up to 10,000 nautical miles.

Freight aircraft, which form a fourth, related segment, are a combination of new build and converted ex-passenger aircraft.

Converted aircraft are prevalent in the expanding e-commerce market which typically sees relatively low aircraft utilisation. This can provide an economical “second life” for in-service aircraft from the A320 and A330 families. See “— Regional Aircraft, Aerostructures, Seats, Aircraft Conversion and Airbus Canada — EFW”.

Airbus also competes in the corporate, VIP business jet market with the ACJ. Airbus continues to develop corporate jet versions of its modern airliner family, notably the ACJ319neo and ACJ320neo, as well as offering new variants, such as the ACJ330neo and ACJ350 XWB. The increased range of these aircraft extends Airbus’ leadership in cabin comfort to even longer flights.

Geographic differences. The high proportion of single-aisle aircraft in use in both North America and Europe reflects the predominance of domestic short-range and medium-range flights, both from the expansion of the low-cost carrier and particularly in North America due to the development of hubs following deregulation. In comparison with North America and Europe, the Asia-Pacific region uses a greater proportion of twin-aisle aircraft, as populations tend to be more concentrated in fewer large urban centres. The tendency towards use of twin-aisle aircraft is also reinforced by the fact that many of the region’s major airports limit the number of flights, due either to environmental concerns or to infrastructure constraints that limit the ability to increase flight frequency. These constraints necessitate higher average aircraft seating capacity per flight. However, Airbus believes that demand for single-aisle aircraft in Asia will grow over the next 20 years, particularly as domestic markets in China and India and low-cost carriers continue to develop in the region. Aircraft economics will also help to drive aircraft size, with airlines looking to reduce the cost per seat through higher density aircraft cabins and the use of larger aircraft types and variants where possible.

Competition. Airbus has been operating in a duopoly since Lockheed’s withdrawal from the market in 1986 and Boeing’s acquisition of McDonnell Douglas in 1997. As a result, the bulk of the market for passenger aircraft of more than 150 seats have been manufactured by either Airbus or Boeing.

According to the manufacturers’ published figures for 2019, compared to Boeing, Airbus accounted for 69% of total commercial aircraft deliveries, 82% of total gross orders (in units), and 58% of the total year-end backlog (in units). Airbus delivered 863 aircraft in 2019.

Nevertheless, the high technology and high value nature of the business makes aircraft manufacturing an attractive industry in which to participate, and besides Boeing, Airbus faces international competitors. Embraer, (whose commercial aircraft business’ joint venture with Boeing is subject to regulatory approval) who originally was primarily focused on the regional market, has also focused on the development of larger airplanes. Additionally, other competitors from Russia, China and Japan will enter the 70 to 150 seat aircraft market over the next few years, and today are studying larger types.

In October 2017, Airbus SE and Bombardier Inc. agreed to form a partnership in relation to the C Series. Having received all required regulatory approvals, Airbus SE, Bombardier Inc. and Investissement Québec closed the C Series transaction effective on 1 July 2018 and as a result, the Company has

acquired a majority stake in the Airbus Canada Limited Partnership, with C Series subsequently renamed A220. For the latest update, see paragraph 1.3 below.

The partnership brings together two complementary product lines, the A220-100 and A220-300, targeting the 100-150 seat market segment with an addressable market of at least 7,000 new aircraft over the next 20 years in the segments in which they compete.

Airbus Canada benefits from Airbus' global reach, scale, procurement organisation and expertise in selling, marketing and producing the A220. Significant production efficiencies are anticipated by leveraging Airbus' production ramp-up expertise. In August 2019, Airbus officially begun manufacturing the A220 also in Airbus' facility in Mobile, Alabama.

Customers

As of 31 December 2019, Airbus had 421 customers and a total of 20,108 Airbus aircraft had been ordered, of which 12,626 aircraft had been delivered to operators worldwide. The table below shows Airbus' largest commitments in terms of total gross firm orders by customer for the year 2019.

Customer	Firm orders ⁽¹⁾⁽²⁾
Indigo	300
Air Arabia	120
Air France	60
Emirates Airline	50
United Airlines	50
Air Asia X Malaysia	30
Saudia	30
GECAS	25
Accipiter	20
Air China	20
American Airlines	20
Avolon	20
Lufthansa	20
Noirdic Aviation Capital	20
Wizz Air Hungary	20

(1) Options are not included in orders booked or year-end backlog.

(2) Excludes undisclosed customers.

A220 FAMILY TECHNICAL FEATURES (CURRENT VERSION)

Model	Entry-into-service	Passenger capacity ⁽¹⁾	Range (km)	Length (metres)	Wingspan (metres)
A220-100	2016	116	2,950	35.0	35.1
A220-300	2016	141	3,200	38.7	35.1

(1) Two-class layout.

A320 Family. With more than 15,000 aircraft sold, and nearly 9,350 delivered, the Airbus family of single-aisle aircraft, based on the A320, includes the A319 and A321 derivatives, as well as the corporate jet family (including new members ACJ319neo and ACJ320neo). Each aircraft in the A320 Family shares the same systems, cockpit, operating procedures and cross-section.

Products

The Family Concept — Commonality across the Fleet

Airbus' aircraft families promote fleet commonality. This philosophy takes a central aircraft and tailors it to create derivatives to meet the needs of specific market segments. For example, both variants of the A220 have a significant level of common parts and can be operated by a single pilot pool. Alternatively, the A320, A330, A350 and A380 all share the same cockpit philosophy, fly-by-wire controls and handling characteristics, enabling pilots to transfer among these aircraft within the Airbus family with minimal additional training. Cross-crew qualification across families of aircraft provides airlines with significant operational flexibility. In addition, the emphasis on fleet commonality permits aircraft operators to realise significant cost savings in crew training, spare parts, maintenance and aircraft scheduling. The extent of cockpit commonality within and across families of aircraft is a unique feature of Airbus that, in management's opinion, constitutes a sustainable competitive advantage.

In addition, technological innovation has been at the core of Airbus' strategy since its creation. Each product in the Airbus family is intended to set new standards in areas crucial to airlines' success, such as cabin comfort, cargo capacity performance, economic performance, environmental impact and operational commonality. Airbus innovations often provide distinct competitive advantages, with many becoming standard in the aircraft industry.

A220 Family. Complementing the A320 Family, the A220-100 and A220-300 models cover the segment between 100 and 150 seats and offer a highly comfortable five-abreast cabin. With the most advanced aerodynamics, carbon fiber reinforced polymer (CFRP) materials, high-bypass engines and fly-by-wire controls, the A220 delivers 20 percent lower fuel burn per seat compared with previous generation aircraft. The type will serve a worldwide market for smaller single-aisle airliners, estimated at least at 7,000 such aircraft over the next 20 years. Airbus manufactures, markets and supports A220 aircraft under the "C Series Aircraft Limited Partnership" (formerly CSALP; Airbus Canada Limited Partnership as of 1 June 2019) agreement, finalised in 2018. Primary competitors to the A220 Family are the Embraer EMB190-E2 and EMB195-E2 and the Boeing 737 Max 7.

At 3.95 metres diameter, the A320 Family has the widest fuselage cross-section of any competing single-aisle aircraft. This provides a roomy six-abreast passenger cabin, a high comfort level and a spacious under floor cargo volume. The A320 Family incorporates digital fly-by-wire controls, an ergonomic cockpit and a modern structural material selection. The A320 Family's primary competitor is the Boeing 737 series.

To ensure this market leader keeps its competitive edge, Airbus continues to invest in improvements across the product line, including development of the A320neo Family. The A320neo incorporates many innovations including latest generation engines, Sharklet wing-tip devices and cabin improvements, which together deliver up to 20% in fuel savings compared with earlier A320 family aircraft. The A320neo received joint Type Certification from the European Aviation Safety Agency (EASA) and the Federal Aviation Administration (FAA) in November 2015. The A320neo with Pratt & Whitney engines was the first variant in the Neo Family to receive Type Certification. The A320neo with CFM engines was certified in May 2016. The A321neo with Pratt & Whitney engines received Joint Type Certification in December 2016 and with CFM engines in March 2017. Type Certification for the A319neo with CFM engines was achieved in December 2018 with the Pratt & Whitney engine variant the following year.

The A320neo Family versions have over 95% airframe commonality with the A320ceo (current engine option) versions, enabling them to fit seamlessly into existing A320 Family fleets – a key factor for Airbus customers and operators.

Further innovation saw Airbus launch the long range A321XLR in 2019, combining single-aisle efficiency with widebody range and comfort.

Since its launch in December 2010, the A320neo Family has received 7,188 firm orders from more than 100 customers, with a total of 1,186 aircraft delivered to the end of 2019. A320neo deliveries commenced in February 2016 followed by the first A321neo in April 2017 and in November 2018 the first A321 LR. Overall, the A320 family retains a 57% share of the backlog against the Boeing 737 Family.

During 2019, Airbus received 796 gross orders for the A320 Family of aircraft and 654 net orders.

A320 FAMILY TECHNICAL FEATURES (CURRENT VERSION)

Model	Entry-into-service	Passenger capacity ⁽¹⁾	Range (km)	Length (metres)	Wingspan (metres)
A318	2003	107	5,750	31.4	34.1
A319	1996	124	6,950 ⁽²⁾	33.8	35.8
A320	1988	150	6,100 ⁽²⁾	37.6	35.8 ⁽³⁾
A321	1994	185	5,950 ⁽²⁾	44.5	35.8 ⁽³⁾
A319neo	2020	140	6,950	33.8	35.8
A320neo	2016	165	6,500	37.6	35.8
A321neo	2017	206	7,400	44.5	35.8
A321XLR		206	8,700	44.5	35.8

(1) Two-class layout.

(2) Range with sharklets.

(3) Wingspan with sharklets.

