Business Aviation Study Switzerland 2022

Impact – Benefits – Trends

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LAE Logistics Advisory Experts GmbH
Spin Off
SBAA
Cuvillier Verlag

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Bibliographical information held by the German National Library

The German National Library has listed this book in the Deutsche Nationalbibliografie (German national bibliography); detailed bibliographic information is available online at http://dnb.d-nb.de.

1st edition - Göttingen: Cuvillier, 2022

Nonnenstieg 8, 37075 Göttingen, Germany

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www.cuvillier.de

1st edition, 2022

This publication is printed on acid-free paper.

ISBN 978-3-7369-7615-3

eISBN 978-3-7369-6615-4

Contents

Swiss Business Aviation in Focus

As a small country in the middle of Europe, the Swiss always thought beyond their own boundaries and established relationships worldwide. Combined with the love for detail, education, excellence, and innovation Switzerland soon became a center within Europe or even worldwide not only for aviation in general but for Business Aviation in particular. Connecting Switzerland to the world has always been the driver of success for our country – in both directions. It allows Swiss businesses and individuals to grow as well as attract international business and talents to connect to Switzerland.

This study outlines and stresses the importance of our small country to stay connected and the role the Business Aviation sector plays in it. It also emphasizes (and quantifies) the economic importance our industry has for this country, not only directly through jobs but also by adding to the attractiveness of Switzerland as home to over 850 large international companies and organizations.

Business Aviation generates over 34,000 direct and indirect jobs in Switzerland and CHF 15 billion in annual economic output. It ranges from aircraft manufacturers, operators, airports, maintenance providers, air crews, aircraft financiers to ground handling, fueling, catering, taxi and cleaning companies thereby generating widespread economic benefit. It connects remote areas allowing local businesses to prosper which otherwise would not have access. The example of Payerne airport illustrates clearly what can be achieved locally when communities invest in Business Aviation and its related infrastructure.

Although Business Aviation has proven resilient and capable of adjusting to a changing environment, we – as well as our stakeholders – are facing significant changes: increasing fuel prices, consequences of the Russian-Ukrainian military conflict, shortage of trained staff, COVID-19 implications to name the most recent and tangible ones. The long-term challenges however remain how we can shape the future of Business Aviation in a societally, environmentally and economically sustainable manner.

From a Swiss perspective, it remains particularly important to strengthen (or avoid further deterioration of) essential infrastructure, accessibility to such infrastructure for Business Aviation, provision of a reliable legal and tax framework and not least the continuous education of aviation experts in Switzerland. Otherwise, the stagnation or even reduction of Business Aviation activity in Switzerland is going to continue.

As Swiss Business Aviation Association we are happy to be able to introduce the readers of this study to Business Aviation, increase their understanding of our industry and its importance for Switzerland, its economy and also its society.

Niclas von Planta, President SBAA


HB-VPN

Facts & Figures

1. Business Aviation Impact on National Level

- >160 % growth of BizAv market share in Switzerland in 2021 compared to 2019
- 34,100 direct and indirect jobs*
- >15 Billion CHF annual economic output*
- 35x Swiss airports can be served by BizAv
- On average 3x more BizAv flights per capita of the Swiss population compared to EU 27 countries
- Geneva and Zurich among the Top 4 busiest BizAv airports in Europe in 2021

*pre-COVID-19 levels

2. Business Aviation Impact on Geographical Areas

- 11.6 % average growth of all Swiss BizAv airports in terms of flight movements in 2021 compared to 2019
- 32 % Swiss BizAv market share of Geneva Airport (GVA)
- 27 % Swiss BizAv market share of Zurich Airport (ZRH)
- Regional Swiss airports form the backbone of the Swiss BizAv network
  - 763 % growth of (BizAv) flight movements at Payerne Airport in 2021 compared to 2016

3. Stakeholder Analysis and Customer Benefits

- 88 % of the Top 50 of *Forbes Global 2000* leading companies are business aircraft users
- 86 % of BizAv flights carry marketing and sales personnel, technical and engineering personnel, middle managers and corporate customers
- 90 % of all Swiss BizAv routes are almost impossible to reach directly by scheduled flight
- 150 % increase in passenger/employee productivity by using BizAv
- >2h time savings with a BizAv flight compared to commercial flights

Facts & Figures

4. Utilization Strategies and Location Factors

- 1-2h accessibility of all Swiss airports by car or train
- <2h by plane to reach the biggest European capitals
- >15,000 flights per year are carried out by business aircraft for humanitarian missions
- 2 % of all European BizAv flights are used to serve medical evacuations
- >850 headquarters of international companies and organizations are located in Switzerland

In the increasingly fierce international competition between locations, **the availability of a nearby Business Aviation airport is a non-negligible location factor for many companies.**

"For large companies, Business Aviation is an argument, but on the other hand, the airport network is very good in Switzerland. It is the biggest advantage of choosing Switzerland compared to other countries."

Business Aviation has been at the forefront of innovation since the dawn of aviation. More than ever, the industry is in flux, bringing new modes of transportation and new applications to market. At its core, Business Aviation embraces the future and how to reach it faster.

Adopting innovation in Business Aviation bridges the gap between technology trends and sustainability trends – **even if progress seems slow, it will inevitably come**.

Business Aviation is regarded the Formula 1 of the aviation industry – it drives innovation paving the way for advancements in the international aviation sector

5. Trends and Market Development

- +5.8 % Swiss BizAv market growth compared to 2019
- +35 % growth of Swiss BizAv flights movements from Sep. 2019 to Sep. 2021
- +11.64 Billion CHF worldwide business aircraft market size development until 2028
- 76 % of aircraft demand until 2040 will be primarily in the small aircraft segment
- 0.04 % of the global CO_2 emissions are caused by the BizAv sector

Management Summary

Business Aviation plays a vital role within the aviation industry in connecting Switzerland with Europe and the world by providing fast, secure and reliable passenger transport between distant and remote areas. The value of Business Aviation for Switzerland is based on the advantages associated with the connecting function of Business Aviation with regard to distant places in Europe and around the globe, which make a significant contribution to the attractiveness of Switzerland as a relevant location for companies, organizations and professionals with an international orientation. Jobs directly and indirectly created and secured by beneficial Business Aviation framework conditions contribute to Switzerland's prosperity.

Business Aviation has increasingly become the subject of controversial debates about the aviation industry and the question as to the extent to which it provides a necessary business tool to enhance personal mobility. Critical voices bring a ban on smaller aircraft or private flights into play.

Business Aviation is an industry with limited visibility to the general public, and little is known about it. Some people are skeptical about the use of Business Aviation and may not value its benefits. For many users of Business Aviation, on the other hand, it is an indispensable business tool whose importance in connecting people, countries, and continents became apparent not just in light of the COVID-19 crisis. The Business Aviation industry bucked the General Aviation trend in 2020 and 2021, showing growth and attracting new customer groups worldwide. During this time, the high flexibility of Business Aviation and its safe way of getting from A to B efficiently proved its value. Professionals and companies had to rely on business aircraft in times of thinned airline networks and travel restrictions – the crisis in the aviation industry gave new impetus to the Business Aviation business model and its unparalleled benefits.

In 2021, Switzerland recorded close to 100,000 Business Aviation aircraft movements – more than in 2019. In light of the general crisis in aviation and slow recovery, this temporarily increased the share of Business Aviation in total aircraft movements to 27 %.

The Swiss example reveals the impressive increase in the relevance of Business Aviation due to the COVID-19-related cancellation of scheduled flights. It becomes apparent that need for personal meetings in the private and business context is unbroken. In the short and long-term, virtual meetings are expected to replace only a certain proportion of business meetings – visiting conferences or production sites and initiating and closing contracts often require personal meetings.

Beyond business purposes, there are further areas of application that are rather unknown to many and therefore need to be given more attention. Business Aviation is regularly used in medical emergencies, providing fast and safe transport of patients from remote regions or to specific medical facilities far away – saving lives not only during the COVID-19 crisis. About 2 % of all European Business Aviation flights serve medical evacuations.

The functional interaction of time benefits, flexibility, benefits in terms of convenience, reliability and safety, and societal benefits makes Business Aviation an important industry and market player for various stakeholders.

Switzerland is considered an outstanding location for the headquarters of multinational companies and international organizations, not least because of its exceptional air traffic network. All Swiss airports can be reached within 1-2 hours by car or train, from which the major European capitals can again be reached within two flight hours. In this context, Switzerland's regional airports constitute the backbone of the highly efficient Swiss air passenger transportation system – which is made possible by Business Aviation.

Management Summary

Furthermore, 90 % of all Swiss Business Aviation routes are almost impossible to reach directly by scheduled flight.

In addition to the three national airports, Zurich, Geneva and Basel, the 35 smaller regional airports with Business Aviation operations contribute significantly to the high-performing infrastructure of the Swiss air traffic network. The numerous regional airports take a relief function for the three national airports. Moreover, Swiss regional airports are often used by Business Aviation in case of capacity bottlenecks or due to their proximity to the final destination. Payerne airport, for example, recorded an enormous 763 % increase of flight movements in 2021 compared to 2016, after opening the airport for civil aviation besides military operations.

Geneva Airport (GVA) has the largest share of Business Aviation flight movements in Switzerland accounting for 32 % of Switzerland's Business Aviation market, while Zurich Airport (ZRH) ranks second in terms of Business Aviation flight movements with a national market share of 27 % in 2021. However, there are limits to Business Aviation aircraft movements at the two major national airports nearly operate at maximum capacity in normal times and exceeding slots at peak times.

(Swiss) Business Aviation operated significantly more flights in 2021 than even before. However, it remains to be seen how resilient the Business Aviation market will perform in the face of further crises such as the war in Ukraine combined with the Russian sanctions, as well as other unforeseen events in the future.

In the ecological area of tension, Business Aviation faces an area of conflict. On the one hand, the CO_2 emissions per passenger are higher than in commercial flights – however, Business Aviation overall contributes only a small share to the CO_2 emissions of aviation.

On the other hand, Business Aviation serves as a pioneer for sustainable aviation innovations, which are usually first implemented on smaller business jets and then adapted and adjusted for larger aircraft. Business Aviation in particular has the opportunity to be an implementer and frontrunner for innovations in the aviation industry and to establish long-term technological and sustainable innovations in the aviation industry.

Business Aviation needs to be clear about its core missions and its major concerns:

- Which customers will Business Aviation target in the future and how will the customer segment evolve?
- Which future flight routes will be demanded by Business Aviation customers?
- Will Business Aviation be an ecological outcast or will Business Aviation drive the change and create economical, ecological, and societal impact among industries?

Innovative propulsion technologies, sustainable aviation fuels, and more efficient aircraft in combination with emerging business models such as digitally integrated mobility platforms need to be at the heart of these strategies. Business Aviation has the unique opportunity to become part of and shape an ecosystem of integrated modern and environmentally friendly mobility options.

What is Business Aviation?

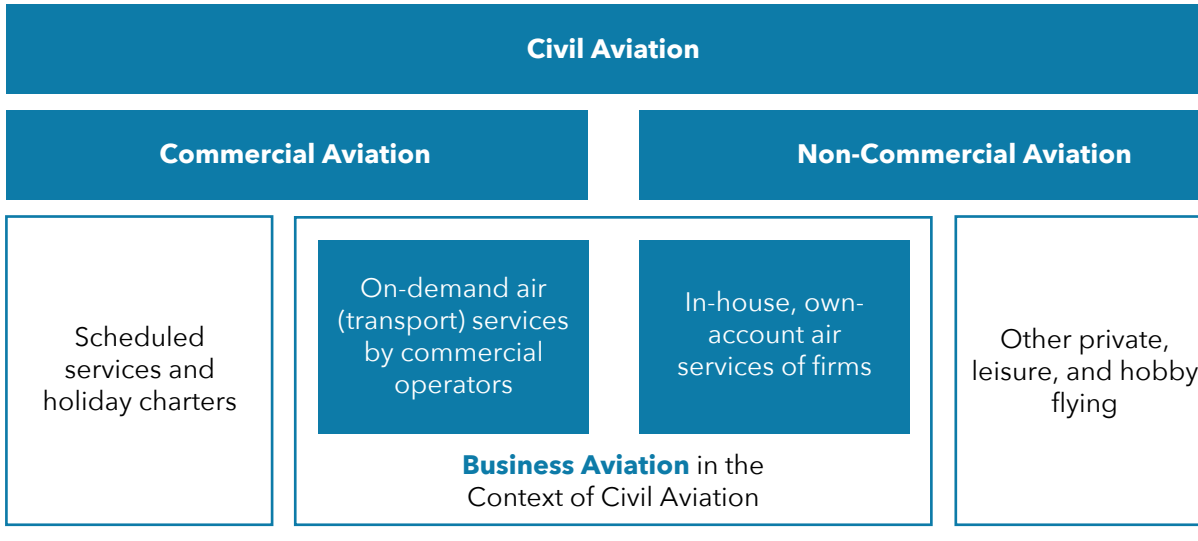
For many people, the term "Business Aviation" conjures up associations of sleek jets used exclusively by a small group of "super-rich" people – whether for business purposes or exclusively for private pleasure, because "money is no object". However, Business Aviation differs from commercial aviation simply in the fact that Business Aviation involves the operation or use of aircraft that are generally not available for public hire by companies or individuals. More to the point, Business Aviation provides strategic network capacities to an increasing number of companies, organizations and industries, giving its customers a burgeoning role in shaping the social relationships that form the foundation of the global economy.

The development of Business Aviation can be traced back to the early 1920s, when major U.S. corporations began using private aircraft to visit their manufacturing facilities that would be inaccessible by scheduled aircraft. At that time, the term "Private Aviation" was more commonly used.

The industry made its breakthrough in the early 1960s as a separate sub-divison of civil aviation – special jets for business travel were developed for the first time[2]. Thus, today the name "Business Aviation" has become established, which clarifies the primary use of the sector.

There is no agreed definition of Business Aviation – however, most common definitions refer to the same subject area. The U.S. Federal Aviation Administration (FAA) defines Business Aviation as "the use of any General Aviation aircraft […] for business purpose." The International Business Aviation Council (IBAC) refers to Business Aviation as "that sector of aviation which concerns the operation or use of aircraft by companies for the carriage of passengers or goods as an aid to the conduct of their business, flown for purposes generally considered not for public hire and piloted by individuals having, at the minimum, a valid commercial pilot license with an instrument rating"[3].

The role of Business Aviation in the context of the civil aviation sector[1]



[1] Maertens, S. et al. (2019). The Economic Footprint of the Business Aviation Sector in Europe. In: Airline Economics in Europe (Advances in Airline Economics, Vol. 8), Emerald Publishing Limited, Bingley, pp. 137-166.
[2] Budd, Lucy C. S. (2019). Aeromobile Elites: Private Business Aviation and the Global Economy. Transport Studies Group, School of Civil and Building Engineering. Leicestershire: Loughborough University.
[3] EBAA (2018). IBAC Definition of Business Aviation.

1. Business Aviation
Impact on National Level

Chapter Key Facts

Business Aviation plays a vital role in connecting regions with different economic strength both in Switzerland and across Europe. By analyzing the Business Aviation sector in Switzerland and comparing it to the European market, the relevance of Business Aviation is illustrated based on direct and indirect indicators such as market shares, jobs generated, annual economic output, Business Aviation flight movements, as well as intangible catalytic effects and others.

As the Swiss are enthusiastic air travelers, they also have among the highest number of flights per capita per year in Europe. At the same time, in the wake of globalization, Switzerland's geographic location and dense Business Aviation airport network have contributed to attract numerous large multinational companies and major international organizations from around the world. The Swiss economy and society benefit greatly from the Swiss Business Aviation sector and the advantages it provides, contributing significantly to Switzerland's GDP directly, indirectly, and induced.

While the COVID-19 crisis and related travel restrictions have caused hardship for many industries around the world, particularly the airline industry, Business Aviation has proven to be particularly resilient, contributing to keep the world connected by air.

> *"The excellent air connectivity of Business Aviation contributes to Switzerland's attractiveness as a location factor, not least for multi-national companies."* – Guillaume Chassot, Director Payerne Airport

Business Aviation airports vs. other airports[1]

Business Aviation chapter key facts:

- >160 % growth of BizAv market share in Switzerland in 2021 compared to 2019
- 34,100 direct and indirect jobs*
- >15 Billion CHF annual economic output*
- 35x Swiss airports can be served by BizAv
- On average 3x more BizAv flights per capita of the Swiss population compared to EU 27 countries
- Geneva and Zurich among the Top 4 busiest BizAv airports in Europe in 2021

*pre-COVID-19 levels

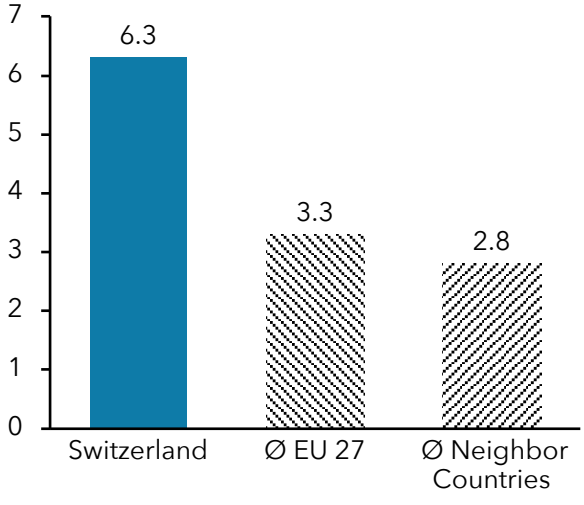
[1] EBAA (2022). About Business Aviation. What is Business Aviation?

General Impact of Business Aviation

One of Switzerland's greatest advantages is its outstanding air connectivity to the rest of the world, making it a prime destination for businesses of all sizes, tourism, international organizations, science and arts. These connections are profound and impactful, and they greatly benefit the Swiss economy and society.