A330 Family. With 1,823 aircraft sold (of which 337 A330neo) and 1,492 delivered, the A330 Family covers all market segments with one twin-engine aircraft type and is designed to typically carry between 250 and 300 passengers in 3-class configurations or over 400 passengers in high-density. The A330 Family offers high levels of passenger comfort as well as large under-floor cargo areas. The aircraft is also offered as a cargo variant and as a military platform. The competitors of the A330 Family are the Boeing 767, 777 and 787 aircraft series.

The newest evolution to the A330 Family is the A330neo (new engine option), comprising the A330-800neo and A330-900neo versions. These aircraft incorporate latest generation Rolls-Royce Trent 7000 engines and enhanced aerodynamics for improved

fuel efficiency. The first flight took place in October 2017 and both Type Certification and first delivery were achieved in 2018, with TAP taking delivery of its first three A330-900s during the year. The final assembly of the A330-800 started in November 2017 and the aircraft performed its first flight on 6 November 2018.

Airbus is continuously developing the A330 Family to keep the aircraft at the leading edge of innovation and from 2020, versions of the A330neo will offer increased take-off weight of up to 251 tonnes, offering a 15,000 km range for the A330-800.

In 2019, Airbus received 104 gross orders (89 net) for the A330neo Family of aircraft, and delivered 41 A330neo aircraft plus 12 A330ceo totaling 53 aircraft to customers.

A330 FAMILY TECHNICAL FEATURES (CURRENT VERSION)

Model	Entry-into-service	Passenger capacity ⁽¹⁾	Maximum range (km)	Length (metres)	Wingspan (metres)
A330-200	1998	247	13,450	58.8	60.3
A330-300	1994	277	11,750	63.7	60.3
A330-800neo		257	13,900	58.8	64
A330-900neo	2018	287	12,130	63.7	64

(1) Three-class configuration.

A350 XWB Family. The A350 XWB is a family of wide-body aircraft, designed to accommodate between 325 and 400 passengers. The A350 XWB features a wider fuselage than that of competing new generation aircraft, Rolls-Royce Trent XWB engines, A380 systems technology and over 50% composite material. The A350 XWB's main competitors are the Boeing 787 and 777 aircraft series.

With the Ultra-Long Range (ULR) version of the A350-900 launched in 2015, the A350 XWB demonstrates its versatility by offering the capability to perform flights of up to 19 hours. The first

A350-900 ULR was delivered in September 2018 to Singapore Airlines. Highlighting the type flexibility, Airbus delivered the first A350-900 Domestic to Japan Airlines during 2019.

Airbus has also developed the larger A350-1000, which is now certified by EASA and the FAA and was delivered to its first customer in February 2018.

In 2019, Airbus received 113 gross orders for the A350 XWB Family (32 net), and delivered 112 aircraft, achieving the target rate of about 10 aircraft per month by the end of the year.

A350 XWB FAMILY TECHNICAL FEATURES

Model	Entry-into-service	Passenger capacity ⁽¹⁾	Maximum range (km)	Length (metres)	Wingspan (metres)
A350-900	2014	325	15,000	66.8	64.8
A350-1000	2018	366	15,557	73.8	64.8

(1) Three-class layout.

A380. The double-deck A380 is the world's largest commercial aircraft flying today. Its cross-section provides flexible and innovative cabin space, allowing passengers to benefit from wider seats, wider aisles and more floor space, tailored to the needs of each airline. Carrying 575 passengers in a comfortable four-class configuration and with a range of 8,000 nm / 14,800 km, the A380 offers superior economic performance, lower fuel consumption, less noise and reduced emissions.

In 2019, Airbus Commercial Aircraft delivered 8 aircraft.

In February 2019, following a review of its operations, and in light of developments in aircraft and engine technologies, Emirates announced the intention to reduce its A380 orderbook from 162 to 123 aircraft. As a consequence and given the lack of order backlog with other airlines, Airbus will cease deliveries of the A380 in 2022.

A380 TECHNICAL FEATURES

Model	Entry-into-service	Passenger capacity ⁽¹⁾	Maximum range (km)	Length (metres)	Wingspan (metres)
A380-800	2007	575	14,800	72.7	79.8

(1) Four-class layout.

Customer Services

Airbus targets to remain at the forefront of the industry by expanding its customer services offering to meet customers' evolving needs. As a result, Airbus is developing a wide range of customer centric and value-added services. This approach provides Airbus operators with solutions to significantly reduce their operating costs, increase aircraft availability, enhance the quality of their operations and passenger experience.

Customer Services' primary role is to support its customers in operating their Airbus fleet safely and profitably and to the satisfaction of passengers all around the world. As a result of its continued growth, Airbus' customer base has increased consistently over the past years reaching more than 11,000 aircraft in operation by the end of 2019 operated by more than 450 operators. The fleet is maintained by more than 200 Maintenance and Repair Organisations (internal and external to Airbus).

A worldwide network of more than 7,250 people (including subsidiaries) cover all areas of support from technical engineering / operational assistance and spare parts supply to crew and maintenance training. Hundreds of technical specialists provide Airbus customers with advice and assistance 24 hours a day, 7 days a week. There are 151 field service stations available worldwide for on-site assistance to 180 of our operators, 189

operators are covered by 17 Hubs. Airbus worldwide support is also based on an international network of 69 locations all around the world, including 18 training locations, 6 FHS (Flight Hour Services) pools and 10 spares warehouses.

As the worldwide fleet is growing (to an estimated 15,000 aircraft by 2025), so is the demand in the services market. At the same time customers expect an increased service level. Airbus offers optimised aircraft operational availability, streamlined flight operations and enhanced passenger experience by covering the full aircraft lifecycle and focusing on adding value to its customers. Growing fast on the market with organic growth, JVs, co-developments and acquisitions in recent years, here are some examples:

- in 2016, full acquisition of Navtech, now re-named Navblue, offering products in the Flight Operations area and Air Traffic Management area;
- in 2017, full acquisition of Sepang Aircraft Engineering (SAE), an MRO centre based in Kuala Lumpur, Malaysia, that had been partially owned by Airbus since 2011;
- launch of Airbus Interiors Services (2017) specialised in timely and flexible solutions for cabin equipment;
- the Airbus MRO alliance was launched in 2017 and now counts 6 affiliated members with a specific focus on the Asia Pacific Region to accompany the strong market growth in this region;

- the Airbus Training network currently counts 18 training network locations around the world; the latest acquisition being a flight training center in Santiago de Chile (December 2019) with SKY (a Chilean-based low-cost carrier) as launch customer for the new Airbus Chile Training Centre;
- in December 2018, Airbus and the French Civil Aviation University, ENAC, have obtained EASA certification for a co-developed Ab-initio Pilot Cadet Training Programme. The first cadets are now trained according to this programme in ab-initio flight schools Escuela de Aviacion Mexico (EAM) in Mexico City and more recently the Airbus Flight Academy Europe (in Angoulême, France), thus contributing to meeting the need for new pilots in the next 20 years;
- acquisition of a start-up - VRnam - to boost innovation for flight training through virtual reality.

Airbus' worldwide support is also based on an international network of support centres, training centres and spares warehouses all around the world, offering customers the solutions they need close to their operational base. To ensure this proximity Airbus empowered local teams and developed hubs in the regions, most recently in Asia, China, Africa and Middle East.

Since the launch of Skywise at Le Bourget in 2017, Airbus has accelerated with its digital transformation. In October 2018, Airbus created the Skywise campus – “a place to foster internal and external collaboration” – and developing new ways of working, with customers at the heart of each service, to offer the best value proposition across the full lifecycle, securing and optimising their operations end-to-end, providing tailored solutions that deliver impactful outcomes and enhancing the user's experience all along the way.

Skywise brings all the ecosystem data to a single platform. More than 100 airlines are now connected to the Skywise platform, representing a potential of over 9,000 aircraft of which approximately one third are not Airbus aircraft.

Leveraging on Skywise digital capabilities, Airbus' Customer Services portfolio offer is evolving to provide the best and most efficient solutions available on the market:

- launch of Skywise Reliability Services (October 2018);
- launch of Skywise Predictive Maintenance (October 2018);
- launch of “FHS (Flight Hour Services) powered by Skywise” enhancing the existing FHS offering to improve aircraft availability while optimising resources utilisation and components inventory (June 2019);
- launch of Skywise Digital Alliance (October 2019): Airbus will form an alliance with Delta Airlines to experiment, develop and market new predictive maintenance cross-fleet solutions. The Alliance is open to receive other members from airlines and systems OEMs.

Preparing the future, Airbus Services is on a continuing growth pattern and on track to achieve the US\$ 10 billion revenues ambition announced at the Farnborough 2018 Airshow.

Customer Finance

Airbus favours cash sales, and does not envisage customer financing as an area of business development. However, Airbus recognises the commercial need for manufacturers to assist customers in arranging financing of new aircraft purchases, and in certain cases to participate in financing those aircraft for the airline.

Extension of credit or assumption of exposure is subject to corporate oversight and monitoring, and follows strict standards of discipline and caution. Airbus' dedicated customer finance team has accumulated decades of expertise in aircraft finance. When Airbus finances a customer, the financed aircraft generally serves as collateral, with the engine manufacturer participating in the financing. These elements assist in reducing the risk borne by Airbus. The difference between the gross exposure resulting from the financing and the collateral value is fully provisioned for (for further information, please refer to the “— Notes to the IFRS Consolidated Financial Statements — Note 27: Sales Financing Transactions”). Airbus' customer financing transactions are designed to facilitate subsequent sell-down of the exposure to the financial markets, third-party lenders or lessors.

In 2019, Airbus continued to benefit from market appetite for both aircraft financing and sale and leaseback lessor opportunities, supported by a high level of liquidity available in the market at good rates for Airbus aircraft. Airbus customer financing exposure remained limited in 2019 and decreased compared to 2018. Airbus will continue to provide direct aircraft financing support as it deems necessary. Management believes, in light of its experience, that the level of provisioning protecting Airbus from default costs is adequate and consistent with standards and practice in the aircraft financing industry. See “— Risk Factors – Financial Market Risks – Sales Financing Arrangements”.