Switzerland has a significantly above-average passenger volume per capita in the aviation sector, especially in terms of international passengers[2].

Aviation flight movements at airports of European countries per capita (from 2017)[2]

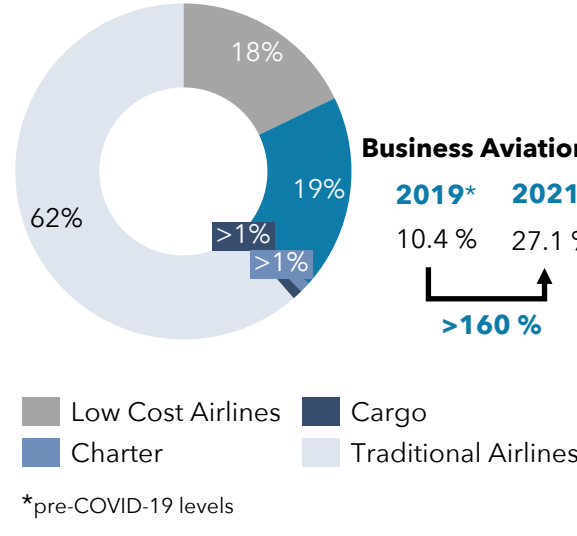


The high number of flight movements at the national airports underpins the great importance of business and tourism traffic in Switzerland. In addition, due to a lack of alternatives, Swiss national airports have a far above-average importance compared to the rest of Europe. For the Swiss economy, which has strong international ties, Business Aviation is therefore an important complement to scheduled air traffic services.

Additionally, for many large airports in Europe, there exist alternative options or alternative airports for scheduled aviation and especially for individual Business Aviation. For the two largest and most important Swiss Business Aviation airports, Geneva and Zurich, there are currently no viable alternative options.

The numerous advantages of Business Aviation are obvious. Flight routes for example can be offered that are not operated by commercial flights. Flight schedules can be adapted to customers' time requirements, allowing Business Aviation customers to fly to several destinations in sequence on the same day. Business Aviation is therefore an important complement to scheduled air traffic and makes a significant contribution to Switzerland's economic performance. In fact, almost 20 % of all commercial air traffic departures in Switzerland in 2020 and over 27 % in 2021 were generated by Business Aviation during the COVID-19 crisis – up from only 10.4 % before the 2019 pandemic.

Swiss aviation market share (from 2020)[3, 4]



*pre-COVID-19 levels

[2] Intraplan Consult GmbH (2018). Monitoring Air Traffic Switzerland.
[3] EBAA (2020). EBAA Yearbook: Country Profiles. Switzerland.
[4] EBAA (2018). European Business Aviation – Economic Value & Business Benefits.

General Impact of Business Aviation

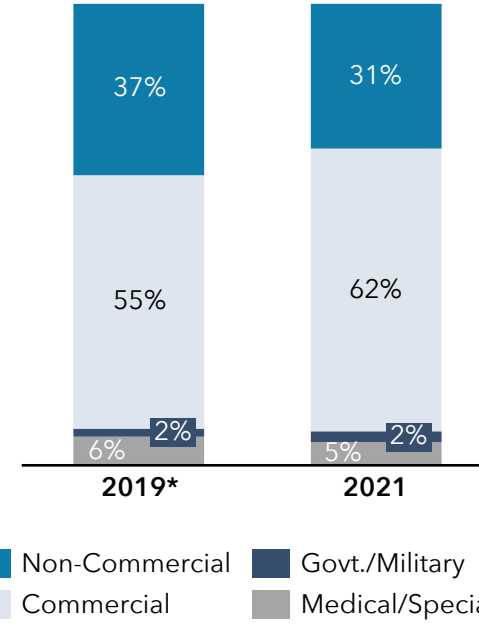
Furthermore, Business Aviation is one of the most dynamic areas of air transport, creating many services associated with it. These include transfer services to and from the airport, hotel arrangements, catering, and many others. At the same time, Business Aviation is not as affected by seasonal fluctuations as the commercial air traffic sector.

Comparing Switzerland with the countries of business aircraft stationed in Europe, a steady growth of based business aircraft can be observed in Europe from 2019 to 2022. Switzerland, on the other hand, has recorded a slight decline in the number of business aircraft that are stationed in Switzerland.

Considering the countries that have registered business jets in Europe, again an increase in the number of registered business jets in Europe can be observed. The number of registered Swiss business aircraft, on the other hand, is at an almost constant level over the last three years.

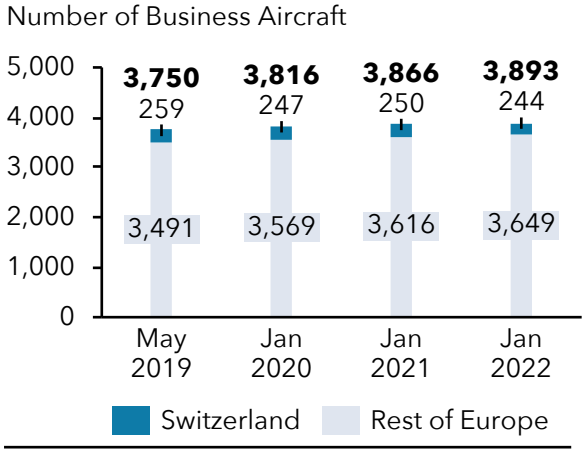
More than half of Swiss Business Aviation flights are used for commercial purposes, the other half for non-commercial purposes, government and military purposes, medical services and other activities.

Market share within the Swiss Business Aviation sector 2019 vs. 2021[5]

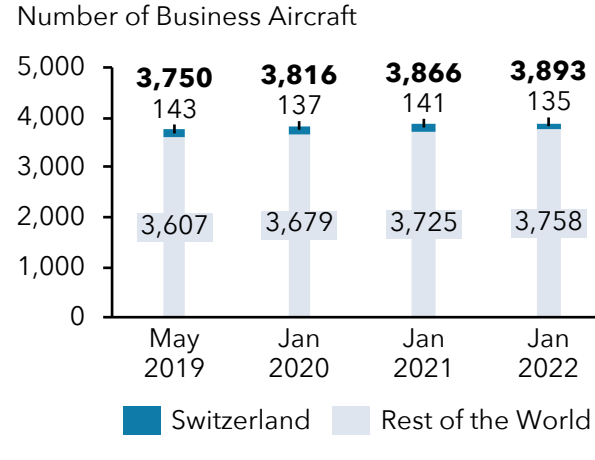


*pre-COVID-19 levels

Country of business aircraft based in Europe (from 2022)[6]



Country of registered business aircraft stationed in Europe (from 2022)[6]



[5] EBAA (2022). EBAA Yearbook: Country Profiles. Switzerland.
[6] EBAA (2022). Fleet Trackers. Section 02 - European Fleet. Aircraft Registry.

Direct and Indirect Impact

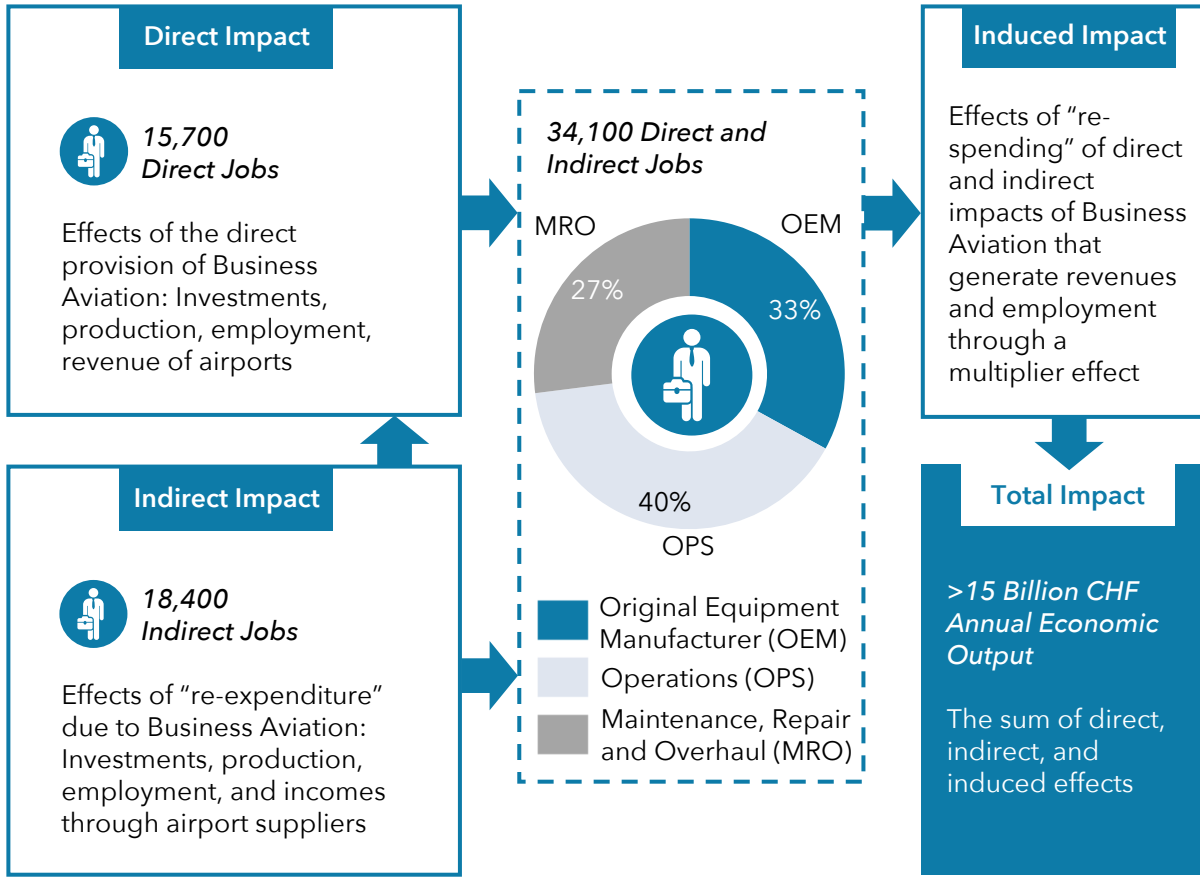
Business Aviation is emerging as a key driver of regional economic development, as benefits arise primarily through economic growth, efficient business operations, and improved connectivity.

Measures of economic growth can be quantified into direct, indirect, and induced measures in terms of industry-related employment impacts such as jobs and income, gross value added, and taxes paid related to economic activity driven by the Business Aviation sector[7].

As most studies focus on the economic impact of Business Aviation in terms of financial ratios, a summary of direct, indirect, and induced effects for the Swiss Business Aviation sector is provided below.

Furthermore, there are several efficiency gains for Business Aviation users. Business customers have the ability to cover multiple business destinations much more quickly because Business Aviation aircraft can depart whenever the customer is ready for the flight.

Measures of economic impact by the Swiss Business Aviation before COVID-19[7, 8, 9]



[7] Booz | Allen | Hamilton (2017). Economic Impacts of Business Aviation in Europe with a special focus on the Geneva region – Report.
[8] Wittmer, A. & Noto, C. (2020). Intangible Effects of Regional Airports in the Aviation System - The Case of Switzerland. In: Air Transport and Regional Development Case Studies. London: Routledge.
[9] EBAA (2022). EBAA Yearbook: Country Profiles. Switzerland.

Direct and Indirect Impact

Likewise, customers do not have to wait for commercial departure times, making it possible to reach multiple destinations in one day. Customers can travel faster from origin to destination without relying on connecting flights due to the flexibility and convenience of instantly accessible point-to-point flight connections.

This also creates great time savings for customers by avoiding congested, large passenger airports and allowing them to use small and less busy Business Aviation airports. In addition, Business Aviation flights are less susceptible to strikes and disruptions than flights of commercial airlines.

At the same time, Business Aviation improves a region's connectivity, which has a significant impact on remote or less-connected regions. As a result, business investment and growth can be encouraged in these regions and seamlessly connect remote and outlying regions.

Business Aviation customers have the ability to travel directly to areas not well serviced by commercial airlines offering business travelers diverse connections within the global air traffic network. Providing access to the international air traffic network from remote and rural areas where commercial air service is not viable brings emergency and air ambulance services to communities and regions where hospitals and medical centers are not available.

Switzerland's connectivity also generates catalytic benefits that multiply the direct and indirect economic impacts[10]. Thus, the connectivity and accessibility of Swiss airports is a relevant factor in the choice of location for companies and organizations to transport employees quickly and reliably.

These services provided by the Business Aviation sector contribute to Switzerland's economic and social prosperity.

The three Swiss national airports of Zurich, Geneva, and Basel have the greatest economic importance, as they are primarily responsible for international and intercontinental Business Aviation connections. However, numerous additional regional airports stand out as ideal Business Aviation locations, which contribute significantly to the relevance of Business Aviation in Switzerland.

Number of Swiss airports that can be served by Business Aviation[11]

Small and medium-sized airports are the most efficient Business Aviation infrastructures. They offer compelling advantages for efficient and fast business travel: short check-in times, short security checks without waiting times and sufficient capacities to operate the flights at the time required by the customer. There are even companies that locate themselves near regional airports in order to be directly and quickly accessible for customers.

Some of these benefits of small- and medium-sized Business Aviation airports can be measured as positive, monetized macroeconomic effects, while others are more likely to be classified as intangible economic effects. These intangible effects can be categorized into network, competence, structural, and image effects and are often referred to as "wider" economic benefits[12].

[10] The Boston Consulting Group, Inc. | Swiss-American Chamber of Commerce (2018). The Swiss Aviation Ecosystem. Flying Blind After 2030.
[11] WINGX (2022). Flight Tracker.
[12] Wittmer, A. & Noto, C. (2020). Intangible Effects of Regional Airports in the Aviation System - The Case of Switzerland. In: Air Transport and Regional Development Case Studies. London: Routledge.

Direct and Indirect Impact

Intangible catalytic effects of regional airports[13]

Network Effects

- Horizontal and vertical integration with other companies
- Creation of industrial clusters (locating industries near airports)

Competence Effects

- Aviation Industry
- Maintenance, repair and overhaul (MRO)
- Flight training organizations (ATO)
- Leisure facilities (recreational flying, aviation competitions)
- Hosting of premium events
- Promotion of aviation in a social context

Structural Effects

- International and interregional accessibility
- Travel time savings
- Location attractiveness for new companies (location factors)
- Infrastructure for flight training and leisure air traffic
- Relief for national airports (secondary airport function)
- Aeromedical services
- Business opportunities due to connectivity, network effects, and clustering

Image Effects

- Attractiveness for business and leisure travelers, private individuals (residence), and businesses
- Advantages for destination management (marketing)

In particular, regional Business Aviation airports contribute to the retention of existing employers and companies in a region and the attraction of new ones to a local area. Businesses and business developers consider ease of access to regional, national, and worldwide markets when making decisions about locating new businesses, offices and facilities.

For example, large corporations use their business aircraft to transport employees to and from distant offices and plants – but for small marketing companies that often need to meet customers in major cities in neighboring EU countries, flying business jets from Business Aviation airports is a necessity as well as a competitive advantage for many companies of all sizes across Switzerland. Consequently, many large multinational companies from around the world and major international organizations are widely based in Switzerland. Most of them even have their global and regional headquarters as well as research and development centers located in Switzerland.

[13] Wittmer, A. & Noto, C. (2020). Intangible Effects of Regional Airports in the Aviation System - The Case of Switzerland. In: Air Transport and Regional Development Case Studies. London: Routledge.

Impact Comparison on EU-Level

European Business Aviation promotes investment and business growth across Europe by connecting distant and remote regions. As a driver of regional and national economic development, it impacts the European economy and increases business efficiency and connectivity across Europe.

The global market share of European Business Aviation in 2021 equals **15 %** with over **449,000 direct and indirect jobs** and over **EUR 99.9 billion economic output**[14].

Business Aviation contributes significantly to the European economy, both in financial terms and in terms of the number of jobs in the Business Aviation sector.

Selected market share within the European Business Aviation sector (from 2018)[15]

= 76%

of the European Business Aviation sector's total GVA

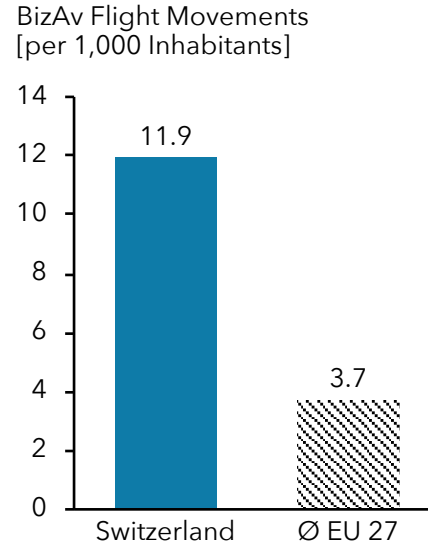
Selected sum of provided jobs within the European Business Aviation sector (from 2018)[15]

= 57%

of all direct, indirect, and induced European Business Aviation jobs

In a direct comparison of Swiss Business Aviation with the Business Aviation sector in European countries, it becomes evident that Business Aviation in Switzerland has a particularly high relevance for the economy and for stakeholders.

Comparison of Business Aviation flight movements in Switzerland and EU 27 (from 2018)[16]



In Switzerland, traveling sufficiently and comfortably by air is a matter of course. The Swiss are enthusiastic air travelers as they have among the highest number of flights per capita and year in Europe. In a comparison of Business Aviation flight movements per 1,000 inhabitants between Switzerland and the EU 27 countries, the flight movements of Swiss Business Aviation customers are on average over three times higher than those of Europeans.

98,247

Business Aviation Flight Movements in Switzerland in **2021**[17]

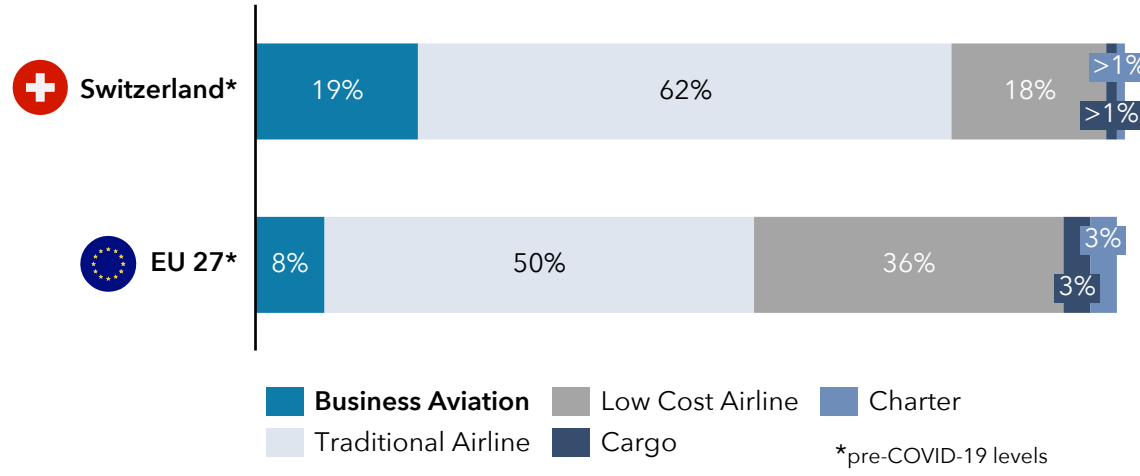
+5.4%

compared to Swiss Business Aviation Flight Movements in **2019**[17]

[14] EBAA (2022). EBAA Yearbook: Country Profiles. Europe.
[15] EBAA (2018). European Business Aviation – Economic Value & Business Benefits.
[16] Intraplan Consult GmbH (2018). Monitoring Air Traffic Switzerland.
[17] WINGX (2022). Flight Tracker.

Impact Comparison on EU-Level

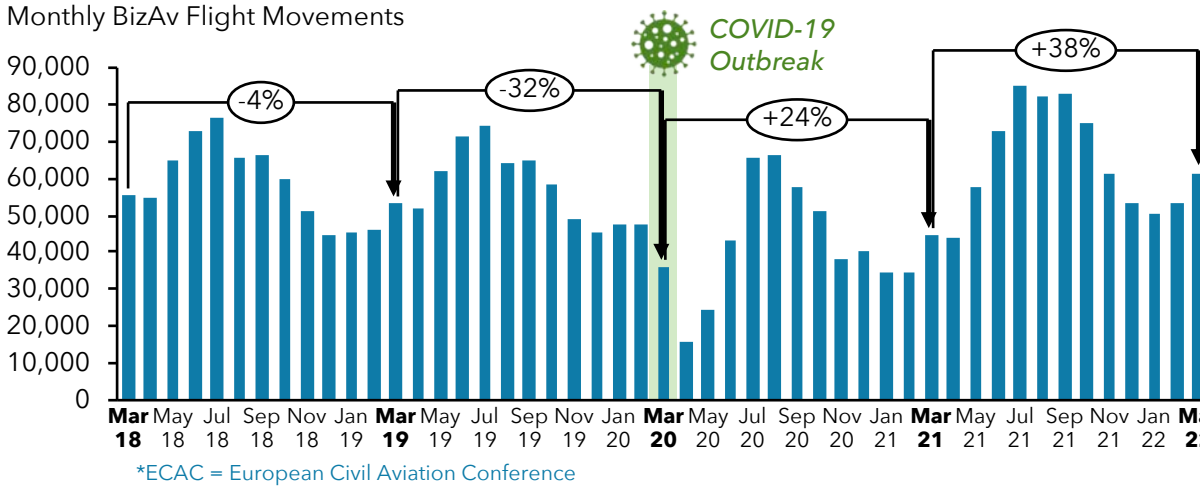
Business Aviation market share comparison between Switzerland and EU 27 (from 2018/19)[18, 19]



Compared to traditional airlines, the Business Aviation sector has been relatively unaffected by global disruptions. Whether it was the terrorist attacks of September 11, 2001, record oil prices or economic downturns, with few exceptions the Business Aviation sector has enjoyed steady growth. Some traditional airlines, on the other hand, have had to file for bankruptcy, rationalize route networks, cut staff and put aircraft deliveries on hold[20].

In the wake of the COVID-19 crisis, Business Aviation has emerged as a more flexible and reliable flight option that offers safe and secure air travel. After a decline in Business Aviation flight movements at the beginning of the COVID-19 crisis in 2020 due to transnational lockdowns and travel restrictions, the Business Aviation sector experienced an immense upswing in 2021. The current growth of the Business Aviation

Monthly Business Aviation flight movements in Europe (ECAC Area)* from 2018 to 2022[21]



*ECAC = European Civil Aviation Conference

[18] EBAA (2018). European Business Aviation – Economic Value & Business Benefits.
[19] EBAA (2019). EBAA Yearbook: Country Profiles. Switzerland.
[20] Budd, Lucy C. S. (2019). Aeromobile Elites: Private Business Aviation and the Global Economy. Transport Studies Group, School of Civil and Building Engineering. Leicestershire: Loughborough University.
[21] EBAA (2022). European Business Aviation Traffic Tracker.

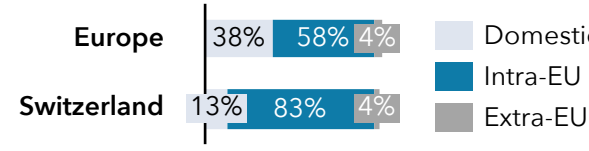
Impact Comparison on EU-Level

industry can bring a number of benefits to airports, major operators, business aircraft manufacturers, Business Aviation pilots, major service providers, and Business Aviation customers, as well as promoting future economic development[22].

Looking at the six busiest Business Aviation airports in Europe, two Swiss airports are in the top four - Geneva and Zurich Airport. In particular, Zurich Airport recorded a 17 % growth in Business Aviation arrivals and departures compared to 2019 before the COVID-19 crisis. Comparing the Business Aviation flight movements from 2021 with those of the previous months from 2022, Geneva Airport even makes it to second place for the most Business Aviation arrivals and departures in Europe.

Considering Business Aviation flights in the course of domestic, intra-European and extra-European flights, the market share in 2021 of business travelers is 13 % for domestic flights, 83 % for intra-European flights and 4 % for extra-European flights in the sector of Swiss Business Aviation. In this context, 78 % of the Business Aviation flights were short haul with <1,500 km, 15 % medium haul with <4,000 km, and 7 % of the Business Aviation flights long haul with >4,000 km.

Market share of Business Aviation activities per origin-destination in 2021[23]



Market share of European Business Aviation activities per distance in 2021[23]

Comparison of top six busiest Business Aviation airports in Europe (from 2022)[23, 24]

		BizAv Flight Movements Jan 21 – Dec 21	Growth vs. 2019	BizAv Flight Movements Jan 22 – Apr 22
1.	Paris Le Bourget (LBG)	48,061	- 4 %	+0 17,320
2.	Nice Côte d'Azur (NCE)	35,744	+ 8 %	-2 8,751
3.	Geneva International (GVA)	31,617	+ 0 %	+1 11,734
4.	Zurich (ZRH)	26,040	+ 17 %	-2 8,237
5.	Farnborough (FAB)	24,741	- 17 %	+2 9,848
6.	Milano Linate (LIN)	20,517	+ 43 %	-2 6,429

[22] Times Aerospace (2021). Business Aviation: A Thriving Industry Despite the Challenges.
[23] EBAA (2022). EBAA Yearbook: Country Profiles. Europe | Switzerland.
[24] WINGX (2022). Flight Tracker.

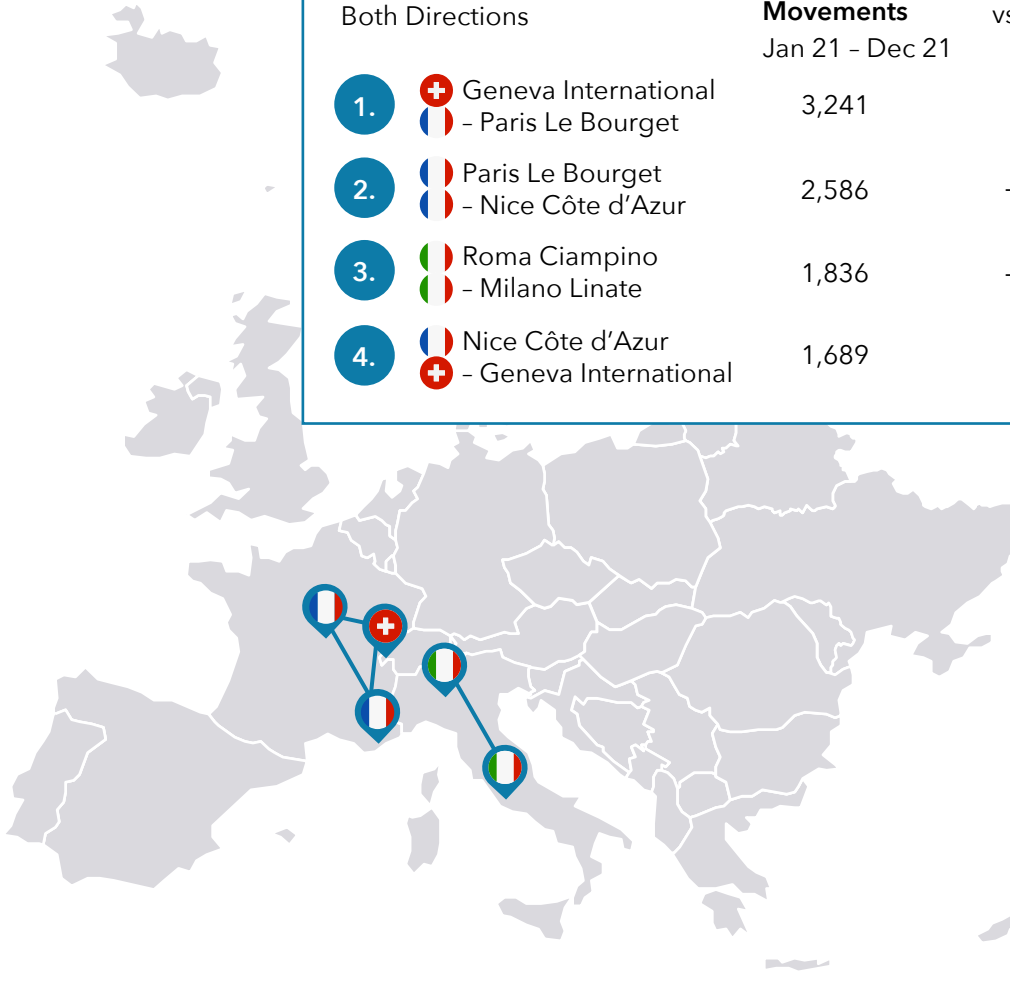
Impact Comparison on EU-Level

In the course of the most frequented Business Aviation routes in Europe, Geneva Airport is also twice among the top four - both on the Geneva to Paris route with 3,241 yearly flight movements and on the Nice to Geneva route with 1,689 flight movements in 2021.

In total, Europe hosted over **73,000 unique city pairs** with over **1,400 European airports** served by Business Aviation in 2021[26]. In addition, Business Aviation in Europe serves over 25,000 city or area pairs that are not connected by non-stop commercial direct flights, which represent over 30 % of city pairs. Briefly, almost one in three connections is not connected by a direct commercial flight, which means that the connection would not exist without Business Aviation[27].

Comparison of the top five European Business Aviation routes (from 2022)[25]

Top European BizAv Routes Both Directions	**BizAv Flight Movements** Jan 21 – Dec 21	**Growth** vs. 2019
1. Geneva International – Paris Le Bourget	3,241	+ 0 %
2. Paris Le Bourget – Nice Côte d'Azur	2,586	+ 20 %
3. Roma Ciampino – Milano Linate	1,836	+ 51 %
4. Nice Côte d'Azur – Geneva International	1,689	- 7 %



[25] EBAA (2022). European Business Aviation Traffic Tracker.
[26] EBAA (2022). EBAA Yearbook: Country Profiles. Europe.
[27] EBAA (2018). European Business Aviation – Economic Value & Business Benefits.

2. Business Aviation
Impact on Geographical Areas

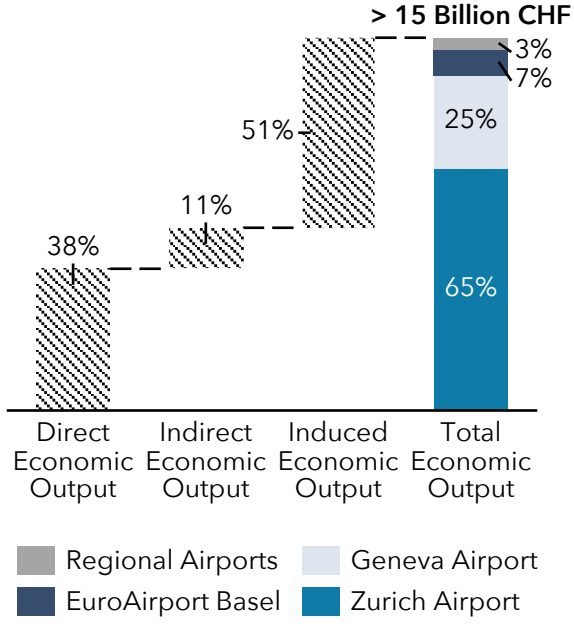
Chapter Key Facts

The three major national Swiss airports are an important hub for Swiss air traffic, especially for Business Aviation. However, the smaller regional Swiss airports provide an excellent infrastructure and a distinctive air traffic network that has gained enormously in importance and economic value with the increase of Business Aviation utilization in recent years.

The regional Swiss airports have a particularly high significance for Business Aviation due to their multifunctionality. They support international and intercontinental connections, the connectivity with national airports, especially with Geneva and Zurich, as well as relief from the national airports and larger regional airports. At the same time, the regional Business Aviation airports provide increased (international) location attractiveness, which drives the settlement and expansion of company locations. As a result, in addition to hard intangible effects, soft intangible effects also lead to an increase in the general quality of life in the region and to the promotion of regional tourism.

"The COVID-19 crisis made it particularly apparent: The less dense the scheduled air traffic network, the more attractive it is to use Business Aviation, evidenced by the strong industry demand in 2021."
– Jean-Marc Probst, Chairman of Probst Maveg

Total monetary benefits of Swiss airports[1]



Business Aviation chapter key facts:

- 11.6 % average growth of all Swiss BizAv airports in terms of flight movements in 2021 compared to 2019
- 32 % Swiss BizAv market share of Geneva Airport (GVA)
- 27 % Swiss BizAv market share of Zurich Airport (ZRH)
- Regional Swiss airports form the backbone of the BizAv network
  - 763 % growth of (BizAv) flight movements at Payerne Airport in 2021 compared to 2016

[1] The Boston Consulting Group, Inc. | Swiss-American Chamber of Commerce (2018). The Swiss Aviation Ecosystem. Flying Blind After 2030.

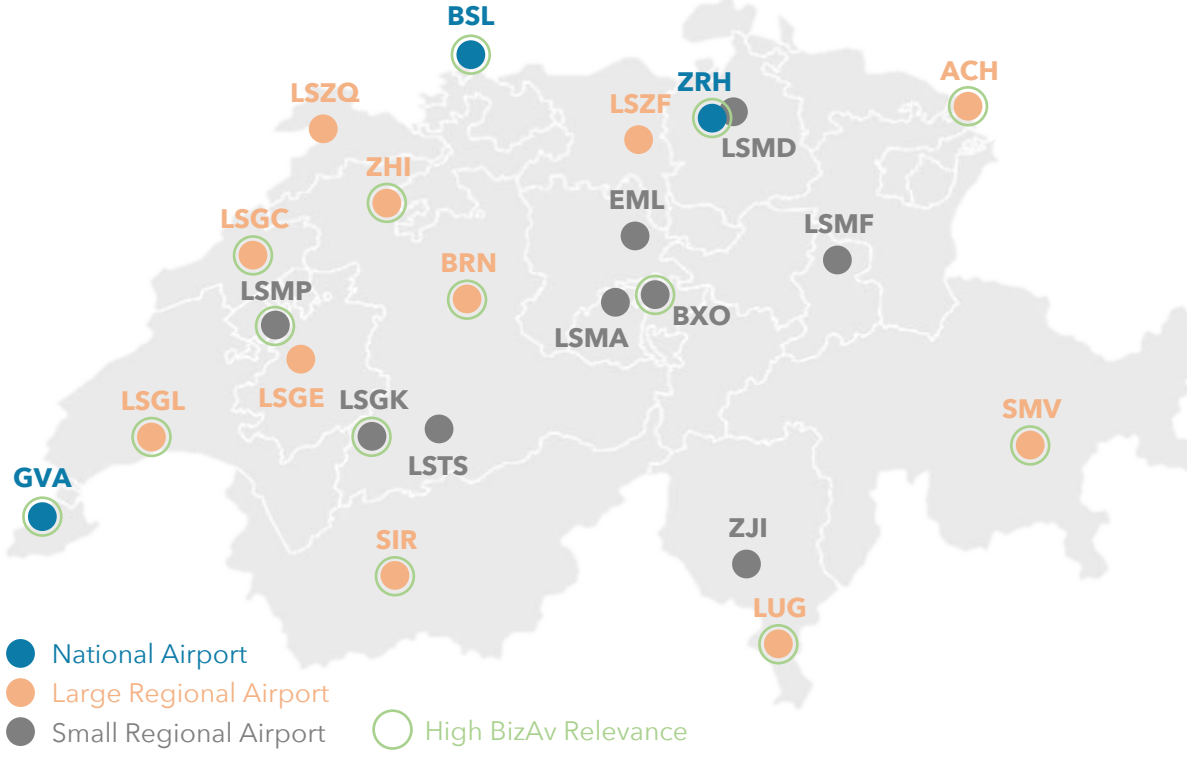
General Information

Switzerland's economic development is significantly dependent on global access to markets through aviation. In this context, in addition to the three national airports, the numerous smaller regional airports contribute significantly to the high-performance infrastructure of Business Aviation.