Asset Management

The Asset Management department was established in 1994 to manage and re-market used aircraft acquired by Airbus, originally as a result of customer bankruptcies, and subsequently in the context of certain buy-back commitments. The department operates with a dedicated staff and manages a fleet comprised of used aircraft across a wide range of models. Through its activities, the Asset Management department helps Airbus to respond more efficiently to the medium- and long-term fleet requirements of its customers.

Its key roles comprise commercial, technical and financial risk management of its used aircraft portfolio, as well as the enhancement of all Airbus products' residual value.

It also provides a full range of remarketing services, including assistance with entry-into-service, interior reconfiguration and maintenance checks. Most of the aircraft are available to customers for cash sale, while some can also be offered on operating lease. In the latter, the Airbus Asset Management team aims at eventually selling down the aircraft with lease attached to further reduce its portfolio exposure.

Operations

Industrial Organisation

Airbus' industrial organisation reflects the end-to-end industrial flow in single-aisle and widebody value streams respectively. Production flows from the supply chain, through constituent and major component (wing, forward and aft fuselage, and nose and centre fuselage) assembly through to final assembly in Toulouse, Hamburg, Tianjin and Mobile. Aircraft are then handed over to programme management for delivery to customers. The industrial flow is secured by Quality and enabled by Procurement as well as four transverse functions responsible

to provide the skills, standards and services necessary for (1) smooth industrial planning, logistics and transport, (2) integrated manufacturing engineering, (3) eradication of non-quality, and (4) highest operational excellence and sound performance management.

The Procurement organisation is responsible for both the contractual and operational relationship with the supplier base. Its aim is to ensure that purchased parts and services are delivered at the most competitive conditions, on time, cost and quality. A dedicated Procurement Operations team manages the delivery stream from the supply chain in accordance with the agreed conditions to enable the production flow.

In 2019 all new aircraft developments and major modifications benefited from the largely deployed Advanced Production Quality Planning (APQP) method across Airbus and at suppliers. The Quality First initiative launched in the second half of 2019 in Hamburg, with a strong focus on standards and quality gate adherence will be further deployed along the value streams in 2020. The Quality function ensured the granting in 2019 of all necessary EASA certification, POA, DOA, MOA and EN9100 accreditations through compliance to our internal standards and processes and associated audits.

This way of working along end-to-end value streams promotes a strong sense of collaboration in the service of customers with the highest safety and quality standards.

2019 delivery performance and rate evolution:

- A220 family: 48 A220 delivered. Ramp-up to a maximum target rate of 14 A220 per month by mid-decade;
- A320 family: record deliveries of 642. Rate 63 per month targeted in 2021;
- A330: 53 deliveries achieved;
- A350: record deliveries of 112, production ramp-up accomplished in 2019;
- A380: 8 deliveries achieved, preparation for end of production.

Engineering

Airbus Engineering is a global organisation that develops civil aircraft and aircraft components, and that conducts innovative research applicable to the next generation of aircraft. Airbus Engineering operates transnationally, with most engineers employed in France, Germany, the UK and Spain. A growing population of experienced aerospace engineers is also employed worldwide at five other engineering centres in Wichita (Kansas, US), Mobile (Alabama, US), Moscow (Russia), Bangalore (India) and Beijing (China).

A key part of the Airbus engineering organisation is the architect and integration centre, which ensures, together with a team of senior aircraft architects and the programme chief engineers, that a consistent and multi-disciplinary approach is applied during aircraft development.

Research & Technology activities continue to deliver incremental innovations for existing aircraft, matured breakthrough technologies, with reinforced focus on industrial aspects. Airbus Engineering is a major contributor to numerous international initiatives dedicated to the preservation of the environment and the reduction of noise and CO₂ emissions. Fully integrated change projects are also implemented to continuously implement innovative and efficient ways of working.

Regional Aircraft, Aerostructures, Seats, Aircraft Conversion and Airbus Canada

ATR

ATR (*Avions de Transport Régional*) is a world leader in the market for regional aircraft up to 90 seats. Its aircraft has over 200 operators in more than 100 countries. ATR is an equal partnership between Airbus and Leonardo, with Airbus' 50% share managed by Airbus. Headquartered in Toulouse, ATR employs more than 1,400 people. Since the start of the programme in 1981, ATR has registered net orders for 1,765 aircraft (507 ATR 42s and 1,258 ATR 72s).

In 2019, ATR delivered 68 new aircraft (compared to 76 in 2018) and recorded net firm orders for 48 new aircraft (compared to 46 in 2018), including orders from Nordic Aviation Capital (NAC). As of 31 December 2019, ATR had a backlog of 185 aircraft (compared to 205 in 2018).

By the end of 2019, ATR had delivered 1,580 aircraft.

Products and Services

ATR 42 and ATR 72. ATR has developed a family of high-wing, twin turboprop aircraft in the 30- to 78-seat market which comprises the ATR 42 and ATR 72, designed for optimal efficiency, operational flexibility and comfort. Like Airbus, the ATR range is based on the family concept, which provides for savings in training, maintenance operations, spare parts supply and cross-crew qualification. The ATR 72-600 is the lowest seat per mile cost aircraft on the 70 seat segment.

ATR is entering the cargo market by launching the ATR 72-600F (Freighter) with a brand new windowless fuselage, a forward Large Cargo Door (LCD) and a rear upper hinged cargo door. The ATR 72-600F will enter into service in 2020. The Company's aircraft family is also being extended with the brand new addition of the 42-600S. With the "S" representing Short Take-Off and Landing (STOL), this new version of the ATR 42-600 offers take-off and landing capabilities on runways as short as 800m with 40 passengers on board in standard flight conditions. Its entry into service is scheduled for 2022.

Customer service. ATR has established a worldwide customer support organisation committed to supporting aircraft over their service life. Service and training centres and spare parts stocks are located in Toulouse, Paris, Miami, Singapore, Bangalore, Auckland, Sao Paulo and Johannesburg. ATR worldwide presence also includes representative offices in Beijing and Tokyo.

ATR Asset Management addresses the market for second-hand aircraft by assisting in the placement and financing of used and end-of-lease aircraft.

Production

The ATR fuselage is produced in Naples, Italy, and ATR wings are manufactured in Merignac near Bordeaux, France. Final assembly takes place in Saint Martin near Toulouse on the Airbus commercial aircraft production site. Flight-testing, certification and deliveries also occur in Toulouse. ATR outsources certain areas of responsibility to Airbus, such as wing design and manufacturing, flight-testing and information technology.

STELIA Aerospace

STELIA Aerospace is a wholly-owned subsidiary of Airbus and offers global solutions for aeronautical manufacturers and airlines supported by its aerostructure, tubes and ducts, cabin interior and pilot seat branches.

As one of the world leading tier-1 aerostructure suppliers, STELIA Aerospace designs, develops, manufactures and industrialises workpackages and fully equipped and tested aircraft sections for civil and military programmes.

STELIA Aerospace is a global partner for major aeronautical players worldwide, such as Airbus, ATR, or Bombardier Aerospace.

With more than 7,000 employees worldwide based mainly in France, Canada, Morocco and Tunisia, STELIA Aerospace has a wide range of capabilities, from Build-to-Print to Design & Build solutions, including mechanical milling of rolled and stretched panels.

STELIA Aerospace designs, develops and manufactures bended and welded tubes and ducts covering all ATA systems.

Through its cabin interior specialty, STELIA Aerospace designs and manufactures luxury First Class and Business Seats for key partners in the world including Etihad Airways, Singapore Airlines or Thai Airways.

By combining innovative materials and technology with a drive to improve the passenger experience, STELIA Aerospace has created an outstanding range of seats used in civil aircraft globally.

STELIA Aerospace – a joint world leader Pilot seats manufacturer – provides cockpit and pilot seats for all kinds of aircraft, and offers support from design to production, including after-sales service.

As part of its development strategy, STELIA Aerospace has established a new subsidiary in Portugal. STELIA Portugal was founded end of 2019 and should start operations in 2020, enabling STELIA Aerospace to continue to support its customers ramp-up needs with additional production capacity.

Premium AEROTEC

Premium AEROTEC, a wholly owned subsidiary of the Company, is one of the world's leading tier-1 suppliers of commercial and military aircraft structures and is a partner in the major European international aerospace programmes.

Its core business is the development and production of large aircraft components from aluminum, titanium and carbon fiber composites (CFRP). Premium AEROTEC is Europe's no. 1 in this segment with roughly 9,000 employees at various sites in Germany and Romania. Premium AEROTEC is represented by its products in all Airbus commercial aircraft programmes. The current military programmes include the Eurofighter "Typhoon" and the military transport aircraft A400M.

Besides main customer Airbus, Premium AEROTEC will further intensify business with other customers and actively approach other aircraft or structural manufacturers. Premium AEROTEC is also striving to expand its maintenance, repair and spare parts business.

In order to contribute successfully to the shaping of the future of aviation, the engineers and developers at Premium AEROTEC are continuously working on the new and further development of lightweight and highly durable aircraft structures. They cooperate closely with universities and research institutes in the process. Premium AEROTEC plays a significant role in the design of new concepts in such fields as carbon composite technologies (including thermoplastic processes) or 3D-printing of aircraft components made of titanium or aluminum.

Elbe Flugzeugwerke GmbH – EFW

EFW combines various aviation and technology activities under a single roof: development and manufacturing of flat fibre-reinforced composite components for structures and interiors, the conversion of passenger aircraft into freighter configuration, maintenance and repair of Airbus commercial aircraft as well as engineering services in the context of certification and approval.

On 17 June 2015, Airbus signed an agreement with Singapore-based ST Aerospace Ltd. (STA) to offer passenger-to-freighter (P2F) conversion solutions for its A320 and A321 aircraft. STA acquired an additional 20% of the shares of EFW, Dresden (Germany) by way of a contribution in kind and a capital increase to EFW. The transaction closed on 4 January 2016. Consequently, 45% of the shares of EFW were retained and Airbus effectively lost its control over EFW (previously reported in Airbus).