Switzerland has three important national airports that connect Switzerland with major cities in Europe and around the world. Zurich Airport plays a special role, serving as a hub for intercontinental connections. In addition to Geneva Airport in southwestern Switzerland, EuroAirport Basel in northern Switzerland serves as a trinational airport along with France and Germany. The numerous regional airports offer primarily domestic connections and some limited international flights. In total, 11 large regional airports and 15 small regional airports are relevant for Business Aviation.

Regional airports offer a number of compelling benefits to enable efficient travel, especially for business travelers. These include short check-in times, security checks without waiting times and flights that can be operated at desired times. Moreover, companies locate near regional airports to be directly and quickly accessible for customers. Besides the national airports, the regional airports of Sion, Bern, St. Gallen Altenrhein, Buochs, Samedan, Lugano, and Payerne stand out as airports for Business Aviation.

Locations of Swiss airports with Business Aviation flight movements[2]



[2] WINGX (2022). Flight Tracker.

General Information

Business Aviation flight movements* from Swiss airports from 2019 to 2021[3]

		2019	2020	2021	Growth 2021 vs. 2019
1.	**GVA**: Geneva	31,255	23,011	31,617	+ 1.2 %
2.	**ZRH**: Zurich	22,153	18,709	26,040	+ 17.5 %
3.	**BSL**: Basel	6,592	4,655	6,205	- 5.9 %
4.	**SIR**: Sion	5,931	5,174	6,104	+ 2.9 %
5.	**BRN**: Bern Belp	5,570	4,347	5,452	- 2.1 %
6.	**ACH**: St. Gallen Altenrhein	5,555	4,249	5,128	- 7.7 %
7.	**LUG**: Lugano	4,010	3,103	4,050	+ 1.0 %
8.	**SMV**: Samedan	2,651	3,206	3,063	+ 15.5 %
9.	**BXO**: Buochs	2,316	1,641	2,340	+ 1.0 %
10.	**LSGL**: Lausanne-Blécherette	1,948	1,540	2,055	+ 5.5 %
11.	**LSGK**: Saanen	1,059	1,134	1,616	+ 52.6 %
12.	**ZHI**: Grenchen	1,184	976	1,120	- 5.4 %
13.	**LSMP**: Payerne	645	547	1,070	+ 65.9 %
14.	**LSGC**: Les Eplatures	726	800	892	+ 22.9 %
15.	**LSMD**: Dubendorf	479	422	497	+ 3.8 %
16.	**ZJI**: Locarno	378	379	463	+ 22.5 %
17.	**EML**: Emmen	195	167	155	- 20.5 %
18.	**LSGN**: Neuchatel	97	58	130	+ 34.0 %
19.	**LSZF**: Birrfeld	97	61	71	- 26.8 %
20.	**LSGE**: Ecuvillens	17	17	58	+ 241.2 %
21.	**LSMF**: Mollis	270	236	45	- 83.3 %
22.	**LSTS**: St. Stephan	31	43	45	+ 45.2 %
23.	**LSMA**: Alpnach	9	20	9	+ 0 %
24.	**LSTA**: Raron	15	6	9	- 40.0 %

*Carried out with Entry Level Jets, Heavy Jets, Light Jets, Midsize Jets, Super Light Jets, Super Midsize Jets, Turboprops, Ultra Long Range Jets, Very Light Jets

COVID-19 Impact

[3] WINGX (2022). Flight Tracker.

General Information

Business Aviation flight movements* from Swiss airports from 2019 to 2021[4]

		2019	2020	2021	Growth 2021 vs. 2019
25.	**LSGY**: Yverdon-les-Bains	3	0	8	+ 166.7 %
26.	**LSGR**: Reichenbach	1	3	1	+ 0 %
27.	**LSZE**: Bad Ragaz	0	3	1	+ 100.0 %
28.	**LSPN**: Triengen	2	2	1	- 50.0 %
29.	**LSPG**: Kagiswil	0	2	1	+ 100.0 %
30.	**LSZQ**: Bressaucourt	2	0	1	- 50.0 %
31.	**LSPV**: Wangen-Lachen	8	6	0	- 100.0 %
32.	**LSGB**: Bex	0	3	0	+ 0 %
33.	**LSGT**: Gruyeres	0	2	0	+ 0 %
34.	**LSPL**: Langenthal	2	1	0	- 100.0 %
35.	**LSMM**: Meiringen	0	1	0	+ 0 %
	Total	**93,201**	**74,524**	**98,247**	**Ø + 11.6 %**

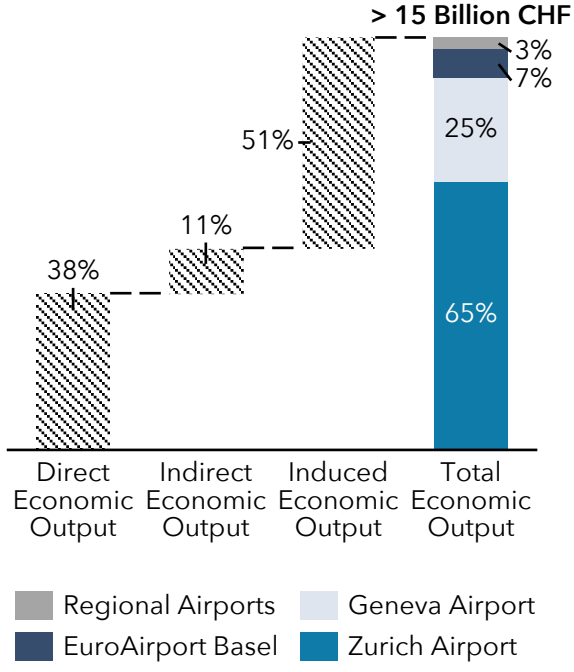
*Carried out with Entry Level Jets, Heavy Jets, Light Jets, Midsize Jets, Super Light Jets, Super Midsize Jets, Turboprops, Ultra Long Range Jets, Very Light Jets

COVID-19 Impact

[4] WINGX (2022). Flight Tracker.

General Information

Total monetary benefits of Swiss airports[5]



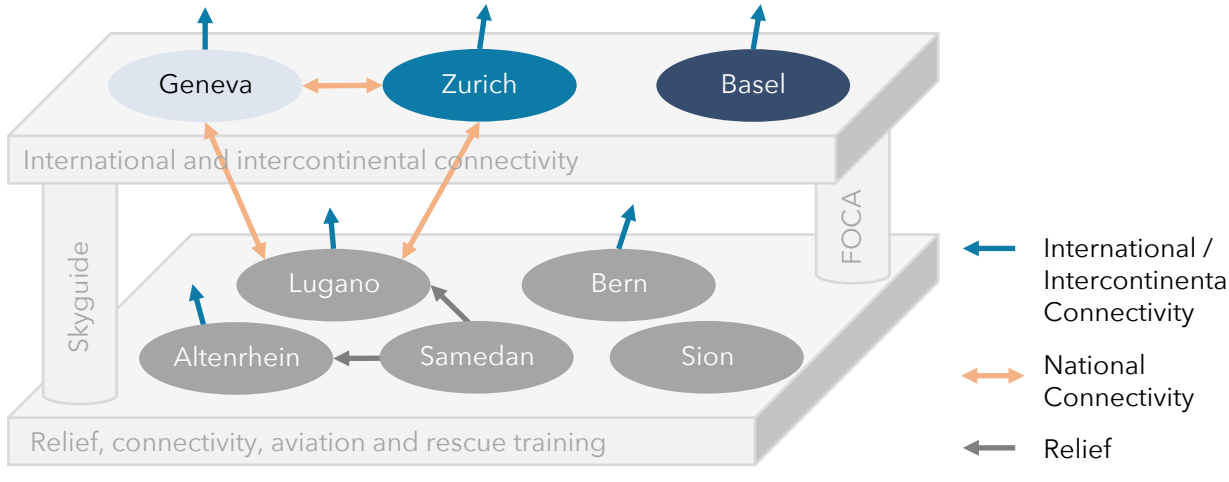
Swiss airports make an immense contribution to Switzerland's GDP and are at the same time the guarantor of Switzerland's international competitiveness. Zurich Airport accounts for the largest financial impact in this respect.

"The aviation sector is of systemic importance to Switzerland. The aviation industry generates around 5 % of GDP, which is equivalent to the value of the banking sector."
Swiss Federal Councilor Ueli Maurer

The regional airports have Business Aviation relief functions for the three national airports. Regional airports are often used by Business Aviation in case of capacity bottlenecks or due to their proximity to the final destination. In addition, the relief for the national airports provides an increase in safety due to the reduced complexity of airspace surveillance in the course of diverting smaller aircraft. Similarly, due to their compactness and less complex service operations, regional airports have a more efficient infrastructure for handling business jets than national airports, making a relief effect beneficial to both players.

The regional airports of Lugano, Bern, and Altenrhein also perform a function in the area of connecting to scheduled air traffic, which in the case of Lugano in particular leads to a strengthening of peripheral regions[6].

Exemplary functions of Swiss national and regional airports[6]



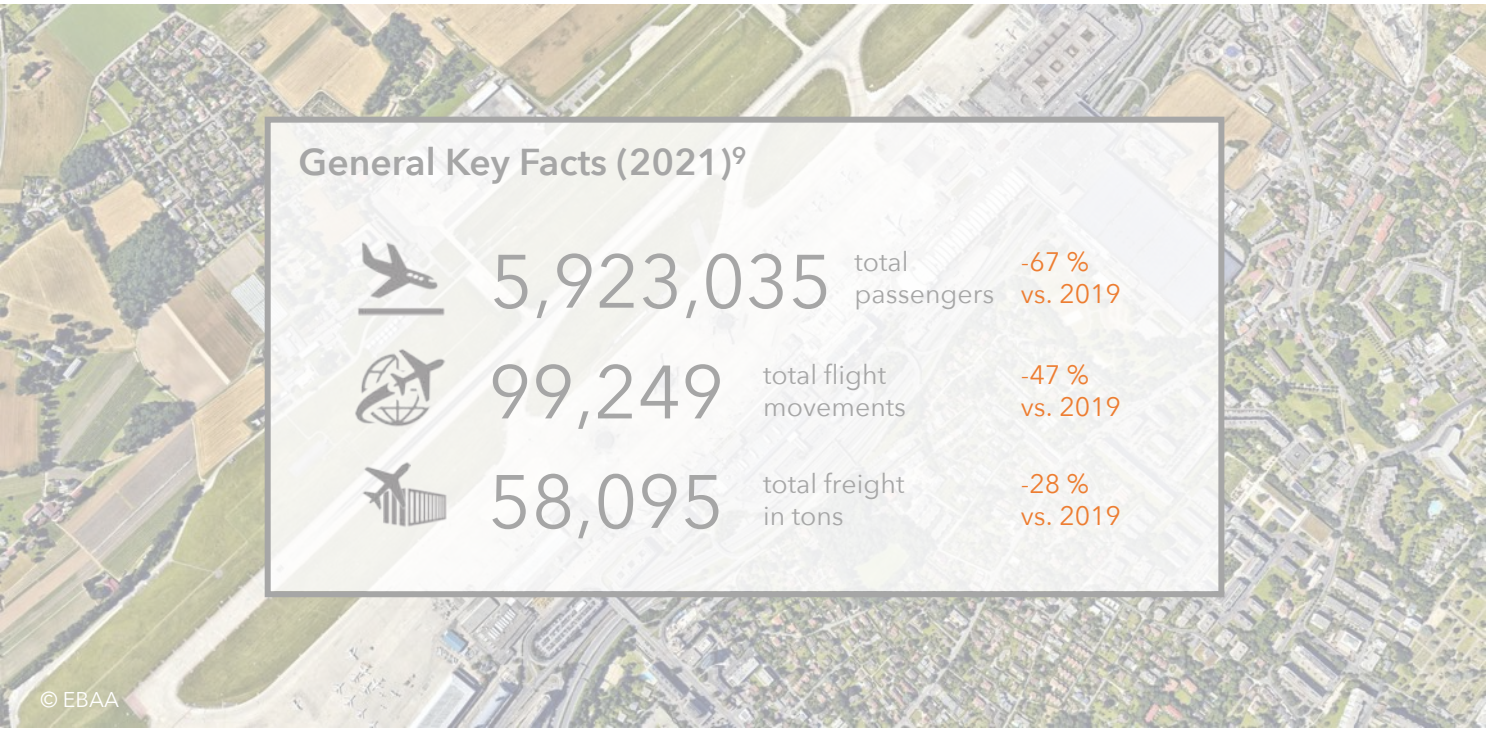
[5] The Boston Consulting Group, Inc. | Swiss-American Chamber of Commerce (2018). The Swiss Aviation Ecosystem. Flying Blind After 2030.
[6] Wittmer, A. et al. (2009). Regional airports and their impact on the Swiss aviation system – Analysis of intangible regional economic effects.

Geneva Airport (GVA)

IATA: GVA
ICAO: LSGG

BizAv Key Facts (2021)[7, 8]

32 %	of national Business Aviation share	-6 % vs. 2019 (34 %)
2.0 %	of European Business Aviation share	
876	airports connected	-5 % vs. 2019 (923)
31,617	total BizAv flight movements	+1 % vs. 2019
32 %	of total flight movements at GVA	+88 % vs. 2019 (17 %)
28,433	BizAv flight movements within Europe	+1 % vs. 2019



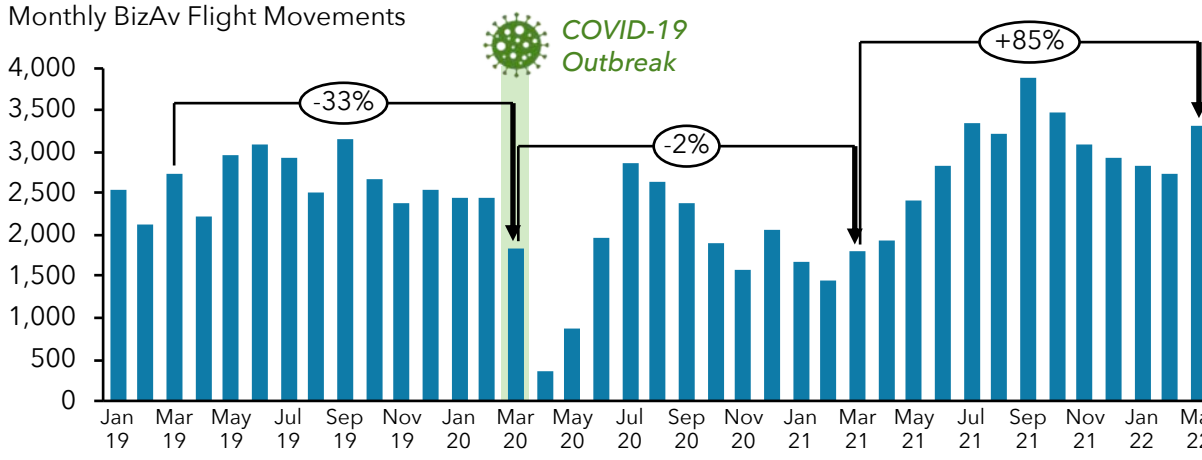
General Key Facts (2021)[9]

5,923,035	total passengers	-67 % vs. 2019
99,249	total flight movements	-47 % vs. 2019
58,095	total freight in tons	-28 % vs. 2019

[7] EBAA (2022). Top 50 Airports. Geneva.
[8] WINGX (2022). Flight Tracker.
[9] Geneve-Aeroport (2022). Publications. Statistics 2021.

Geneva Airport (GVA)

Monthly Business Aviation flight movements at Geneva airport from 2019 to 2022[10]



Geneva Airport is the second largest airport in Switzerland after Zurich in terms of total passengers - but it has the largest share of Business Aviation flight movements in Switzerland. Additionally, in non-pandemic times, more than 4,700 heads of state, ministers and other high-ranking personalities travel via Geneva Airport each year[11].

Geneva Airport profits from a more flexible slot system for Business Aviation than ZRH.

This benefited Geneva Airport during the COVID-19 crisis. At the same time, the airport is an important location for MROs and the primary hub for EasyJet.

The Ukraine crisis has shown that Russian customers make up a significant part of the Business Aviation user segment at Geneva with 15 % - at the same time, Geneva Airport and EuroAirport Basel are one of the most important maintenance centers for Russian aircraft.

General challenges at Geneva Airport

Operating at maximum capacity and exceeding at peak times (including scheduled and freight traffic)

Forecasted increase in flight movements up to 21 % by 2030[12]

Rush-hour congestion on the main highway running parallel to the airport

Low availability of slots in winter periods for Business Aviation

Airport concession gives **priority to scheduled traffic**, followed by Business Aviation and in third place General Aviation

[10] EBAA (2022). European Business Aviation Traffic Tracker.
[11] Global Geneva (2018). Geneva Airport – The challenges – and problems – facing International Geneva's aerial gateway.
[12] The Boston Consulting Group, Inc. | Swiss-American Chamber of Commerce (2018). The Swiss Aviation Ecosystem. Flying Blind After 2030.

ZURICH AIRPORT

Zurich Airport (ZRH)

IATA: ZRH
ICAO: LSZH

BizAv Key Facts (2021)[13, 14]

27 %	of national Business Aviation share	+13 % vs. 2019 (24 %)
1.7 %	of European Business Aviation share	
843	airports connected	-2 % vs. 2019 (857)
26,040	total BizAv flight movements	+18 % vs. 2019
20 %	of total flight movements at ZRH	+150 % vs. 2019 (8 %)
23,533	BizAv flight movements within Europe	+17 % vs. 2019

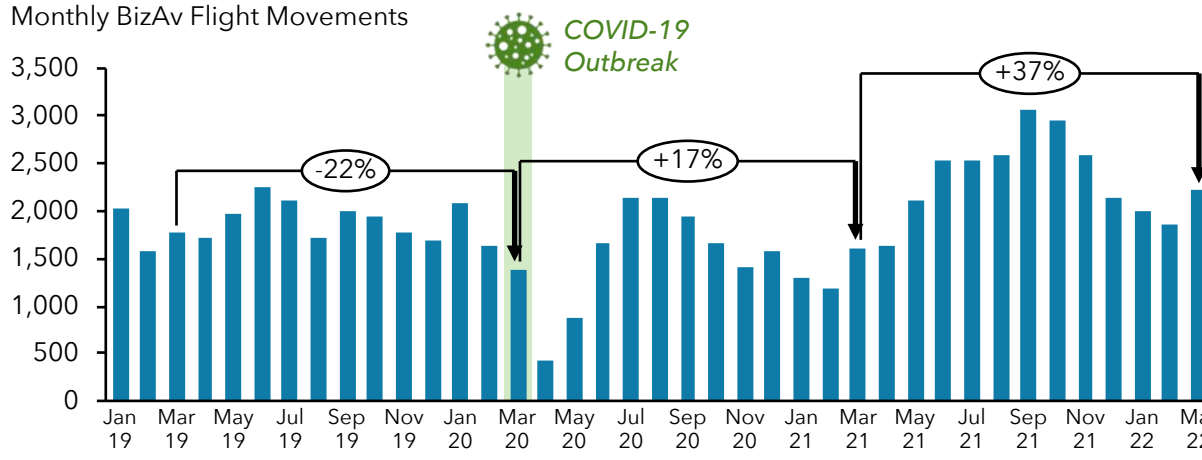
General Key Facts (2021)[15]

10,234,428	total passengers	-208 % vs. 2019
132,600	total flight movements	-108 % vs. 2019
393,062	total freight in tons	-15 % vs. 2019

[13] EBAA (2022). Top 50 Airports. Zurich.
[14] WINGX (2022). Flight Tracker.
[15] Zurich Airport (2022). Publications. Statistics Report 2021.

Zurich Airport (ZRH)

Monthly Business Aviation flight movements at Zurich airport from 2019 to 2022[16]



Zurich Airport is considered to be Switzerland's international hub and thus has a highlighted relevance for Swiss connectivity to Europe and the rest of the world.

Like any other hub airport, Zurich Airport is significantly dependent on the operational and financial performance of its hub airline SWISS, which is part of the company Lufthansa. SWISS accounts for over 50 % of passenger traffic at Zurich airport - however, SWISS plays an important financial role within the Lufthansa Group, so the risk of capacity reductions or planned outages is to be considered low[17].

Zurich Airport experienced a 75 % passenger decline during the COVID-19 crisis, whereas Business Aviation saw a slight gain during 2020 and an even stronger recovery in 2021. However, the total number of aircraft movements at Zurich Airport in 2021 was slightly under 50 % compared to 2019 before the COVID-19 crisis[18].

General challenges at Zurich Airport

Operating at maximum capacity and exceeding at peak times (including scheduled and freight traffic)

Forecasted increase in flight movements up to 29 % by 2030[19]

Aggressive competition from expanding international hubs, as ZRH is Switzerland's only international hub

Challenging political situation prevents a long-term solution to the capacity problems

Increased complexity in the request for Business Aviation slots

[16] EBAA (2022). European Business Aviation Traffic Tracker.
[17] Zurich Airport (2022). Webpage: Annual Report. Risk Management. Current Situation.
[18] Flughafen Zürich AG (2021). Integrated Report 2021. Traffic Volumes Zurich.
[19] The Boston Consulting Group, Inc. | Swiss-American Chamber of Commerce (2018). The Swiss Aviation Ecosystem. Flying Blind After 2030.

Impact of Regional Airports

Through their infrastructure, the Swiss regional airports ensure the connection of the regions to air traffic – at the same time, the regional airports provide a limited amount of relief for the three Swiss national airports. Consequently, the numerous Swiss national airports are central actors in various regional and national networks.

Regional airports provide a central role in regional location networks where companies locate at the respective airport or in the immediate surrounding area - especially export-oriented companies and those expanding see regional airports as important. At the same time, Switzerland's regional airports are to be seen as complementary - they do not represent competition on a national level, but provide relief for the national airports in terms of interregional and international accessibility. Nevertheless, large business jets in particular benefit from specialized handling at the national airports - Basel is a MRO hotspot for large business jets such as the Airbus A320 or the Boeing 777.

Business Aviation is seen as a central business segment for the future by the large number of airports. In the long-term, the majority of regional airports in the Swiss air traffic system will provide a base for Business Aviation, which is of considerable importance for the Swiss economy.

"Smaller, regional airports such as Sion can only survive and grow with the advance of Business Aviation."

Business Aviation is seen as a central business segment for the future by the large number of airports. In the long-term, the majority of regional airports in the Swiss air traffic system will provide a base for Business Aviation, which is of considerable importance for the Swiss economy.

In general, intangible factors can be used to describe the impact of regional airports on their environment and communities. The intangible factors of regional airports have two major directions of impact on their surroundings. On the one hand, regional airports provide better connectivity, the emergence of (enterprise) networks and improved supply, making it more attractive for companies to locate or expand in the region and create jobs – called hard intangible factors. On the other hand, regional airports and the associated hard intangible factors can lead to so-called soft intangible factors, which enhance the reputation of the region, thus increasing the overall quality of life of the region. Finally, the hard and soft intangible factors of regional airports may enhance the internationality of the region and can lead to income, employment, and growth followed by intensified tourism in the long-term[20].

The Swiss regional airports of Engadin, Bern and Sion also represent an important infrastructure for Swiss tourism and enable the staging of lighthouse events such as the World Economic Forum (WEF) in Davos and the White Turf in St. Moritz. In addition to the regional effects, these events with international appeal also have positive effects on the entire Swiss tourism industry.

© The Guardian – Private Jets lined up during WEF

The WEF alone accounts for a total of around 1,430 Business aircraft movements at Zurich, Dubendorf, Altenrhein and Samedan airports – and this in just a few days[21].

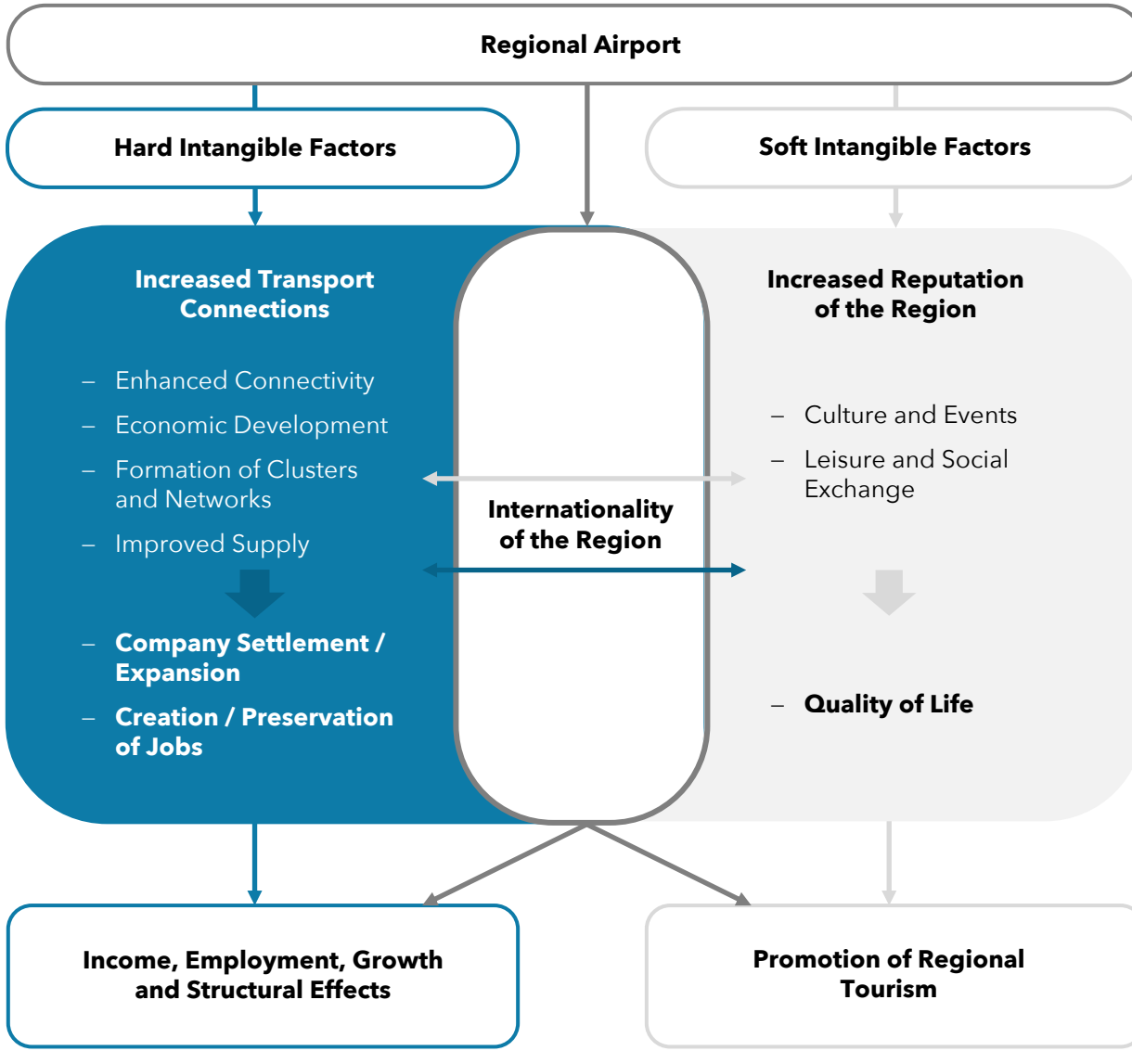
[20] Wittmer, A. et al. (2009). Regional airports and their impact on the Swiss aviation system – Analysis of intangible regional economic effects.
[21] Travelnews.ch (2017). Webpage: 1.430 Zivile Sonderflüge wegen des WEF Davos.

Impact of Regional Airports


© People's Airport- Private Jets lined up during WEF

In addition to the added tourist value for the region, Swiss regional airports also lead to an increased formation of technological competences – small and medium maintenance companies settle which would not be competitive at the national airports or at other airfields.

Interrelations of intangibles effects of regional airports[22]



[22] Wittmer, A. et al. (2009). Regional airports and their impact on the Swiss aviation system – Analysis of intangible regional economic effects.

Impact of Regional Airports

Sion Airport

Sion Airport is particularly used for Business Aviation and air rescue. At the same time, Sion Airport is attractive for tourism purposes for the entire canton of Valais, resulting in the airport being increasingly used as a marketing argument by hoteliers. In addition, there have been calls for the expansion of charter flights, Business Aviation, leisure aviation and more intensive cooperation with regional companies in recent years.

Furthermore, Sion Airport enjoys a high level of recognition among the population. However, the image is not uniformly positive, as the airport is partly seen as a source of noise. However, aircraft noise is also generated largely by military use[23].

Bern-Belp Airport

Bern-Belp Airport is a multifunctional airport that focuses on scheduled an charter traffic on the one hand and General Aviation and Business Aviation on the other. The importance of Business Aviation and charter traffic has increased in recent years due to declines in the areas of scheduled traffic, leisure and flight training.

Bern-Belp can influence corporate competitiveness and serve as a location-deciding factor for corporate relocations of international companies – especially for companies with expansion goals in Switzerland and abroad, the airport has a high relevance.

"We [regional airports] are not in competition, we are part of the Swiss aviation network."

St. Gallen-Altenrhein Airport

St. Gallen-Altenrhein Airport is a business airport close to the border in the four-country corner (Germany, Austria, Switzerland and Liechtenstein). The airfield fulfills two functions in particular: Scheduled traffic with connections to the world via Vienna and Business Aviation, as the region around Altenrhein airfield (St. Gallen including Rhine Valley, Thurgau, Appenzell, Graubünden, Liechtenstein and Vorarlberg) is highly industrialized. Therefore, the airport fulfills a function especially for international companies. In addition, it is used by recreational aviation. Various flight schools exist at St. Gallen-Altenrhein Airport, which contribute to the aviation training in Switzerland.

Samedan Airport

Samedan airfield is a carrier airport for the hotel industry in the region and a training airfield in the alpine sector. Therefore, the airport plays an important role as a location factor with regard to tourism. The airfield is mainly used by General Aviation and Business Aviation. Especially in the wake of the COVID-19 crisis, Samedan Airport has seen a growth in Business Aviation of 15.5 % in 2021 to 2019[24].

The airfield has a special function for the strong tourist orientation of the region. For instance, Samedan Airport is of utmost importance for the hotel industry, as they depend on customers in the top segment. At the same time, the region attaches importance to qualitative and sustainable growth, which also affects the airport as an image carrier of the region.

[23] Wittmer, A. et al. (2009). Regional airports and their impact on the Swiss aviation system – Analysis of intangible regional economic effects.
[24] WINGX (2022). Flight Tracker.

Impact of Regional Airports

Lugano Airport

Lugano Airport is a carrier airport for international air traffic and for Business Aviation in the region. It has a high significance by providing connectivity within the Canton of Ticino, which is also considered a location factor for the region. Business Aviation and General Aviation have gained in importance in recent years.

Compared to other regional airports, the accessibility of customers, the location factor for the own company and the securing of the region's quality of life have been assessed positively above average in the past. Companies hope for an improvement in the offer of scheduled flights to the European centers as well as in the expansion of Business Aviation and charter flights. In addition, a Sunday flight permit would be seen as a milestone for the Business Aviation sector.

Grenchen Airport

The airport is relatively important for recreational aviation, as flight training is a central business area of Grenchen Air Base. Therefore, the airfield provides a high recreational value for the Grenchen region. Through the possibility of recreational aviation, added value is offered to both the population and businesses. At the same time, business aviation is of great importance as a source of income for the airport. The future development of business aviation is largely dependent on the airport's infrastructure (including runway length, hangars).

In addition, corporate employees in the region have high mobility needs due to the presence of international industrial clusters and companies (e.g., watch cluster, medical cluster)[25].

[25] Wittmer, A. et al. (2009). Regional airports and their impact on the Swiss aviation system – Analysis of intangible regional economic effects.

Payerne Airport – Facilitating Local Value Creation

A dynamically evolving civil airport on the military base Payerne

The Swiss Air Force has had a close relationship with Payerne and the Broye region since 1921. Today, Payerne is considered the most important Swiss military airfield in Switzerland. Since 2013, a Federal Council decision has also permitted the use of Payerne airfield for civil aviation. Since then, the demand by Business Aviation has been steadily increasing. On March 29, 2019, the new Business Aviation terminal was put into operation, establishing Payerne as a relevant airport for Business Aviation in the Broye region. Bern, Lausanne, Fribourg and Neuchâtel are all within reach of a 20-to-40-minute transfer making the airport attractive for companies around Payerne.

More and more private airlines and Business Aviation customers are recognizing Payerne as the fastest and most convenient airport to access an attractive region including the cities of Bern, Lausanne, Fribourg and Neuchâtel.

The infrastructural developments are reflected in the development of Business Aviation aircraft flight movements, which have shown dynamic growth since 2016. In 2021, the airport was used by over 100 regional companies as Business Aviation customers and served by 111 different operators resulting in 1,157 civil flight movements.

On site 400,000 m² business park

Despite its small size compared to Geneva or Zurich, the airport serves an important connecting function. In 2021, Payerne connected 205 different airports in 35 countries - 14 of them outside the Schengen area - on 4 continents.

Swiss aeropole is the first business and technology park in Switzerland for companies in aerospace and related industries aiming at bringing together aviation and innovation. Swiss aeropole to attract new businesses with high added value in order to create jobs in and around the airport.

400,000 m²
business and technology park

2.8 km
runway with controlled airspace

30+
Companies

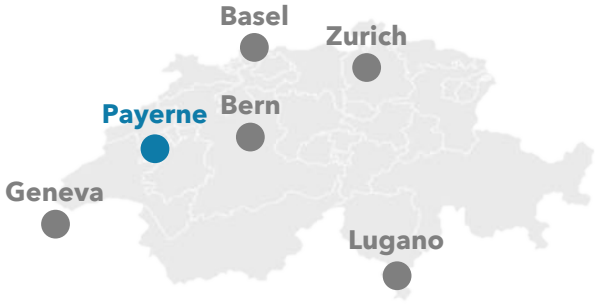
3,000 m²
rentable office space

18,000 m²
apron

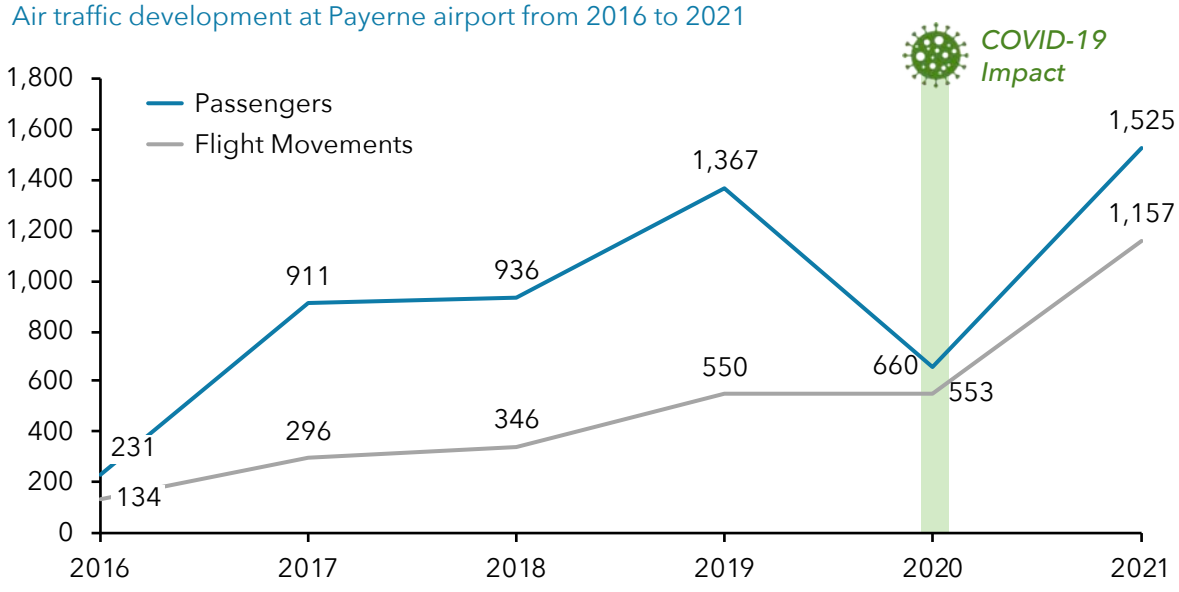
250+
Jobs created

Payerne Airport – Facilitating Local Value Creation

In the last three years, the ramp-up of Business Aviation has been accompanied by a dynamic development of newly established companies in the business park. A good 30 new companies have already created more than 250 new jobs, including several innovative start-ups operating in the aerospace sector. In the coming years, the dynamic economic development and the establishment of further companies on site can be expected, contributing to the economic development and welfare of Payerne and the Broye region.