Airbus Canada Limited Partnership

Airbus Canada Limited Partnership ("Airbus Canada") has been established on 1 July 2018 following the transaction between Airbus, Bombardier and Investment Quebec. At the end of 2019, Airbus Canada shareholding structure was 50.26% Airbus, 33.72% Bombardier and 16.02% Investment in Quebec. At the end of 2019, Airbus Canada had over 2,700 employees. For the latest update, see section 1.3 below.

In 2019, Airbus Canada has delivered 48 aircraft, compared to 20 aircraft in 2018 (from 1 July 2018). Airbus Canada has a backlog of 495 aircraft (600 orders – 105 deliveries in total as of December 2019).

Airbus Canada Products

Airbus Canada has developed a family of all-new design efficient aircraft with two products: the A220-100 and the A220-300, launched by Bombardier before the establishment of Airbus Canada. The A220-100 is a solution for opening new routes with urban and challenging operations. The A220-100 has a capacity between 100 and 135 passengers and a range of 6,300 km. The A220-300 is well suited to be one of the best network feeder. The A220-300 has a capacity between 130 and 160 passengers and a range of 6,200 km. From the creation of Airbus Canada until the end of December 2019, 68 A220 were delivered.

Airbus Canada Industrial Footprint

A220 final assembly line is in Mirabel. In 2019, the A220 has also begun to be manufactured in a new final assembly line in Mobile, for delivering to our American customers. The first A220 delivery from Mobile is expected in Q3 2020.

1.1.3 Helicopters

Airbus Helicopters is a global leader in the civil and military rotorcraft market, offering one of the most complete and modern range of helicopters and related services. This product range currently includes light single-engine, light twin-engine, medium and medium-heavy rotorcraft, which are adaptable to all kinds of mission types based on customer needs. See “— 1.1.1 Overview” for an introduction to Airbus Helicopters.

Strategy

Business Ambition

Airbus Helicopters continues to execute its ambition to lead the helicopter market, build end-to-end solutions and grow new VTOL businesses, while being financially sound.

The strategic priorities of Airbus Helicopters are:

- *Business Resilience*: Airbus Helicopters' challenge will be the preservation of its resilience in terms of growth, profitability and robustness of its business model for both helicopters and new VTOLS;
- *Customer Loyalty*: Airbus Helicopters continues to offer the best in class products and services to grow in the value chain of its customers and continuously improve customer satisfaction;
- *Future Growing Markets*: Airbus Helicopters continues to develop partnerships and governmental cooperation to reinforce its positioning on the market and influence legislation impacting the helicopters business;
- *Innovation*: Airbus Helicopters continues to build an innovative eco-system, develop demonstrators and deploy platforms and services.

Transformation

The Division remains focused on product safety, quality and lead time to continuously improve customer satisfaction.

Airbus Helicopters continues to refine and execute its transformation plan in order to maintain its competitiveness in the face of market evolutions and retain its ability to invest in the future.

Commitment to Innovation

After accumulating around 1,500 flight hours, the H160 flight test aircraft have finished the last of the certification flight tests. The prototypes are now being used to develop the specific and optional equipment required for the many missions the H160 will address in the years following its entry into service in 2020 (e.g., emergency medical services, private and business aviation, oil and gas transportation, search and rescue).

The H160 aircraft are also continuing the “Operator Zero” campaign, designed to fine-tune the maintenance plan and associated work cards, 3D technical publication, and tooling to ensure a smooth entry into service for this comfortable, next-generation, urban-friendly helicopter.

The HIL programme, for which the Airbus Helicopters' H160 was selected in 2017, was initially scheduled for launch in 2022 by the current military budget law. Launching the programme earlier will enable delivery of the first H160Ms to the French Armed Forces to be advanced to 2026. The H160 was designed to be a modular helicopter, enabling its military version, with a single platform, to perform missions ranging from commando infiltration to air intercept, fire support, and anti-ship warfare in order to meet the needs of the army, the navy and the air force through the HIL programme.

The new five-bladed H145 is on track for EASA and FAA certification in 2020. To ensure these certifications, two five-bladed prototypes have clocked more than 400 flight hours in extensive flight test campaigns in Germany, France, Spain, Finland, and in South America. First deliveries of the new H145 are scheduled for the second half of 2020, for EMS, parapublic and VIP customers. The helicopter features an innovative, five-bladed bearingless rotor that increases the useful load by 150 kilograms (330 pounds), while also offering crew and passengers a smoother ride and more comfort on-board the helicopter.

Airbus Helicopters has simultaneously been focusing on long term innovation in order to develop and mature the technobricks (e.g., autonomy, electrification, connectivity) that might benefit the “traditional” helicopter platforms of tomorrow as well as new VTOL architectures such as high-speed helicopters (Racer), eVTOL (CityAirbus) or unmanned platforms (VSR700). The light helicopter demonstrator research programme, announced at the Paris Air Show last year, in conjunction with the French Ministry of Transport (DGAC) will deliver new standards in terms of safety by providing pilots of single-engine rotorcraft more flexibility to perform autorotation in case of an engine shutdown thanks to an electrical back-up system. Further evolutions of the same technology could also pave the way to a significant reduction in fuel consumption and sound levels.

The VSR700 is a fully-fledged unmanned aerial system, capitalising on Airbus Helicopters' extensive experience of advanced autopilot systems and engineering expertise to provide modern militaries with new capabilities. It offers the best balance of payload capability, endurance and operational cost. It is capable of carrying multiple full-size naval sensors for extended periods and can operate in existing ships, alongside a helicopter, with a low logistical footprint. The first flight of the VSR700 prototype took place on 8 November 2019 and was a major milestone for the programme as progress is made on the operational demonstrator for the French Navy that will perform trials in 2021 in partnership with Naval Group.

Airbus Helicopters is also actively involved in Urban Air Mobility (UAM) via several commercial projects, CityAirbus and Racer. Airbus Helicopters has furthermore partnered with EASA to explore to harness their respective experience and know-how to bring the next generation of VTOL platforms to life, along with the necessary regulatory framework to support them.

Focusing on Customers

Airbus Helicopters' top priority from a customer support and service perspective is to ensure its work results in the best customer experience possible. In 2019, the Division focused on digitisation, analytics and integrated global contracts, such as HCare Smart and HCare Infinite, as key ways to help customers increase availability and mission success, optimise their costs, lower the maintenance burden, and enhance the safety of their aircraft.

With customers at various stages of the digitisation journey, Airbus Helicopters has invested in new services that help operators make the most of their data. These range from setting up the basics of a paperless organisation, to capturing and storing the rich troves of data generated by each flight or activity, to then applying data analytics for better decision-making. By the end of 2019, around 1,000 helicopters were sharing data with Airbus Helicopters. Likewise, the number of helicopters covered by an HCare Smart or Infinite contract increased by approximately 10%, with around 95% of HCare Smart parts-by-the-hour and full-by-the-hour customers opting to extend their contracts with Airbus Helicopters.

Delivering Safety

Airbus Helicopters' chief priority is to enhance flight safety for the thousands of men and women around the world who are transported in its aircraft every day. It is envisaged to, by 2028, reduce by 50% the accident rate and have no technical contribution to accidents. Airbus Helicopters also aims to be the forerunner of Product & Operational Aviation Safety breakthrough.

In order to achieve these goals, Airbus Helicopters strives to:

- define and develop new safety measures and initiatives to support the safe operation of its aircraft by customers;
- introduce design changes for all families of helicopters with a strong emphasis on safety criteria and leveraging big data to detect weak signals.

This commitment to safety is also reflected across all divisional internal activities involving the lifecycle of a helicopter, with focus on meeting industry quality and safety standards with an emphasis on safety culture development.

Market Drivers

According to market forecasts produced by Airbus Helicopters, around 22,000 civil helicopters and 14,000 military helicopters are expected to be built globally over the next 20 years. Overall, the global helicopter market is still evolving in a challenging environment.

Helicopters sold in the civil and parapublic sector, where Airbus Helicopters is a leader, provide transport for private owners and corporate executives, offshore oil operations, diverse commercial applications and state agencies, including coast guard, police, medical and fire-fighting services. Thanks to its existing mission segment diversity, the helicopter market (both Platforms and Services activities) is expected to be resilient through the coming decade, even though one of the key segments, Oil & Gas (in value), continues to experience challenging conditions. Airbus Helicopters expects market to remain challenging in the short term but believes that the demand over the next 20 years will be driven by large replacement needs from advanced economies

and by growth from emerging countries (especially in Asia still largely under equipped). Airbus Helicopters' market data indicates that in 2019, worldwide deliveries of civil and parapublic turbine helicopters of five seats and above stood at ~450 units. Demand for military helicopters and related services is mainly driven by budgetary and strategic considerations, and the need to replace ageing fleets. Airbus Helicopters believes that the advanced age of current fleets, the emergence of a new generation of helicopters equipped with integrated systems and the ongoing introduction of combat helicopters into many national armed forces will contribute to increased military helicopter procurement in the medium term. Nevertheless, demand from the military sector has historically been subject to large year-to-year variations due to evolving strategic considerations, and may be limited, due to budgetary constraints on public spending in some regions like Western Europe and Middle East, while other regions like Asia Pacific or Eastern Europe are expected to continue to grow. Despite recent threats and a growing geopolitical instability, which has accelerated military spending and a reassessment of defence budgets, the military market is still low in 2019. Economic difficulties (*i.e.* low commodities prices), saturation of the Western countries markets as well as priorities given to operational needs (*e.g.*, spare parts, availability improvement) have resulted in a decrease for all mission segments. According to Airbus Helicopters' market data, worldwide deliveries of military turbine helicopters have decreased to 560 units in 2019.

Competition

Airbus Helicopters' primary competitors in the civil and parapublic sector are Leonardo and Bell Helicopter.