Air traffic development at Payerne airport from 2016 to 2021



1,525
passengers in 2021

560 %
passenger growth vs. 2016

1,157
flight movements in 2021

763 %
flight movements growth vs. 2016

3. Stakeholder Analysis and Customer Benefits

Chapter Key Facts

Business Aviation delivers obvious benefits on the one hand, such as fast and flexible on-demand connections that allow customers to travel to remote regions that are difficult to reach by alternative travel routes or for which scheduled flights are not available.

On the other hand, benefits exist that are rather unknown to many and therefore need to be given more attention. Business Aviation is often used in case of medical emergencies and enables fast and safe transport of patients from remote regions or to distant medical facilities – and saved many lives during the COVID-19 crisis.

In general, Business Aviation benefits can be divided into three overarching categories:

Time & Cost Benefits

Client & Convenience Benefits

Societal Benefits

The interaction of these categories makes Business Aviation an important industry and market player for various stakeholders.

> *"Business Aviation customers buy time, as they can do much more within the same timeframe with, in addition, the comfort and safety benefits of Business Aviation."*
> – Stefano Albinati, CEO of Albinati Aeronautics

Business Aviation stakeholder overview

1. Customers
- Individuals
- Organizations
- Companies

2. Operators
- Airport / Infrastructure
- Aircraft Manufacturer
- Aircraft Operator

3. Authorities & Associations
- International
- National
- Regional

Business Aviation chapter key facts:

- 88 % of the Top 50 of *Forbes Global 2000* leading companies are business aircraft users
- 86 % of BizAv flights carry marketing and sales personnel, technical and engineering personnel, middle managers and corporate customers
- 90 % of all Swiss BizAv routes are almost impossible to reach directly by scheduled flight
- 150 % increase in passenger/employee productivity by using BizAv
- >2h time savings with a BizAv flight compared to commercial flights

Definition of Key Stakeholders

According to several studies, Business Aviation benefits three main stakeholders: employers, employees, and customers. To address the multitude of different stakeholders, this study extends the previous analysis of stakeholders and divides Business Aviation stakeholders into three more detailed layers.

The first layer contains the three superordinate stakeholder categories: customers, operators, and authorities & associations.

The initial stakeholder categories of employees and employers are primarily allocated to the operators and authorities & associations categories.

The customer layer is divided into individuals, organizations, and companies covering both large corporates and small and medium-sized enterprises (SME). The operators layer consists of airport / infrastructure with fixed-base operators (FBO), retailers, and air traffic control, as well as the second level aircraft manufacturer with OEMs and repair and over-

Detailed Business Aviation stakeholder overview

Definition of Key Stakeholders

haul firms (MRO) and the last level aircraft operators. The third layer authorities & associations has a geographical subdivision into regional with local representatives, national with domestic agencies, and international with major transnational institutions.

1.1 Customers – Companies

Switzerland has historically been a very desirable location for multinational companies. Around 11,500 multinational companies were present in Switzerland in 2018. Most of these companies were located predominantly in the area around Zurich and the Lake Geneva region[1]. Compared to all companies in Switzerland, multinationals account for only 4 %, but create over 25 % of all jobs and account for one third of Swiss gross domestic product (GDP)[2]. However, SMEs are also fundamental to the Swiss economy. More than 99 % of Swiss companies are SMEs and create two-thirds of the jobs in Switzerland[3].

88 % of the Top 50 of *Forbes Global 2000* leading companies are business aircraft users[4]

86 % of Business Aviation flights carry marketing and sales personnel, technical and engineering personnel, middle managers and corporate customers - not the top executive level. At the same time, 75 % of companies using business aircraft only own one aircraft[5].

1.2 Customers – Organizations

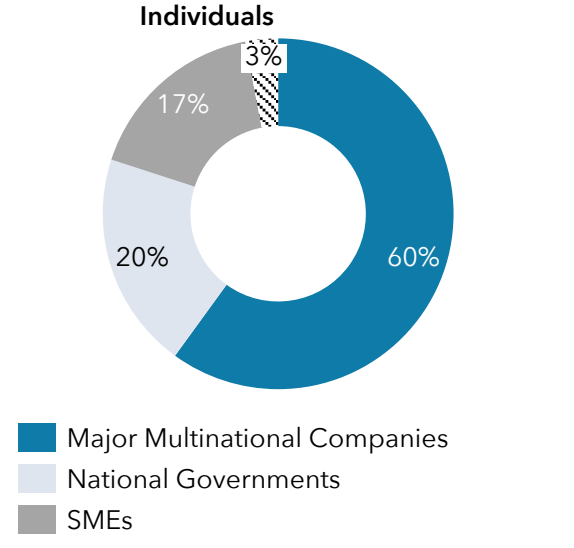
In addition, 27 international organizations and secretariats, 6 quasi-governmental international organizations with tax agreements (such as the International Air Transport Association IATA), and 12 other international bodies with agreements on privileges and immunities or on the status are headquartered in Switzerland in 2022[6]. Likewise, along with New York City, Geneva is one of the most important centers of multilateral diplomacy in the world. In comparison, Switzerland has significantly more headquarters of international organizations than countries such as Belgium, USA, and France.

In addition to Business Aviation flights by international organizations, over 15,000 flights per year are carried out by business aircraft for humanitarian reasons[5].

1.3 Customers – Individuals

Private individuals using and owning a Business Aviation jet is considered a luxury by many outside the industry. The benefits for business purposes, on the other hand, are obvious when it comes to planning a flight in the short-term, or the flexibility of reaching a far-off destination.

Distribution of Business Aviation jet owners[4]



[1] SWI swissinfo.ch (2018). Switzerland's Love Affair with Multinationals.
[2] McKinsey Switzerland (2019). Switzerland Wake Up - Reinforcing Switzerland's Attractiveness to Multinationals.
[3] Swiss Confederation (2021). SME Portal for small and medium-sized enterprises. Figures on SMEs: Essential Points in Brief.
[4] Nexa Advisors | NBAA (2013). Business Aviation – And the World's Top Performing Companies.
[5] NBAA | GAMA (2021). Business Aviation Fact Book.
[6] Swiss Confederation (2022). The 45 organizations and secretariats in Switzerland.

Definition of Key Stakeholders

However, it is estimated that only 3 % of the world's Business Aviation fleet is owned by wealthy individuals.

2.1 Operators – Airport / Infrastructure

Airport / Infrastructure operators include FBOs, various airport retailers with duty free und travel value shops, and air traffic control.

The term Fixed-base Operator (FBO) refers to an enterprise that has been granted the right by an airport authority to provide varied and wide-ranging commercial services such as fuel, parking, and hangar space services for aviation purposes.

Air traffic control is responsible for the safe and efficient handling of air traffic and divides the airspace into different sectors and classes. The airspace classes vary in terms of air traffic service requirements, flight rules, radio operations, cloud clearances and minimum visibility[7]. Air traffic management in Switzerland is handled by the company "Skyguide", which has its headquarters in Geneva and is majority-owned by the Swiss Confederation.

2.2 Operators – Aircraft Manufacturers

The global commercial aviation market is led by the original equipment manufacturer (OEM) duopoly of Airbus and Boeing, followed by Bombardier, Embraer, and ATR[8]. In terms of business jet manufacturers, Airbus and Boeing still determine the top in 2021, followed by the companies Bombardier, Embraer, Textron, Gulfstream Aerospace, Dassault Aviation, Cessna Aircraft Company, and Hondajet[9].

In addition to manufacturing engines and aircraft, OEMs provide maintenance, repair and overhaul (MRO) services, as airlines have increasingly outsourced these functions. However, MROs can be divided into different types of organization such as independent repair stations, facilities of FBOs, divisions of major/regional airlines, and corporate operators, whereas independent repair stations are the most prevalent types of MRO.

2.3 Operators – Jet & Aircraft Operator

The International Business Aviation Council (IBAC) defines business aircraft operators into four categories as follows[10]:

– Commercial
The commercial operation or use of aircraft by companies for the carriage of passenger or goods as an aid to the conduct of their business and the availability of the aircraft for whole aircraft charter, flown by a professional pilot(s) employed to fly the aircraft.

– Corporate
The non-commercial operation or use of aircraft by a company for the carriage of passengers or goods as an aid to the conduct of company business, flown by a professional pilot(s) employed to fly the aircraft.

– Owner Operated
The non-commercial operation or use of aircraft by an individual for the carriage of passengers or goods as an aid to the conduct of his/her business.

– Fractional Ownership
The operation or use of aircraft operated by an entity for a group of owners who jointly hold minimum shares of aircraft operated by the entity. Fractional Ownership operations are normally non-commercial; however, the operation of the aircraft may be undertaken as a commercial operation in accordance with the air operator certificate (AOC) held by the entity.

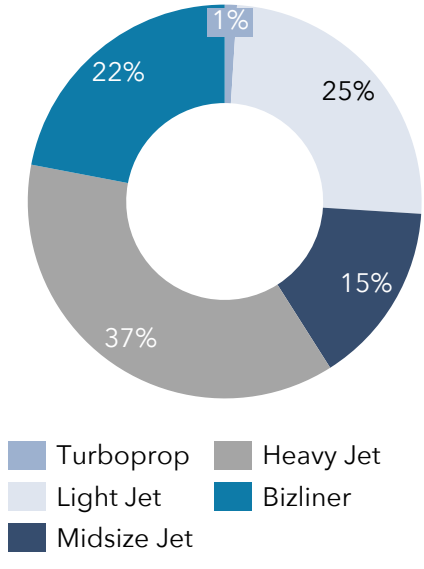
[7] FOCA (2022). Federal Office of Civil Aviation. Air Traffic Control and Airspace.
[8] Business Wire (2019). The World's Top 5 Commercial Aircraft OEMs: 2019 Annual Strategy Dossier.
[9] Fortune Business Insights (2021). 10 Topmost Business Jet Manufacturers in the World, 2021.
[10] IBAC (2022). IBAC Definitions of Business Aviation.

Definition of Key Stakeholders

At the same time, a number of high-profile commercial business and private jet operators are headquartered in Switzerland - including Jet Aviation, Nomad Aviation, Albinati Aeronautics, AMAC Aerospace, Premium Jet, and Cat Aviation.

Business Aviation jets commonly used by business aircraft operators can be divided into the aircraft segments Turboprop, Light Jet, Midsize Jet, Heavy Jet, and Bizliner, with Heavy Jets accounting for the largest market share with 37 %.

European market share of activities per aircraft segment of Business Aviation in 2021[11]



3.1 Authorities & Associations – Regional

At the local level, authorities, regional municipalities and political representatives contribute to the development of activities and decisions, such as investments in local airports and infrastructures or the distribution of flight slots including impacts on associated companies.

3.2 Authorities & Associations – National

In the category of national authorities & associations, the Federal Office of Civil Aviation (FOCA) is responsible for the development of aviation and the supervision of civil aviation in Switzerland. The FOCA is part of the Federal Department of Environment, Transport, Energy and Communications (DETEC) and is mandated to maintain high safety standards in Swiss civil aviation and to pursue a policy of sustainable development[12].

The Swiss Business Aviation Association (SBAA) represents and defends the interests of Business Aviation in Switzerland - including discussing the possible development of legal regulations, but also regulatory infrastructures in Switzerland or on a broader European level[13].

3.3 Authorities & Associations – International

Considering the international authorities & associations, the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), and the European Organization for the Safety of Air Guidance (Eurocontrol) exist as the most important aviation entities at the international level. Additionally, the International Business Aviation Council (IBAC) represents the international interests of Business Aviation with 15 national member associations such as the European Business Aviation Association (EBAA) and the National Business Aviation Association (NBAA)[14].

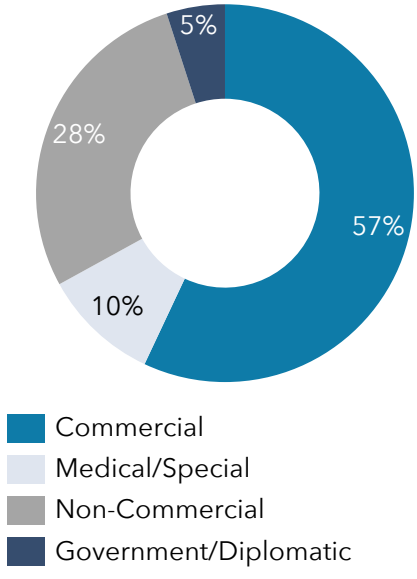
[11] EBAA (2022). European Business Aviation Traffic Tracker.
[12] FOCA (2022). Webpage: Federal Office of Civil Aviation. In Focus – The FOCA introduces itself.
[13] SBAA (2022). Webpage: Projects.
[14] IBAC (2022). Webpage: Membership. Our Members.

Benefits to Customers

The benefits of business aircrafts are unmatched, especially when multiple destinations need to be reached in a single day – point-to-point, on-demand transportation saves customers time and gets them to their destinations faster.

Business aircrafts are utilized by various customer groups – e.g. for the non-commercial benefit of individuals, for commercial purposes by sales and management teams of large companies, or by organizations such as charities and governments.

Swiss market share of activities per Business Aviation customer group in 2021[15]



Considering Switzerland as a prime Business Aviation location, certain advantages for customers are particularly apparent. Swiss Business Aviation results in a remarkably high degree of flexibility for business travelers when they need to reach destinations outside of Switzerland's national airports. 90 % of all Swiss Business Aviation routes can hardly be reached directly by scheduled flight[16].

90% of all Swiss Business Aviation routes are almost impossible to reach directly by scheduled flight

In addition, business travelers often have to handle several business appointments with multiple destinations in one day. Furthermore, Business Aviation offers an environment for discretion and confidentiality that is particularly appreciated by Swiss Business Aviation clients.

In general, Business Aviation has numerous benefits for its customers, which can be clustered into three overarching categories: Time & Cost Benefits, Client & Convenience Benefits, and Societal Benefits.

Looking at the Time & Cost Benefits category, European business travelers have a 150 % increase in productivity because they spend significantly less time in transit zones and can work undisturbed in a private environment[17]. In addition, 3 % of all commercial flights are cancelled and 25 % are delayed, making reliability and on-demand availability an important factor for Business Aviation customers[18].

3% of all commercial flights are cancelled (in normal – non-COVID-19 times)

25% of all commercial flights are delayed (in normal – non-COVID-19 times)

8% of all Swiss International Airlines flights have still been cancelled from October 2021 to March 2022 due to COVID-19 restrictions and demand

Similarly, the majority of European cities are not linked to nonstop scheduled air services, making Business Aviation a particular important choice for customers.

[15] EBAA (2022). European Business Aviation Traffic Tracker.
[16] Intraplan Consult GmbH (2018). Monitoring Air Traffic Switzerland.
[17] Maertens, S. et al. (2019). The Economic Footprint of the Business Aviation Sector in Europe. In: Airline Economics in Europe (Advances in Airline Economics, Vol. 8), Emerald Publishing Limited, Bingley, pp. 137-166.
[18] NBAA | GAMA (2015). Why Companies Utilize Business Aviation.