The civil and parapublic sector has seen more local competitors in recent years (China, India, Japan, South Korea, Turkey). Airbus Helicopters has maintained its leading market share (in bookings of 2.0t helicopters and five seats and above), in a low market, with 60% in unit in 2019, followed by Leonardo and Bell with respectively 16% and 11%.

Airbus Helicopters' main competitors in the military sector are Sikorsky, Boeing and Russian Helicopters, thanks to large captive market and strong political support for export.

The military sector is highly competitive and is characterised by major restrictions on foreign manufacturers' access to the domestic defence bidding process (*i.e.* USA, China, Russia). Thanks to major military campaigns (NH90, H225 and H145M), in 2019 Airbus Helicopters maintained a market share in this sector of 13%. The Division will continue to focus on large military campaigns in 2020.

Customers

More than 3,000 operators currently fly Airbus Helicopters' rotorcraft in over 150 countries. Airbus Helicopters' principal military clients are Ministries of Defence ("MoDs") in Europe, Asia, the US and Latin America. In the civil and parapublic sector, Airbus Helicopters has a leading market share in Europe, the Americas and Asia-Pacific.

With 54% of the worldwide market share-based on deliveries in 2019, the versatility and reliability of Airbus Helicopters products have made them the preferred choice of the most prominent civil and parapublic customers (turbine helicopters of five seats and above).

Products and Services

Airbus Helicopters offers a complete range of helicopters that covers nearly the entire civil and military market spectrum, which it continuously improves with leading-edge technologies. This product range includes single-engine, light twin-engine,

medium and medium-heavy helicopters, and is based on a series of new-generation platforms designed to be adaptable to both military and civil applications. In addition, products share multiple technical features as part of a family concept approach.

The following table sets forth Airbus Helicopters' existing product line, consisting of optimised products for different mission types:

Helicopter Type	Primary Missions
Single Engine ("Ecoureuil" family)	
H125 "Ecoureuil" / H125M "Fennec"	Public Services ⁽¹⁾ , Military Utility ⁽²⁾ & Armed Reconnaissance, Corporate / Private, Commercial Pax Transport & Aerial Work
H130	Commercial Pax Transport & Multipurpose, Emergency Medical, Tourism, Corporate / Private
Light Twin Engine	
H135 / H135M	VIP, Military Utility & Armed Reconnaissance, Emergency Medical, Public Services ⁽¹⁾
H145 / LUH (UH-72) / H145M	VIP, Military Utility ⁽²⁾ , Emergency Medical, Public Services ⁽¹⁾
Medium ("Dauphin" family)	
AS365 "Dauphin" / AS565 "Panther"	Military Naval Warfare Mission & Maritime Security, Public Services ⁽¹⁾ (in particular Coast Guard & SAR), Oil & Gas, Commercial Pax Transport & Multipurpose
H155	Corporate / Private, VIP, Oil & Gas, Public Services ⁽¹⁾
H160	Corporate / Private, VIP, Oil & Gas, Public Services ⁽¹⁾
H175	Corporate / Private, VIP, SAR, Emergency Medical, Public Services ⁽¹⁾ , Oil & Gas
Medium-Heavy	
H215 "Super Puma" / H215M "Cougar"	Civil Utility, Military Transport / SAR, Oil & Gas
H225 / H225M	SAR, Combat-SAR, Military Transport, Oil & Gas, VIP, Public Services ⁽¹⁾
NH90 (TTH / NFH)	SAR, Military Transport, Naval
Attack	
Tiger	Combat, Armed Reconnaissance / Escort

(1) Public Services includes homeland security, law enforcement, fire-fighting, border patrol, coast guard and public agency emergency medical services.

(2) Civil Utility includes different kinds of commercial activities such as aerial works, electrical new gathering (ENG), passenger and cargo transport.

Civil Range

Airbus Helicopters' civil range includes single-engine, light twin-engine, medium and medium-heavy helicopters, which are adaptable to all mission types based on customer needs. To maintain and strengthen its competitive edge in the civil sector, Airbus Helicopters is maintaining R&D investments including:

- certification of the H160, which performed its first serial flight in December 2018;
- improvement of the existing range (i.e. H145 D3) in the field of performances and safety in order to meet customer's requirements;
- preparing the future H generation with major upgrades and new products pursuing a fast-paced product range renewal.

Military Range

Airbus Helicopters' military range comprises platforms derived from its commercial range (such as the H145M and H225M respectively derived from the H145 and H225) as well as purely military platforms developed for armed forces (the NH90 and the Tiger).

Designed for modern multi-mission capabilities and cost effectiveness throughout its lifecycle, the NH90 has been developed as a multi-role helicopter for both tactical transport

(TTH) and naval (NFH) applications. The programme, mainly financed by the governments of France, Germany, Italy and the Netherlands, has been jointly developed by Airbus Helicopters, Leonardo of Italy and Fokker Services of the Netherlands as joint partners in NATO Helicopter Industries ("NHI") in direct proportion to their countries' expressed procurement commitments. Airbus Helicopters' share of NHI is 62.5%. There were 32 NH90 deliveries in 2019, for a cumulative total of 412 deliveries as of the end of 2019. The NH90 fleet has accumulated ~230 000 flight hours.

The Tiger combat attack helicopter programme includes four variants based on the same airframe: the HAP (turreted gun, rockets and air-to-air missile); the UHT (antitank missile, air-to-air missile, axial gun and rockets); the ARH (antitank missile, turreted gun and rockets); and the HAD (antitank missile, air-to-air missile, turreted gun, rockets and upgraded avionics and engines). Overall in 2019, 4 Tigers were delivered, for a cumulative total of 184 deliveries by year-end. The Tiger fleet has accumulated more than 136,000 flight hours.

Airbus is also a major contractor to the US Army, having been chosen to supply the service's UH-72A Lakota helicopter. As of 1 January 2020, 468 aircraft had been delivered to the US Department of Defense for operation by US Army and Army National Guard units, the Navy and foreign military sales buyers.

Customer Services

With more than 3,000 operators in over 150 countries, Airbus Helicopters has a large fleet of some 12,000 in-service rotorcraft to support. As a result, customer service activities to support this large fleet generated 43% of Airbus Helicopters' revenues for 2019.

Airbus Helicopters' customer service activities consist primarily of maintenance, repairs, spare parts supply, training and technical support. In order to provide efficient worldwide service, Airbus Helicopters has established an international network of subsidiaries, authorised distributors and service centres.

Industrial Strategy

Implementing a new industrial model is one of the fundamental components of the Division transformation, enabling it to be more competitive, by controlling costs, while meeting the highest requirements in terms of quality and safety. The 3 pillars of the new industrial model are site specialisation, a new industrial architecture, and the deployment of flexible assembly lines.

Specialised sites contribute to anchoring quality and safety fundamentals while boosting Airbus Helicopters' competitiveness. Like many manufacturers, one of the objectives is to produce each helicopter sub-assembly at a dedicated site. This means that the

production sites are focused either on manufacturing operations with high added value or with a specific technological content. A good example of this transformation is the Paris-Le Bourget site, where all of Airbus Helicopters' blade design, industrialisation and production activities will be concentrated. The specialisation of these sites makes it possible to avoid the duplication of skills and industrial means.

Thanks to the redistribution of operations and economies of scale, each site contributes to the optimised production of the entire range and becomes more resilient to market fluctuations.

The helicopter is divided into major sub-assemblies that can be produced, assembled, and tested in parallel, thus shortening the industrial cycle. The H160 is designed to be assembled in just 40 days thanks to this new architecture. Reducing end to end cycles is a key driver of competitiveness as well as an answer to customer requirements.

Rendering industrial system more modular through flexible assembly lines is an additional means to enhance its competitive edge on the market.

In a versatile market context, our assembly lines must be able to assemble several different types of helicopters. This multi-product capability will be a key factor in terms of flexibility.

1.1.4 Defence and Space

Airbus Defence and Space develops, produces and maintains cutting-edge products, systems and services, enabling governments, institutions and commercial customers to protect people and resources.

Airbus Defence and Space is organised in four Programme Lines: Military Aircraft; Space Systems; Connected Intelligence; and Unmanned Aerial Systems, which focus respectively on the following key activities:

- Military Aircraft designs, develops, delivers and supports military aircraft. It is the leading fixed-wing military aircraft centre in Europe, and one of the market leaders for combat, mission, transport and tanker aircraft worldwide. Key products include the Eurofighter Typhoon, the A400M, the A330 Multi Role Tanker Transport (“MRTT”) and the C295;
- Space Systems covers a broad range of civil and military space offerings. Its satellite solutions for telecommunications, earth observation, navigation and science include spacecraft, ground segments and payloads for institutional customers as well as the export market. It also manufactures orbital and space exploration systems. Space transportation capabilities (comprising launchers and services) are offered via ArianeGroup, a 50/50 Airbus-Safran joint venture;
- Connected Intelligence includes five main business clusters: Secure Communications, Intelligence, Cyber Security, Security Solutions and Secure Land Communications. These clusters develop specific solutions for defence, governmental, civil and commercial customers;
- Unmanned Aerial Systems (“UAS”) develops, delivers and operates UAS and UAV (unmanned aerial vehicles) solutions for airborne intelligence, surveillance, reconnaissance, and combat missions.

Strategy

The strategic ambition of Airbus Defence and Space is to shape and deliver the future of European Air and Space and become one of the world's leading providers of smart aerospace and defence solutions.

To achieve this, Airbus Defence and Space is applying its strategy across three domains:

- **Defence:** Airbus Defence and Space is leveraging momentum in Franco-German cooperation and pursuing new European programme opportunities as it works to deliver its vision for Future Air Power. Key opportunities include FCAS, Eurodrone, Maritime Airborne Warfare System, special mission aircraft, and space situational awareness initiatives, among others. The Division is concurrently working to shape and address future secure, upgradeable, and dynamic network and Command and Control architecture requirements while continuing to evolve existing platforms and capabilities (e.g., Eurofighter Typhoon, A330 MRTT, A400M, C-295, predictive aircraft maintenance) for long-term competitiveness and value to future force structures;
- **Space:** Airbus Defence and Space will leverage its position as Europe's space leader to drive market competitiveness, working with European governments and institutions to ensure the long-term health of the entire European space industrial base. In tandem, Airbus Defence and Space will evolve its product portfolio (e.g., equipment, satellites, vehicles and infrastructure) and take a targeted approach to international expansion. In parallel, Airbus Defence and Space is developing end-to-end solutions and accelerating new products and services to strengthen its position across the space value chain;

– **Digital Services and Secure Connectivity:** Digital transformation and digital platforms will be a key enabler to unlocking greater value from our portfolio while providing new data-driven services and business models. The division will provide imagery intelligence, aircraft in-service support, and other services while also striving to be a leader in end-to-end secure connectivity across satellite, terrestrial, maritime, and airborne network and communication domains.

Globally, the Division intends to leverage its existing products and services, innovate new offerings, and strike selected strategic partnerships in order to strengthen its position in the US and other targeted international markets.

Market

Airbus Defence and Space is mainly active in governmental, institutional and commercial markets. As a general trend, defence budgets in Europe are expected to continue to grow, triggered by geopolitical tensions, heightened security risks and reinforced by recent discussions on NATO defence spending target of 2% of GDP. In addition, the implementation of the European Defence Action Plan of November 2016 was bolstered by the joint declaration published in July 2017 by the French and German governments outlining the intention to strengthen European defence, then by the agreement in 2018 to develop jointly the FCAS, the European “MALE” (Medium Altitude Long Endurance) drone and the Future Maritime Airborne Warfare Systems (“FMAWS”). Together, these may provide new sales opportunities through members’ collaborative procurement mechanisms. Market access outside the home countries may be subject to restrictions or preconditions such as national content or local industrial participation. Nevertheless, Airbus Defence and Space, in conjunction with Airbus, is well-placed to benefit from growth in defence expenditure. The market may be influenced in the short-term by a potential softening of the global economy and Brexit.

Military Aircraft

Customers

The Military Aircraft Programme Line with its combat aircraft, military transport and mission aircraft along with related services, supplies the public sector, mainly armed forces.

Customer relationships in this segment are characterised by their long-term, strategic nature and long decision-making cycles. Once a contract is signed its life span including considerable services business often lasts for decades. Beyond a strong foothold in home countries, the customer base is increasingly global, in particular due to the success of the A330 MRTT and C295 programmes.

The turbulence created by changes in the US administration and the Russian situation is gradually leading to a shift in importance of defence in Europe. The commitment to go towards 2% of the GDP is being gradually pursued and should lead to new optimism for the sector. The Franco-German declaration in summer 2017 and the establishment of “Permanent Structured Cooperation (PESCO)” by the European Union on 11 December 2017 are also clear signals in this direction. During the Franco-German Defence and Security Council in October 2019, France and Germany committed to strengthen their cooperation and agreed to contract the demonstrator phase for FCAS early next year.

Competitors

The market for military aircraft is dominated by large- and medium-sized American and European companies capable of complex system integration. Among the competitive factors are affordability, technical and management capability, the ability to develop and implement complex, integrated system architectures and the ability to provide solutions to customers. In particular dedicated mission aircraft, such as heavy tankers, are derived from existing aircraft platforms. Adapting them requires thorough knowledge of the basic airframe, which generally only the aircraft manufacturer possesses. The skills necessary for the overall systems integration into the aircraft are extensive and the number of players in the world market is very limited.

The main competitors in military transport and mission aircraft include Boeing, Embraer, Lockheed Martin, Northrop Grumman, Leonardo, UAC, Kawasaki, AVIC and Antonov.

Heavy military transport has historically been driven by US policy and budget decisions and has therefore been dominated by US manufacturers and split in strategic and tactical aircraft segments. The A400M represents the Company’s entry into this market, at a time when nations are expected to begin replacing their existing fleets. The aircraft is designed to disrupt the divide between strategic and tactical transport by offering both capabilities in one. This saves both time and cost as you can fly a long range strategic aircraft into a tactical zone of operation.

In terms of revenues, Airbus Defence and Space is the largest continental European combat aircraft manufacturer. The major combat aircraft activities are taking place through the contribution to the Eurofighter Typhoon programme jointly with the consortium partner companies BAE Systems and Leonardo. Competitors in the segment of combat aircraft include Boeing, Dassault, Lockheed Martin, Saab and UAC. Eurofighter is a key asset which for customers will act as a capability bridge to FCAS, in which it will also be seamlessly integrated.

Market Trends

The sale of aircraft is expected to remain stable in the transport and special mission aircraft segments and could grow for the heavy transport segment, where the A400M occupies a unique position.

After-sales services are an important business for Military Aircraft and are undergoing strong growth in line with the deliveries of A400M and A330 MRTT on top of the existing robust revenue stream associated with Eurofighter in-service support. The agreement signed between France and Germany in April 2018 to jointly develop and procure the FCAS and the Future Maritime Airborne Warfare System will also contribute to safeguarding critically-needed future European defence capabilities. During the Franco-German Defence and Security Council in October 2019, France and Germany agreed to contract the demonstrator phase for FCAS in 2020. For the latest update, see section 1.3 below.

Space Systems

Governmental Sector: Satellites, Space Infrastructure, Launchers, Deterrence

In the public market for earth observation, science / exploration and navigation satellites, competition in Europe is organised on a national and multinational level, primarily through the European Space Agency (“ESA”), the European Commission

(EC) and national space agencies. Space Systems, through its Programme Unit Earth Observation, Navigation and Science, is a major actor in these respective segments and the recognised European leader on ESA science programmes.

Decisions at the latest ESA Ministerial Conferences paved the way for future European programmes in which Airbus Defence and Space does or may seek to participate. There is also important export demand for earth observation systems, of which the Company is the world's leading provider. The export market is expected to continue growing over the medium-term driven by the demand coming from new governmental operators on top of the replacement of existing assets.

On the military customer side, demand for telecommunication and observation satellites has increased in recent years.

The equipment segment can rely on a stable European market, with potential growth to come from developing space countries as well as the US.

The orbital infrastructure segment comprises manned and unmanned space systems mainly used for space exploration, *i.e.* scientific missions. Demand for orbital infrastructure systems originates solely from publicly funded space agencies, in particular from ESA, NASA, Roscosmos (Russia) and JAXA (Japan). Such systems are typically built in cooperation with international partners. Continuing support to the operations of the International Space Station (ISS), together with vehicle and equipment development programmes and services such as the Service Module for NASA's Orion spacecraft, constitutes the predominant field of activity in this segment, and Airbus Defence and Space leads the European contribution on industrial level as prime contractor. As the future exploration plans of the various national space agencies take shape with a growing focus on a sustainable return to the Moon, Airbus Defence and Space is well-positioned to take a leading role in providing vehicles, platforms and services to support these ambitious endeavours.

The joint venture ArianeGroup is prime contractor for the Ariane 5 launcher system. ArianeGroup is contracted for the development of the future Ariane 6 launcher and is the prime contractor responsible for the development, manufacturing and maintenance of the French deterrence systems.

Commercial Sector: Telecommunications Satellites, Launch Services

The commercial telecommunication satellite market is highly competitive, with customer decisions primarily based on price, technical expertise and track record. The main competitors for telecommunications satellites are Boeing, Lockheed Martin, MAXAR and Northrop Grumman in the US, Thales Alenia Space in France and Italy, Information Satellite Systems Reshetnev in Russia, and CASC in China. The market for commercial geostationary telecommunications satellites has experienced a down turn since 2017 and is expected to gradually recover in the mid-term. In parallel, the demand for large constellations of smaller telecom satellites in Low Earth Orbit has increased dramatically in the last few years.

The market for commercial launch services continues to evolve. Competitive pressure is increasing in light of new entrants into the market. ArianeGroup provides a complete range of launch services with the Ariane, Soyuz, and Vega launchers. Competitors for launch services include SpaceX, ULA, ILS and CGWIC. The accessible market to Arianespace (a subsidiary of ArianeGroup)

for commercial launch services for geostationary satellites is expected to remain stable at around 20 payloads per year. However, due to various factors (such as technology advances, increasing competition and consolidation of customers), the figure remains volatile. This market does not include institutional launch services for the US, Russian or Chinese military and governmental agencies.

In 2015, Airbus Defence and Space announced the creation of OneWeb Satellites JV, an equally owned company with OneWeb that designs and builds a constellation of satellites for its unique customer OneWeb. The satellite constellation aims to provide competitive global internet access. This participation is entrepreneurial in nature and is meant to drive innovation in a new space market – an area that is set to expand dramatically in coming years. In 2017, OneWeb Satellites JV broke ground on the world's first state of the art high-volume satellite manufacturing facility in Exploration Park, Florida, and inaugurated its serial production line for the assembly, integration, and test of OneWeb's first satellites in Toulouse. In 2018, design of the pilot satellites was completed. The launch of the first satellites in 2019 allowed validation of the design.

Connected Intelligence

The Connected Intelligence programme line delivers satellite and terrestrial communication systems, information and security solutions like Skynet5. It also manages intelligence services from radar and optical data imageries, and provides cyber defence support, cipher solutions and training to its institutional and commercial customers

This programme line is divided into five programme units: Intelligence, Secure Communications, Cyber Security, Security Solutions and Secure Land Communications.

Through **Intelligence**, Airbus Defence and Space provides commercial satellite imagery, Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems and related services. Intelligence is amongst the largest players in the satellite imagery (optical and radar) market. The programme unit provides both optical and radar-based geo-information services to customers including international corporations, governments and authorities around the world. The demand for satellite imagery is growing in commercial markets as many companies see geospatial data as key information for their business development.

Through its **Secure Communications** programme unit, Airbus Defence and Space is also a leader in governmental satellite communications. The programme unit offers a full portfolio of mobile and fixed satellite communication and secure terrestrial communications solutions for application at sea, on land and in the air. It provides armed forces and governments in the UK, Germany, France and Abu Dhabi with secure satellite communications.