Benefits to Customers

Categorized customer benefits of Business Aviation

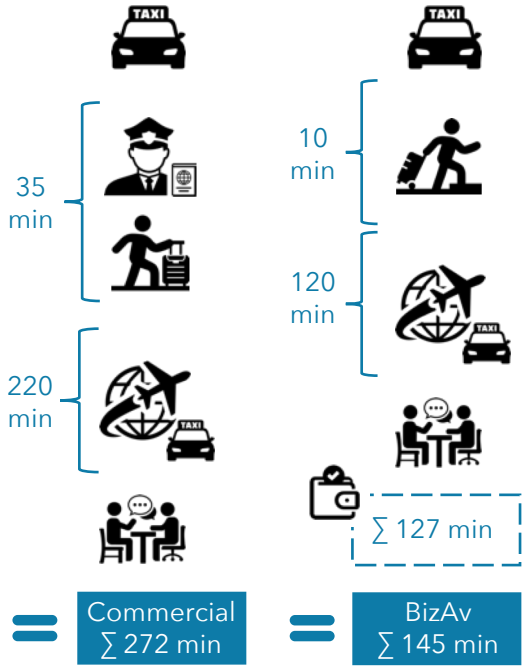
Time & Cost Benefit	Enhanced passenger productivity (150 % increase[19])	Reduced delays (over 3 % of all commercial airline flights are cancelled) – nearly 25 % of all scheduled flights are delayed[21] Increased employee productivity in transit and en-route Perceiving additional services on business aircrafts that allow to better manage time Attending on demand flights to operate from anywhere
	Improved travel connectivity (⌀ 127 min time savings[20])	Improved / faster connections while minimizing ground transportation (over 25,000 European city pairs not connected by nonstop scheduled air services[19]) Traveling to multiple destinations in one day
	Reduced company expenses	Avoiding overnight stays
Client & Convenience Benefits	Enhanced client satisfaction	Increased client interaction and satisfaction Faster access to business partners Enabling the shipping of critical, outsized or sensitive equipment
	Increased passenger comfort	Increased personal safety Ensuring industrial security (espionage) Increased comfort and reduced stress (quiet workplace) Minimizing non-business hours away from home
Societal Benefits	Enhanced health care access	Air ambulances and medical evacuations in remote areas
	Distance-Optimized travel option	BizAV contributes 2 % to the overall aviation industry's emissions[22]

[19] Maertens, S. et al. (2019). The Economic Footprint of the Business Aviation Sector in Europe. In: Airline Economics in Europe (Advances in Airline Economics, Vol. 8), Emerald Publishing Limited, Bingley, pp. 137-166.
[20] Booz | Allen | Hamilton (2017). Economic Impacts of Business Aviation in Europe with a special focus on the Geneva region – Report.
[21] NBAA | GAMA (2015). Why Companies Utilize Business Aviation.
[22] EBAA (2018). European Business Aviation – Economic Value & Business Benefits.

Benefits to Customers

Furthermore, European business travelers save over 2h with a Business Aviation flight compared to commercial flights[23].

Time savings benefit of Business Aviation[23]



Business Aviation allows for multiple appointments in different cities or even countries. For example, manufacturing companies that want to combine visits to their factories, such as those near Zurich, in Germany and in Belgium, in just one or two days can only manage this by using a private jet; with a scheduled flight, this would require considerably more time.

Moreover, in terms of Client & Convenience Benefits, business partners can be reached more easily and certain goods can be transported efficiently and easily to the customer or to the company's own locations. Additionally, the environment during a Business Aviation flight is also much safer from espionage when it comes to a sensitive work context or a meeting with sensitive information.

Finally, Business Aviation leads to societal and ecological benefits – it contributes to only 2 % of the overall aviation industry's emissions, although Business Aviation has a market share of almost 20 % in the aviation industry[23].

[23] EBAA (2018). European Business Aviation – Economic Value & Business Benefits.

Sustaining fast and efficient connectivity to remote areas

Urgent factory visit in Eastern Germany

In exceptional circumstances, Probst Maveg relies on Business Aviation operations. For an urgent visit to a supplier's plant near Erfurt (Thuringia), a flight connection between the regional airports of Lausanne-Blécherette and Eisenach-Kindel was chosen to ensure that the return flight, including the meeting, was completed in one day and that overnight stays could be omitted. **As an alternative to the flight, it would have been possible to travel the distance of 750 km by car (>7h one-way)**, suitable scheduled flights were not provided. Lausanne-Blécherette is only 10 km from Crissier (vs. 60 km or 35 min to Geneva airport) making the flight route the most efficient tool for the purpose.

Probst Maveg AG is one of the leading distributors of construction machinery and equipment in Switzerland. The company represents different brands of small and large construction machinery for earthmoving, road construction, civil engineering and special construction. Based in Lyss (BE) and Crissier (VD) and with six service centers, Probst Maveg offers after-sales service and personal support throughout Switzerland.

PROBST MAVEG

4. Utilization Strategies and Location Factors

Chapter Key Facts

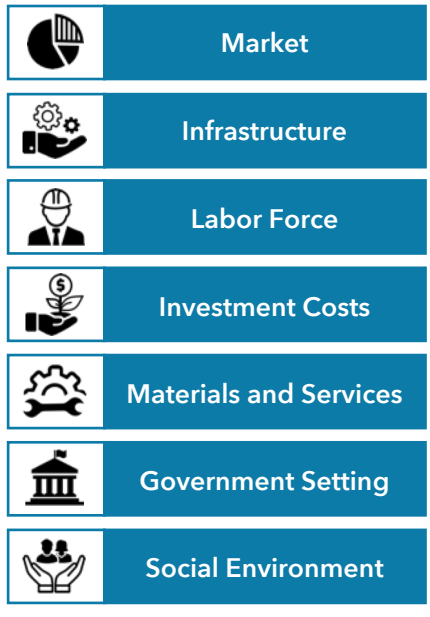
Business Aviation can be used for a wide range of applications. In addition to its primary applications of transporting people or goods for business purposes and the use of Business Aviation for humanitarian missions, Business Aviation is also utilized in airborne research and mapping, news gathering and reporting, monitoring and surveillance.

Additionally, various location factors are decisive for companies to settle in Switzerland. Business Aviation and its utilization strategies combined with the strategic locations of regional airports create a unique location factor that plays an important role for many international companies to locate and expand their businesses in Switzerland.

However, Switzerland cannot afford to rest on its traditional location factors – Singapore and the United Arab Emirates are rapidly catching up in terms of business jet operations, even if other criteria besides geographical distance play a role. It is essential that Switzerland continues to develop its attractive location factors, which also include advancing the Business Aviation industry.

> *"We have strategically grown our network to be where our customers need us to be, offering them a global partner for all of their Business Aviation needs. We want to make Business Aviation effortless for our customers."*
> – Cyril Martiniere, VP MRO Services and General Manager Basel at Jet Aviation AG

Location choice criteria of companies[1]



Business Aviation chapter key facts:

- 1-2h accessibility of all Swiss airports by car or train
- <2h by plane to reach the biggest European capitals
- >15,000 flights per year are carried out by business aircraft for humanitarian missions
- 2 % of all European BizAv flights are used to serve medical evacuations
- >850 headquarters of international companies and organizations are located in Switzerland

[1] Wittmer, A. & Noto, C. (2020). Intangible Effects of Regional Airports in the Aviation System - The Case of Switzerland. In: Air Transport and Regional Development Case Studies. London: Routledge.

Utilization Strategies of Companies and Organizations

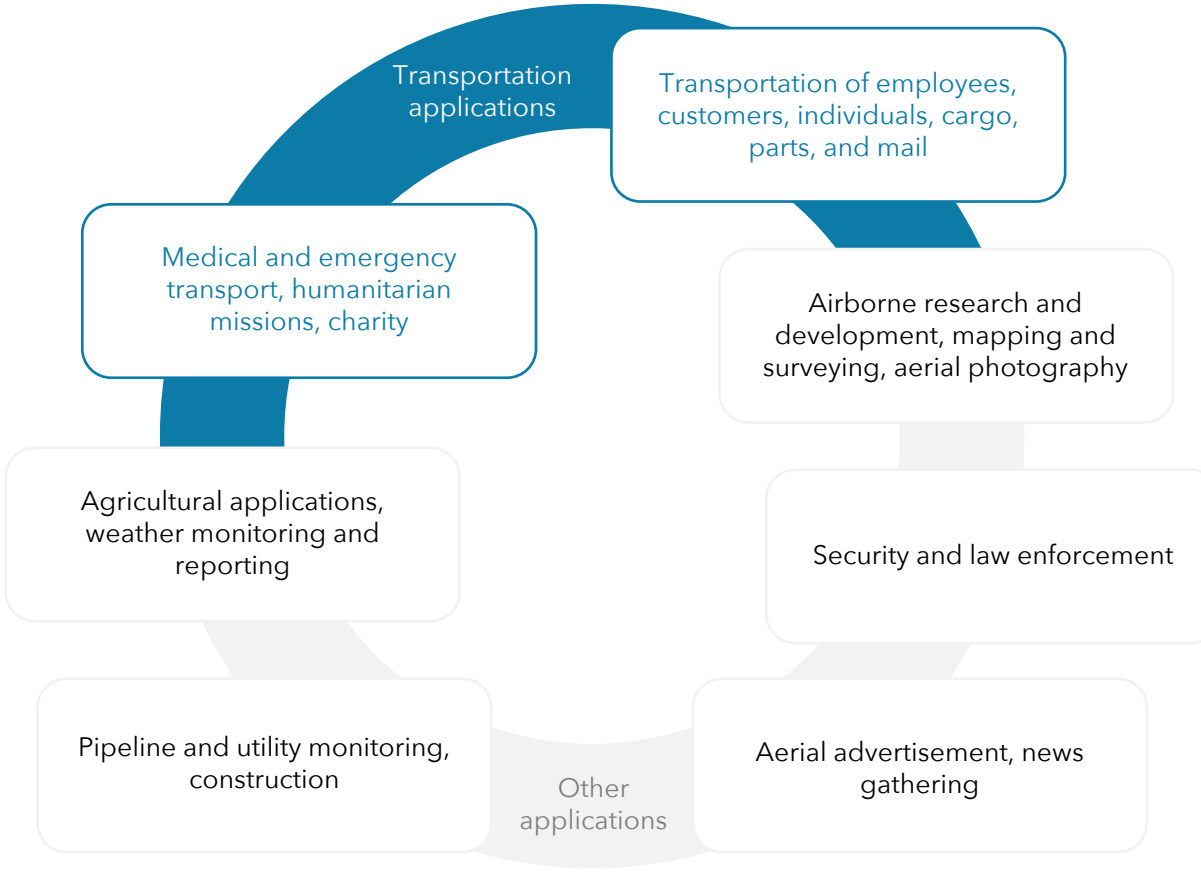
Business Aviation is utilized in a variety of use cases, each offering unique benefits. Depending on various factors, utilization strategies in Business Aviation vary depending on factors such as geographic location of the company, surrounding infrastructure and connectivity, company size, and of course industry.

For many companies, the primary use case for utilizing Business Aviation is to transport their own employees to get from point A to point B efficiently. Many benefits arise for customers and users of Business Aviation, which were discussed in the previous chapter 3.

Similarly, the use of Business Aviation for humanitarian missions has increased significantly - especially in the wake of the COVID-19 crisis, medical and emergency transport were carried out using Business Aviation. Business Aviation has also been utilized to fly humanitarian evacuations from Kiev during the current war in Ukraine.

In addition to transport applications as a primary utilization strategy of Business Aviation, there are numerous other fields of application – these include, for example, monitoring of land areas, infrastructure or weather.

Utilization strategies of Business Aviation[2]



[2] Nexa Advisors | NBAA (2013). Business Aviation – And the World's Top Performing Companies.

Utilization Case – Humanitarian Flights

Business Aviation is regularly used to provide emergency medical services and perform life-saving activities such as timely access to specialized medical treatment for patients, medical evacuations from remote areas, organ transports, or the shipment of medical supplies. It can be estimated that 2 % of all Business Aviation flights are used to serve medical evacuations[3] – that represents over 40 Business Aviation flight movements per day or in total over 15,000 Business Aviation flight movements in Europe within the last 12 months[4].

2% of all European Business Aviation flights are used to serve medical evacuations

this equals

>15,000 Business Aviation flight movements in Europe **2021-2022**

Especially in the wake of the COVID-19 crisis, Business Aviation has been a major contributor to the health care system. For example, especially from remote areas, Business Aviation has been used as a medical transport for infected people with severe conditions, efficiently transferring them to hospitals under the safest conditions.


© FAI Air Ambulance

Similarly, during the COVID-19 crisis, Business Aviation flew stranded citizens back to their home countries, transported medical emergency teams and critical medical supplies.

Another example is the French non-governmental organization "Aviation Sans Frontières", which set up a collaborative online platform to arrange the transportation of medical teams and equipment to local regions struck the hardest during the COVID-19 crisis and decided to team up with the Business Aviation industry. With the help of EBAA France – a national member of the European Business Aviation Association – Business Aviation operators could register their interest to participate in this initiative. The contribution was outstanding, in addition to the donation of business aircraft and pilots, numerous private pilots responded to the mission, a major oil and gas company offered free fuel for all flights, and all French airport taxes have been waived for this initiative[5]. To put it in the words of Cedric Lescop, CEO of JetFly, one of the business jet operators participating in the initiative:

"This mission shows exactly how versatile and flexible Business Aviation can be."

Around the world, there are many examples of how Business Aviation provides lifesaving services. The American non-profit charitable organization of pilots and volunteers called "Angel Flights" offers services available to individuals and health care organizations. "Angel Flights" is financially supported by contributions from individuals, service clubs, social and religious groups, and corporations and regularly transports patients to distant medical facilities for treatment[6].

[3] EBAA (2018). European Business Aviation – Economic Value & Business Benefits.
[4] EBAA (2022). European Business Aviation Traffic Tracker. March 2021 - February 2022.
[5] Expanding Horizons (2020). Business Aviation Rallies Forces for the Aviation Sans Frontières Initiative.
[6] Angel Flight (2022). About Angel Flight Oklahoma.

Business Aviation as a Swiss Location Factor

The consideration of location factors is fundamental to a company's decision to locate and invest in a specific region. In this context, companies consider economic and social development, both on a regional and national level.

Multinational companies and organizations place particular emphasis on the market, infrastructure with central European location, and government settings when choosing a location in Switzerland. Depending on the industry, factors such as tax burden also have a significant influence on the Swiss location decision[8].

Especially in the area of infrastructure as a location factor, Business Aviation is an

Location choice criteria of companies[7]

– Proximity to relevant markets, forecast of market development

– Accessibility to land, water, and air transport, connectivity and access to the target markets

– Availability of labor, skilled workers (e.g. in science and technology), labor unions

– Land prices, costs of plant construction, energy and labor costs

– Availability of suppliers, raw materials, energy, fuel and water, and business services

– Federal subsidies, state debt, taxes, regulations, local politics, and medium- to long-term national strategies

– Availability of housing, education, health and medical care, safety, environmental conditions, cost of living, and business climate

[7] Wittmer, A. & Noto, C. (2020). Intangible Effects of Regional Airports in the Aviation System - The Case of Switzerland. In: Air Transport and Regional Development Case Studies. London: Routledge.
[8] Swiss Confederation (2021). SME Portal. Location Search: Factors for the Right Choice.

Business Aviation as a Swiss Location Factor

indispensable working tool for numerous internationally active companies and political institutions. However, Business Aviation is not only an important means of transportation for large corporations, but also increasingly for small and medium-sized enterprises due to the advancing globalization[9].

In the increasingly fierce international competition between locations, **the availability of a nearby Business Aviation airport is a non-negligible location factor for many companies.**

certainty. However, global competition to attract foreign companies has become tougher and demands on the location are growing rapidly – in this context, traditionally advantageous location factors alone are no longer sufficient[10].

"Historical advantages for the location Switzerland are decreasing compared to other countries such as Singapore or the United Arab Emirates as they are catching up."

© NBAA

From the perspective of international companies, Switzerland is one of the most attractive countries for direct investments. Companies particularly appreciate Switzerland's political stability and legal

"Many jet operators moved their business to Dubai where manpower is less expensive compared to Switzerland."

[9] Swiss Aviation Media (2015). Business Aviation – Special on the Subject of Business Aviation.
[10] OSEC (2010). Location Switzerland. Big Challenges - New Focus. Framework Conditions, Analyses, Perspectives.

Business Aviation as a Swiss Location Factor

One of the main pillars for Switzerland as a business location is and remains the quality of education accompanied by world-renowned research institutes and universities. As a result, Switzerland is competitive in the long-term in the global race for talents and for companies willing to settle in the country. Likewise, Switzerland offers comparatively high salaries, a high standard of living, and is attractive for many cross-border commuters due to its central geographic location in the heart of Europe.

"In addition to hard location factors such as taxes and geopolitical stability, Business Aviation can be rather listed as a soft location factor."

Consequently, Switzerland is an important center for the global and regional headquarters of foreign companies and international organizations. More than 850 international companies have their headquarters or other central functions located in Switzerland. Prominent examples include Google, IBM, Adidas, Johnson & Johnson, Bayer, Mondelez, Procter & Gamble (P&G), and many more. These companies also benefit from Switzerland's economic neutrality – as all major European markets are comfortable with a Swiss headquarter[11].

"For large companies, Business Aviation is an argument, but on the other hand, the airport network is very good in Switzerland. It is the biggest advantage of choosing Switzerland compared to other countries."

Switzerland is located in the heart of Europe and thus at the intersection of different cultures - Switzerland shares its borders with three of the four largest European markets: Germany, France and Italy. As one of the most important transportation hubs, it connects Northern and Southern Europe as well as Eastern and Western Europe. In addition, the geographical location of the three national airports in Zurich, Geneva and Basel enables international and intercontinental connections for travelers and business people.

Due to the highly efficient infrastructure, **all Swiss airports can be reached within 1-2 hours by car or train**, from which the major European capitals can again be reached within two flight hours[11].

[11] Switzerland Global Enterprise (2022). Switzerland – The Ideal Location for Headquarters.

5. Trends and Market Development

Chapter Key Facts

The COVID-19 crisis has caused the entire aviation sector, the Business Aviation sector as well, a serious shock – (Swiss) Business Aviation, on the other hand, recovered extremely well, especially in 2021, and operated significantly more flights than even before COVID-19. However, it remains to be seen how resilient the Business Aviation market will perform in the face of further crises such as the war in Ukraine and the Russian sanctions, as well as other unforeseen events.

At the same time, Business Aviation in particular has the opportunity to be an implementer and frontrunner for innovations in the aviation industry and to establish long-term technological and sustainable innovations in aviation.

Which customers will Business Aviation target in the future and how will the customer segment evolve?

Which future flight routes will be demanded by Business Aviation customers?

Will Business Aviation be an ecological outcast or will Business Aviation drive the change and create economical, ecological, and societal impact among industries?