Airbus CyberSecurity: As a leading provider of security operation centres, incident response services, key management, cryptography and high-security national solutions and consulting and training services, Airbus Defence and Space has a long track record in providing the most sensitive secure IT and data handling and training solutions to defence and security customers throughout France, Germany, the UK and other NATO countries.

Security Solutions: As a world-leading system integrator for border security, maritime surveillance, critical national infrastructure protection and site security services, Security Solutions' aim is to build on these assets in operation, thereby fulfilling the requirements of the security market today and in the future with the latest technology and most attractive service packages.

Secure Land Communications offers advanced communication and collaboration solutions enabling its customers to gather process and deploy intelligence. Its portfolio is tailored to the needs of professionals from Public Safety and Transport, Utility and Industry (TUI). As the European leader and a key international player, Secure Land Communications has customers in more than 80 countries.

Unmanned Aerial Systems

Customers

Unmanned Aerial Systems could lead to diversification into services-driven markets. It is also a sector in which Europe has a strong need for investment, which could set the stage for new cooperation programmes. France, Germany, Italy and Spain have signaled their intention to cooperate on a medium altitude, long endurance (MALE) UAS. After Airbus Defence and Space and its partners finalised the two-year definition study of the system end of 2018, a EuroMale proposal (including options) has been submitted in 2019. Contract negotiations are ongoing.

Competitors

With regards to platforms, Chinese, Israeli and US firms are well established in the UAS market segment, along with other European companies such as BAE Systems, Leonardo and Thales, who are competing for new European projects. The market itself features strong growth with significant opportunities in Europe, the US and Asia Pacific.

Market Trends

UAS have a very promising growth potential. Market structures in this segment are not clearly set out yet and will see some movement, including a new European collaborative programme. Services verticals will offer increasingly interesting prospects as the market evolves.

Products and Services

Military Aircraft

A400M – Heavy military transport. The A400M is designed to be the most capable new generation airlifter on the market today. It is designed to meet the needs of the world's armed forces and other potential operators for military, humanitarian and peacekeeping missions in the 21st century. The A400M is designed to do the job of three different types of military transport and tanker aircraft by providing different capabilities. Tactical (short to medium range airlifter capability with short, soft and austere field operating performance), strategic transport (longer range missions for outsized loads) and tactical tanker.

A total of 174 aircraft have been ordered so far by the seven launch customer nations Belgium, France, Germany, Luxembourg, Spain, Turkey, the UK and one export customer, Malaysia. Type Certificate and Initial Operating Clearance were achieved

in 2013. Since then, 88 units have been delivered to six nations as of 31 December 2019. The A400M is already deployed in operations since 2014. In 2019, a contract amendment was signed with launch customers on the Global Rebaselining of the A400M programme, under which all parties have agreed to update the production plan and revise the capability roadmap. The programme is now delivering in line with the revised schedule.

Multi-role tanker transport – A330 MRTT. The A330 MRTT, a derivative of the Airbus A330-200 family, offers military strategic air transport as well as air-to-air refueling capabilities at the same time. Its large fuel tank capacity (111t) inherited from the commercial platform, allows to dispense fuel in flight to many receiver aircraft without the need for any additional fuel tanks. This allows the entire lower deck cargo bay compartment to be available for freight (up to 37t), with the possibility to transport up to 27 standard civil LD3 containers, or up to eight 436L military pallets as well as at the same time the capacity to transport up to 300 troops in the upper deck cabin compartment, with the high level of comfort of a civil airliner. The A330 MRTT is equipped with state of the art refueling systems, including an Aerial Refueling Boom System (ARBS) and under-wing refueling pods and in the upcoming months with the Automatic Air-To-Air Refuelling (A3R) capability. At the end of 2019, 60 A330 MRTT have been ordered by thirteen 13 Nations (more than 94% market share over the past 10 years, excluding the US), with 42 platforms already delivered and operating worldwide, accumulating more than 200,000 flight hours in operation.

Eurofighter combat aircraft. The Eurofighter multi-role combat aircraft (also referred to as Typhoon) has been designed to enhance fleet efficiency through a single flying weapon system capable of fulfilling both air-to-air and air-to-ground missions.

The Eurofighter Jagdflugzeug GmbH shareholders are Airbus Defence and Space (46% share), BAE Systems (33% share) and Leonardo (21% share). With regard to series production, the respective production work shares of the participating partners within the Eurofighter consortium stand at 43% for Airbus Defence and Space, 37.5% for BAE Systems and 19.5% for Leonardo. Airbus Defence and Space develops and manufactures the center fuselage and the right wing and leading edge slats for all aircraft, and is in charge of final assembly of aircraft ordered by the German, Spanish and Austrian air forces. In addition, Airbus Defence and Space is responsible for the development of the flight control system and the identification and communication sub-systems.

At the end of 2019, a total of 623 Eurofighter Typhoon aircraft had been ordered by nine customers (UK, Germany, Italy, Spain, Austria, Saudi Arabia, Oman, Kuwait, and Qatar), with a total of 570 aircraft delivered. Export opportunities are being actively developed together with the other shareholders of the Eurofighter consortium.

C295 – Light and Medium military transport/mission aircraft. The C295 is the work horse of tactical military transport, conducting logistical missions including the transport and delivery of personnel and cargo as well as medical evacuations. The aircraft are deployed in demanding operational environments and have been used for humanitarian missions. The aircraft are also offered as a dedicated mission aircraft with configurations beyond the traditional airlifter version, for example maritime patrol and anti-submarine warfare, airborne early warning and control, firefighting and intelligence surveillance reconnaissance

(ISR), etc. In over 20 years in service, this family of aircraft has proven to be robust, reliable, high-performing, efficient, flexible, easy to operate in any environment, and at low operating costs. Approximately 500 orders have been recorded for both CN235 and C295 types together at the end of 2019.

Military Aircraft Services. Airbus Defence and Space offers and provides various services for and related to military aircraft. Throughout the life-time of our aircraft, Military Aircraft Services includes integrated logistics support, in-service support, maintenance, upgrades, training or flight hour service. For example, the A330 MRTT contract with the UK Ministry of Defence through the AirTanker consortium includes alongside 14 aircraft the provision for all necessary infrastructure, training, maintenance, flight management, fleet management and ground services to enable the Royal Air Force to fly air-to-air refueling and transport missions worldwide. Services support legacy aircraft beyond those types currently in production at Airbus Defence and Space, conducting upgrade programmes for aircraft such as the Tornado and P-3 Orion. Airbus Defence and Space maintains a network of Maintenance, Repair and Overhaul centers strategically located throughout the world for greater proximity to the customer, for example in Seville or Manching in Europe, in Mobile, Alabama (US) or at subsidiaries in Saudi Arabia or Oman.

Space Systems

Manned Space Flight. Airbus Defence and Space has been the prime contractor for the European part of the International Space Station (ISS). This includes the development and integration of Columbus, the pressurised laboratory module on ISS with an independent life-support system successfully in orbit since 2007. It provides a full-scale research environment under microgravity conditions (material science, medicine, human physiology, biology, Earth observation, fluid physics and astronomy) and serves as a test-bed for new technologies.

In 2015, ESA awarded Airbus Defence and Space a contract to handle the engineering support of the European components of the ISS, which represents a key part of the ISS operational activities. Airbus Defence and Space was also the prime contractor for the development and construction of the Automated Transfer Vehicle (ATV) cargo carrier. The expertise gained on the ATV positioned Airbus Defence and Space to become the prime contractor for the European service module of NASA's next generation Orion manned capsule, with the first module delivered end of 2018 and the second already under manufacturing.

Launch services. Airbus Defence and Space is active in the field of launch services through its ArianeGroup joint venture.

ArianeGroup is responsible for the coordination and programme management of civil activities of the launcher business and relevant participations that have been transferred. ArianeGroup owns a total 74% stake in Arianespace, 46% of Starsem and 51% of Eurockot, providing a complete range of launch services with the Ariane, Soyuz, Vega and Rockot launchers.

Commercial launchers. ArianeGroup manufactures launchers and performs research and development for the Ariane programmes. Member States, through ESA, fund the development cost for Ariane launchers and associated technology. Airbus Defence and Space has been the sole prime contractor for the Ariane 5 system since 2004. In December 2014, the Ariane 6 programme was decided by ESA ministerial conference with

an approval of the joint Airbus Defence and Space and Safran concept. In addition, a new industrial set-up was announced with the creation of ArianeGroup between the two main Ariane manufacturers. This vertical integration secures the future by cutting costs and being more competitive. Ariane 6 is targeted to be launched in 2020.

Telecommunication satellites. Airbus Defence and Space produces telecommunication satellites used for both civil and military applications, such as television and radio broadcasting, fixed and mobile communication services and Internet broadband access. Current Airbus Defence and Space geostationary telecommunication satellites are based on the Eurostar family of platform, including all-electric variant. In 2018, Airbus Defence and Space was selected by Eutelsat to build the HotBird new generation satellites, two sophisticated telecom satellites based on Eurostar Neo platform, the new flagship generation product for Airbus Telecom large Geo Satellites. Airbus Defence and Space also develops the Eutelsat Quantum telecommunication satellite, the first satellite that can be fully reconfigured in orbit through its flexible antennae and repeater, and recently added to its product line OneSat, a medium-size telecommunications satellite also fully reconfigurable in orbit. OneSat has been already selected by Inmarsat, who ordered three of them in 2019.

Observation and scientific / exploration satellites. Airbus Defence and Space supplies Earth observation satellite systems including ground infrastructures for both civil and military applications. Customers can derive significant benefits from the common elements of Airbus Defence and Space's civil and military observation solutions, which allow the collection of information for various applications, such as cartography, weather forecasting, climate monitoring, agricultural and forestry management, mineral, energy and water resource management, as well as military reconnaissance and surveillance.

Airbus Defence and Space also produces scientific satellites and space infrastructure, which are tailor-made products adapted to the specific requirements of the mostly high-end mission assigned to them. Applications include astronomical observation of radiation sources within the Universe, planetary exploration and Earth sciences. Airbus Defence and Space designs and manufactures a wide range of highly versatile platforms, optical and radar instruments and equipment. For example, Airbus Defence and Space contributed to the scientific community with the launches of the Sentinel-1B radar, Sentinel-2A and LISA pathfinder. It also signed a major contract to develop and build the JUICE spacecraft, ESA's next life-tracker inside the Solar System. JUICE will study Jupiter and its icy moons.

Navigation satellites. Airbus Defence and Space plays a major industrial role in the "Galileo" European navigation satellite system, which delivers signals enabling users to determine their geographic position with high accuracy and is expected to become increasingly significant in many sectors of commercial activity. Airbus Defence and Space was responsible for the Galileo in-orbit validation phase (IOV) to test the new satellite navigation system under real mission conditions. The IOV phase covered the construction of the first four satellites of the constellation and part of the ground infrastructure for Galileo. After the successful launch of the first four Airbus Defence and Space Galileo IOV satellites in 2011 and 2012, this early constellation was successfully tested in orbit and handed over to the customer in 2013. Airbus Defence and Space is playing an active role in the Galileo full operation capability phase

(FOC) with a nearly 50% work share, including the FOC ground control segment and providing the payloads for the first 22 FOC satellites through its subsidiary SSTL, and has been selected by ESA in 2018 as the prime contractor to develop EGNOS V3, the next generation of the European Satellite Based Augmentation System (SBAS) planned to provide the aviation community with advanced Safety of Life services and new services to Maritime and Land users.

Spacecraft Equipment. Airbus Defence and Space offers an extensive portfolio of embedded subsystems and equipment for all types of space applications: telecommunications, Earth observation, navigation, scientific and space exploration missions, manned spaceflight and launchers.

French deterrence systems. ArianeGroup as prime contractor holds the contracts with the French State for the submarine-launched deterrence system family.

Connected Intelligence

Intelligence is a designer and supplier of C4I systems (Command, Control, Communications, Computers and Intelligence), which provides information systems and solutions to armed forces worldwide to support land, air and sea operations, assuring information superiority and supporting decision making at all levels of the command chain. Competitors in this area largely come from European or American based defence companies.

With the very-high-resolution twin satellites Pleiades 1A and 1B, SPOT 6 and SPOT 7, Airbus Defence and Space's optical satellite constellation offers customers a high level of detail across wide areas, a highly reactive image programming service and unique surveillance and monitoring capabilities. Airbus Defence and Space is currently producing four Pléiades Neo, Airbus' new very high resolution satellites. They will join the already large Airbus constellation of optical and radar satellites and will offer enhanced performances and the highest reactivity in the market thanks to direct access to the data relay communication system, known as SpaceDataHighway.

TerraSAR-X, a radar-based Earth observation satellite that provides high-quality topographic information, enabled Airbus Defence and Space to significantly expand its capabilities by proposing new kinds of images based on radar.

Secure Communications provides armed forces and governments with secure satellite communications. For example in the UK, Airbus Defence and Space delivers in the frame of the "Skynet 5 programme" tailored end-to-end in-theatre and back-to-base communication solutions for voice, data and video services, ranging from a single voice channel to a complete turnkey system incorporating terminals and network management. This contract, pursuant to which Airbus Defence and Space owns and operates the UK military satellite communication infrastructure, allows the UK MoD to place orders and to pay for services as required.

CyberSecurity provides companies, critical national infrastructures and government and defence organisations with reliable, high-performance products and services to detect, analyze and respond to increasingly sophisticated cyber attacks. The market growth is driven by an exponential increase in cyber-attacks, the increased use of connected assets and global digital transformation. Customers are governments and private companies with a high grade security requirement.

Security Solutions answers manifold operational needs in security and critical infrastructure protection by providing adaptable solutions and services needed to achieve everyday missions

Secure Land Communications includes infrastructures, devices, applications and services based on Tetra, Tetrapol and Broadband technologies.

Unmanned Aerial Systems

In the field of UAS, Airbus Defence and Space is active at both product and service level. Airbus Defence and Space is the leading UAS service provider for the German air forces meeting their MALE Intelligence, Surveillance and Reconnaissance needs in the operational theatre. These interim solutions, based on non-proprietary MALE systems, will be replaced by a new generation European MALE Remotely Piloted Aircraft System (RPAS) where Airbus Defence and Space is working with its European partners. Airbus Defence and Space also provides mini-UAS to the French armed forces and selected export customers and the KZO (*Kleinflugzeug für Zielortung*) UAS to the German armed forces. It is developing the solar-powered Zephyr for both military and civil applications such as relay stations for internet provision to remote or sparsely populated regions.

Production

Airbus Defence and Space is headquartered in the Munich region. The main engineering and production facilities of the Division are located in France (Paris region and southwest France), Germany (Bavaria, Baden-Württemberg and Bremen), Spain (Madrid region and Andalusia) and the UK (southern England and Wales). In addition, Airbus Defence and Space operates a global network of engineering centres and offices in more than 80 countries.

MBDA

The Company's missile business, in addition to the ArianeGroup joint venture, derives from its 37.5% stake in MBDA (a joint venture between the Company, BAE Systems and Leonardo). MBDA offers missile systems capabilities that cover the whole range of solutions for air dominance, ground-based air defence, maritime superiority and battlefield engagement. Beyond its role in European markets, MBDA has an established presence in export markets like Asia, the Gulf region and Latin America.

The broad product portfolio covers all five principal missile system categories: air-to-air, air-to-surface, surface-to-air, anti-ship and surface-to-surface. MBDA's product range also includes a portfolio of airborne countermeasures such as missile warning and decoy systems, airborne combat training and counter-improvised explosive devices (IED) and counter-mine solutions. The most significant programmes currently under development are the next generation of the successful MICA (*Missile d'interception, de combat et d'autodéfense*) air-to-air missile called MICA NG, the network enabled precision surface attack SPEAR missile and the "Common Anti-Air Modular Missile Extended Range (CMM-ER)", which is an anti-air missile family with land and naval launched applications, the Anglo-French joint initiative for a "Future Cruise / Anti-Ship Weapon (FC/ASW)" aiming to replace prior generation cruise-

missiles as well as Anti-ship weapons for the two nations. Recent product upgrades also include the Aster Block 1 NT, the air & missile defence family of systems for France and Italy, the Sea Venom/ANL (*Anti-Navire Léger*) anti-ship missile for the UK and French navies' helicopters and the portable medium range battlefield "Missile Moyenne Portée (MMP)". Further activities include preparations for the ground based air defence system TLVS (*Taktisches Luftverteidigungssystem*) (based on MEADS (*Medium Extended Air Defence System*)) for Germany jointly with Lockheed Martin, the production of

various aircraft packages for Eurofighter Typhoon and Rafale as well as equipment of various frigates and corvettes with systems and ammunition.

ArianeGroup

Airbus Defence and Space is active in the field of launchers and launch services through its ArianeGroup joint venture, which prior to July 2017 was named Airbus Safran Launchers (ASL).

1.1.5 Investments

Dassault Aviation

The Company entered into an agreement with the French State pursuant to which the Company:

- grants the French State a right of first offer in case of the sale of all or part of its shareholding in Dassault Aviation; and
- commits to consult with the French State prior to making any decision at any shareholders' meeting of Dassault Aviation.

The Company holds approximately 9.89% of Dassault Aviation's share capital and 6.12% of its voting rights. In case of exchange in full of the bonds issued by the Company which are due in 2021, the Company will no longer hold any Dassault Aviation shares or voting rights.

1.1.6 Insurance

The Company's Insurance Risk Management function ("IRM") is established to proactively and efficiently respond to risks that can be treated by insurance techniques. IRM is responsible for all corporate insurance activities and related protection for the Company and is empowered to deal directly with the insurance and re-insurance markets via the Company's inhouse broker entity. IRM's continuous task in 2019 was to further implement and improve efficient and appropriate corporate and project-related insurance solutions.

IRM's mission includes the definition and implementation of the Company's strategy for insurance risk management to help ensure that harmonised insurance policies and standards are in place for all insurable risks worldwide for the Company. A systematic review, monitoring and reporting procedure applicable to all Divisions is in place to assess the exposure and protection systems applicable to all the Company's sites. The Company's insurance programmes cover high risk exposures related to its assets and liabilities.

Asset and liability insurance policies underwritten by IRM for the Company cover risks such as property damage, business interruption, cyber, aviation and non-aviation general and product liability. IRM also provides a Group insurance policy for Supervisory and Managing Board members and certain other employees of the Company. The Company follows a policy of seeking to transfer the insurable risk of the Company to external insurance markets at reasonable rates, on customised and sufficient terms and limits as provided by the international insurance markets.

The insurance industry remains unpredictable and most Group insurance policies are renewed on an annual basis. There may be future demands to change scope of coverage, premiums and deductible amounts. Thus, no assurance can be given that the Company will be able to maintain its current levels of coverage nor that the insurance policies in place are adequate to cover all significant risk exposure of the Company.

1.1.7 Legal and Arbitration Proceedings

The Company is involved from time to time in various legal and arbitration proceedings in the ordinary course of its business, the most significant of which are described below. Other than as described below, the Company is not aware of any material governmental, legal or arbitration proceedings (including any such proceedings which are pending or threatened), during a period covering at least the previous twelve months which may have, or have had in the recent past significant effects on the Company's or Airbus SE's financial position or profitability.

Regarding the Company's provisions policy, the Company recognises provisions for litigation and claims when (i) it has a present obligation from legal actions, governmental investigations, proceedings and other claims resulting from past events that are pending or may be instituted or asserted in the future against the Company, (ii) it is probable that an outflow of resources embodying economic benefits will be required to settle such obligation and (iii) a reliable estimate of the amount of such obligation can be made. Although the Company believes that adequate provisions have been made to cover current or