"If you clip the wings of Business Aviation and impede investment in the industry through regulatory intervention, it will take much longer for the aviation sector to be disrupted by sustainable technologies."
– Philippe Meyer, CEO & Founder of Premiairclassetv

Megatrends driving the upcoming generation of Business Aviation customers[1]

Pioneering: Transforming flight with innovative and sustainable technologies

Accessible: Open, modern and engaging

Desirable: Taking people where they want, when they want

Indispensable: Connecting regions and people, providing jobs, and offering vital services

Business Aviation chapter key facts:

- +5.8 % Swiss BizAv market growth compared to 2019
- +35 % growth of Swiss BizAv flights movements from Sep. 2019 to Sep. 2021
- +11.64 Billion CHF worldwide business aircraft market size development until 2028
- 76 % of aircraft demand until 2040 will be primarily in the small aircraft segment
- 0.04 % of the global CO_2 emissions are caused by the BizAv sector

[1] EBAA (2018). How Millennials See the Future of Business Aviation. A Focus on Sustainable Personal Air Transport.

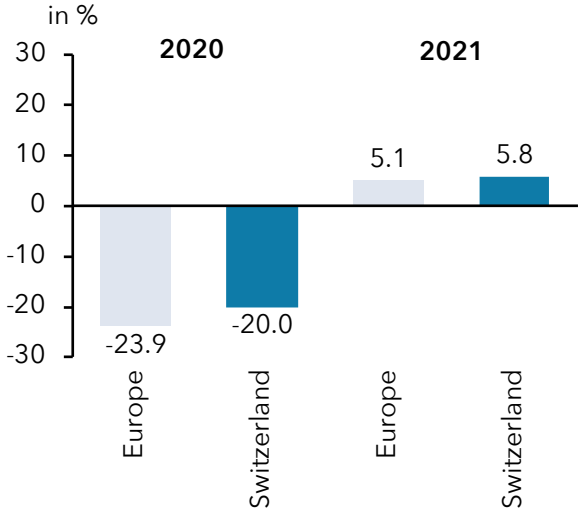
Market Development since 2019

The Business Aviation market was growing steadily before the COVID-19 crisis in early 2020. Reasons for this were the increasing need for on-demand movement from anywhere to anywhere, the avoidance of large airports by business travelers to save time, the development of new business models to save costs for customers, and the use of lighter aircraft that allow the industry to capture new market segments[2].

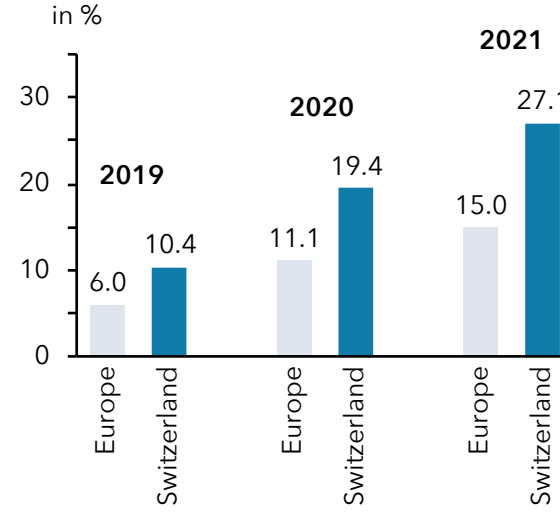
At the beginning of COVID-19 in March 2020, there was a huge collapse in the (commercial) aviation sector. Many of the world's major airlines such as Emirates, Lufthansa, Air France KLM, EasyJet and Ryanair had to cancel between 90 % to 100 % of their commercial flights[3].

The effects of COVID-19 followed by global travel restrictions also heavily impacted the Business Aviation sector. In 2020, the Swiss Business Aviation sector experienced a decline in market growth of 20 %, while the European Business Aviation sector even recorded a decrease of almost 24 % in comparison to 2019[4]. While commercial aviation activities remained at very low levels throughout 2020, Business Aviation recovered much faster and was already at 70 % of 2019 levels globally by October 2020 – and as high as 100 % in some regions[5]. With many commercial airlines flying at very low capacity, the Business Aviation sector has been able to step up and fill the missing capacity gap well. Consequently, the market share of Business Aviation could increase significantly in 2020 and 2021 compared to the pre-COVID-19 level of 2019.

Development of Business Aviation market growth in comparison to 2019[4]



Development of Business Aviation market share from 2019 to 2021[4]



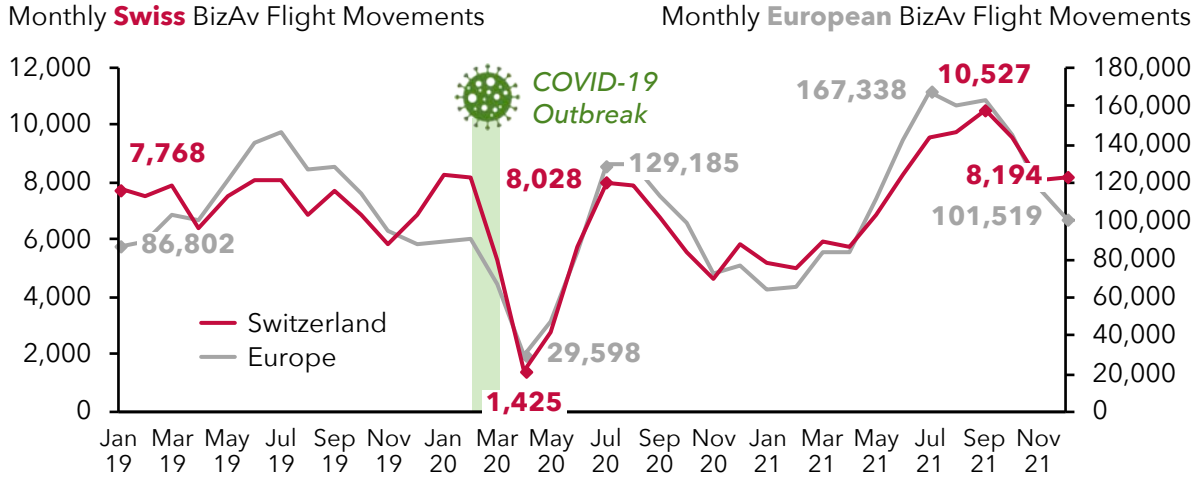
The Business Aviation market share was 73 % higher in Switzerland in 2019 compared to Europe - and increased to 75 % in 2020 and by as much as 81 % in 2021 compared to European Business Aviation.

Comparing the market development of Business Aviation based on monthly flight movements, it is apparent that the ratio of Swiss and European Business Aviation flight

[2] EBAA (2018). European Business Aviation – Economic Value & Business Benefits.
[3] Statista (2020). Flight suspension rate of global airlines due to COVID-19 as of March 23, 2020.
[4] EBAA (2022). EBAA Yearbook: Country Profiles. Europe | Switzerland.
[5] WOI White Orchid Insights (2020). Swiss Aviation Consulting (SAC) on Industry Bounce-back.

Market Development since 2019

Comparison of monthly European and Swiss Business Aviation flight movements since 2019[6]



movements remained around the same level during the COVID-19 crisis. It is worth mentioning that the Business Aviation industry has recovered surprisingly well compared to many other industries. Swiss Business Aviation flight movements have increased from 7,750 in September 2019 before the COVID-19 crisis to 10,527 in September 2021 during the pandemic followed by the ongoing travel restrictions – representing a growth of over 35 % compared to September 2019 during Swiss Business Aviation strongest month of flight movements in September 2021.

35% growth of **Swiss BizAv** flight movements from Sep. 2019 to Sep. 2021

28% growth of **European BizAv** flight movements from Sep. 2019 to Sep. 2021

Business Aviation boomed in 2021 with a very strong increase in demand starting in April 2021, driven by the lifting of travel restrictions and the resulting stronger leisure demand. Scheduled airlines, on the other hand, are still not able to utilize their capacity - customers have increased their use of Business Aviation services due to ongoing hygiene concerns related to new virus variants. The resilience of the upswing of European and Swiss Business Aviation in 2021 will be tested by the patterns of Business Aviation customers in the first two quarters of 2022.

Globally, more business jets were flown in 2021 than in any previous year - with 3.3 million flight movements from January to December, business jet traffic was 7 % higher than in 2019, the previous peak in global business jet demand. In this context, the three largest Business Aviation markets were France, Germany, and the UK. Considering the segments of different business aircraft, the standout growth across Europe was in the Light Jet segment, where utilization increased 22 % in 2021 compared to 2019[7].

Airbus expects a full recovery of air traffic between 2023 and 2025[8]

[6] EBAA (2022). EBAA Yearbook: Country Profiles. Europe | Switzerland.
[7] WINGX (2022). 2021 marks busiest year on record for global business jet activity. 6 Jan 2022.
[8] Airbus (2021). Aviation connects and unites us! Airbus Global Market Forecast 2021 -2040.

Market Development Case – Ukraine Crisis

The Ukraine crisis has quickly surpassed COVID-19 as the biggest destabilizing driver in Europe. The escalation of the geopolitical tensions between Russia and Ukraine in February 2022 have slowed down the strongly flourishing Business Aviation sector. By the second half of February 2022, the number of business jet flights had increased by 12 % compared to January and February 2019 before the beginning of the COVID-19 crisis. Compared to winter 2021, Business Aviation activities this year are up 31 %, as are global commercial airline activities, which have also increased more than 30 % compared to last year.

10% of all Business Aviation flights in Central and Eastern Europe are operated with Russia and Ukraine[9]

With Business Aviation activity higher than at the start of COVID-19 and slowing as the Ukraine crisis unfolds, scheduled airline activity is currently 30 % below normal 2019 pre-COVID levels. In addition, current March cargo airline activity during the Ukraine crisis is 11 % below 2019 levels, but 8 % above pre-COVID March 2019 levels[10, 11].

The subsequent consequences of Russia's attack on Ukraine could have serious economic effects that will threaten demand for (Business Aviation) flights during the year.

"Geneva Airport and EuroAirport Basel are important MRO locations – some MROs have already lost over 60,000 working hours during the Ukraine crisis due to a lack of orders and Russian aircraft."

The expansion of sanctions will significantly impede the entire European Business Aviation market and its stakeholders, from flight operations and charter to financing, management, and maintenance of aircraft[12].

The European Union Aviation Safety Agency has instructed all aircraft to keep out of the airspace up to 185 km from the Ukrainian-Belarusian and Ukrainian-Russian borders[13].

Dreamed out - Destruction of an air giant

The world's largest and most powerful aircraft in terms of transportable volume and mass got destroyed during the Russian invasion. The "Antonov An-225 Mriya" transport aircraft first flew in 1988 and was developed as part of the Soviet space program to transport large rocket parts. Originally, two aircraft of this type were to be built, but only one was completed before the collapse of the Soviet Union. With a transport capacity of 640 tons and six engines, it is the most powerful aircraft ever built and the largest in service[14].

© CNN – "Antonov An-225 Mriya"

[9] WINGX (2022). Still buoyant activity but Ukraine crisis likely to curb demand. 24 Feb 2022.
[10] WINGX (2022). Bizjet market Covid rebound still outweighing warning signs in the economy. 31 Mar 2022.
[11] WINGX (2022). Slowdown spreads as Germany sees sharp decline, but US still buoyant. 14 Apr 2022..
[12] WINGX (2022). Russian business aviation wilting as invasion leads to sanctions. 3 Mar 2022.
[13] Aerotime Hub (2022). How the invasion of Ukraine impacted global aviation.
[14] Aerotime Hub (2022). Footage, pictures from Hostomel Airport show Antonov An-225 Mriya destroyed.

Challenges for (Swiss) Business Aviation

The aviation sector is facing a number of challenges and opportunities. On the one hand, COVID-19 has created financial devastation throughout the aviation value chain – even though the Business Aviation sector was able to significantly increase flight movements in comparison to pre-pandemic levels. On the other hand, the airline industry is facing a transformation in which the Business Aviation sector can be a pioneer in the development and implementation of breakthrough innovations.

Mobility research is increasingly focusing on gaining a greater understanding of human behavior and on a more sophisticated evaluation of the motivations for and alternatives to aviation[15]. At the same time, the hard facts of the Swiss aviation market and infrastructure need to be examined more closely to be aware of the relevant challenges and opportunities.

A study by the Boston Consulting Group (BCG) with the Swiss-American Chamber of Commerce has defined the key areas of action that pose particular challenges for Swiss aviation, also transferrable to the Swiss Business Aviation sector[16]:

All three Swiss national airports reach their capacity limits: The increase in aircraft flight movements at Geneva Airport is expected to rise up to 21 % by 2030 and at Zurich Airport by even 29 % - although these two national airports in particular are already at their capacity limits and exceed them at peak times.

Aggressive competition from expanding international hubs: As Switzerland's only international hub, Zurich Airport can hardly keep up in international competition - European hubs such as Munich, Vienna, and Frankfurt have higher growth potential and are steadily expanding their capacities, further diminishing the popularity and importance of Zurich Airport.

Technological innovations open the door to new modes of transportation: In recent years, several future scenarios have been drawn up, especially in the transportation sector, about how people and goods will be moved. Even if it is unclear which scenarios will prevail, there will definitely be a great transformation. Switzerland must therefore integrate various scenarios into its aviation strategy in order to remain competitive in the future and to provide the infrastructure that is important for the internationally oriented Swiss economy.

In the short term, improvements must be realized in the Swiss (Business) Aviation system to sustain functionality and competetiveness. Swiss airports should not be further restricted, much more flexible take-off and landing systems should be planned for the next 10-15 years and strategies should be defined to secure the necessary capacities in the long-term[16]:

Infrastructure upgrades to increase operating efficiency

Increased use of regional airports with spare capacity (e.g. Sunday opening for regional airports)

Improved air traffic control to efficiently allocate (Business Aviation) slots at major airports

Improved utilization of Swiss air space to counter the high density of airline traffic

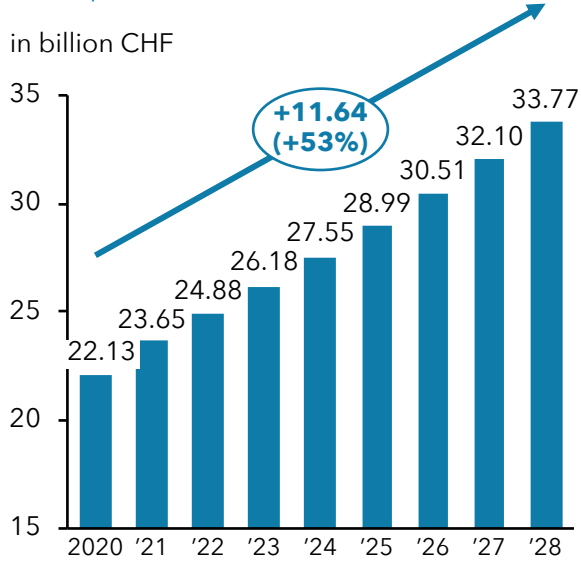
[15] Budd, Lucy C. S. (2019). Aeromobile Elites: Private Business Aviation and the Global Economy. Transport Studies Group, School of Civil and Building Engineering. Leicestershire: Loughborough University.
[16] The Boston Consulting Group, Inc. | Swiss-American Chamber of Commerce (2018). The Swiss Aviation Ecosystem. Flying Blind After 2030.

Future Business Aviation Market Development

In the wake of the COVID-19 crisis, digital tools like Microsoft Teams, Zoom, and Webex have efficiently replaced in-person meetings – but these tools will never properly replace face-to-face meetings and social interactions. Global industry executives and decision makers need to meet to develop and close business deals and to make an impact by their presence.

The global development of Business Aviation activity does not yet show any effects of the ongoing Ukraine crisis. By 2028, the global market for Business Aviation aircraft is expected to grow from CHF 22 billion in 2020 to nearly CHF 34 billion – a growth rate of almost 53 %[17].

Worldwide business aircraft market size development until 2028[17]



According to market projections by Airbus, 39,000 aircraft will be needed globally over the next 20 years to meet demand. In 2019, only 13 % of the aircraft in service were new-generation aircraft. By 2040, 76 % of demand will be in the small aircraft category - this segment includes Business Aviation aircraft[18].

Boeing projections also support these figures. By 2040, Boeing expects more than 43,600 global aircraft deliveries, with 32,660 falling under the Single Aisle category and 2,390 falling under the so-called Regional Jets segment, partially used for Business Aviation[19].

76% of aircraft demand until 2040 will be primarily in the small aircraft segment

Most of the future demand for aircraft is planned for the Business Aviation sector - depending on future disruptions such as COVID-19 and the Ukraine crisis, it can be assumed that the Business Aviation industry will continue to grow.

In order to respond to dynamic environmental conditions and adapt to changing needs and demands, the aviation industry must be aware of its opportunities and challenges. For this purpose, IATA has published a study that deals with the development of the aircraft industry until 2035, from which guiding questions for the Business Aviation industry can be derived[20]:

Which customers will Business Aviation target in the future and how will the customer segment evolve?

Which future flight routes will be demanded by Business Aviation customers?

Will Business Aviation be an ecological outcast or will Business Aviation drive the change and create economic, ecological, and societal impact among industries?

[17] Statista (2022). Size of the business jet market worldwide from 2020 to 2028. | Average exchange rate in 2021: 0.9142 CHF = 1 USD
[18] Airbus (2021). Aviation connects and unites us! Airbus Global Market Forecast 2021 -2040.
[19] Boeing (2021). Commercial Market Outlook 2021-2040.
[20] IATA (2018). Future of the Airline Industry 2035.

Future Business Aviation Market Development

Experts and studies may predict the quantitative course of the Business Aviation industry over the next few years - but economic output depends largely on the performance of the markets and the impact of (unforeseen) disruptions.

The COVID-19 crisis has made emerging trends a reality in recent months and years. Even before the pandemic, many different industries were tackling digitalization and creating new types of business models.

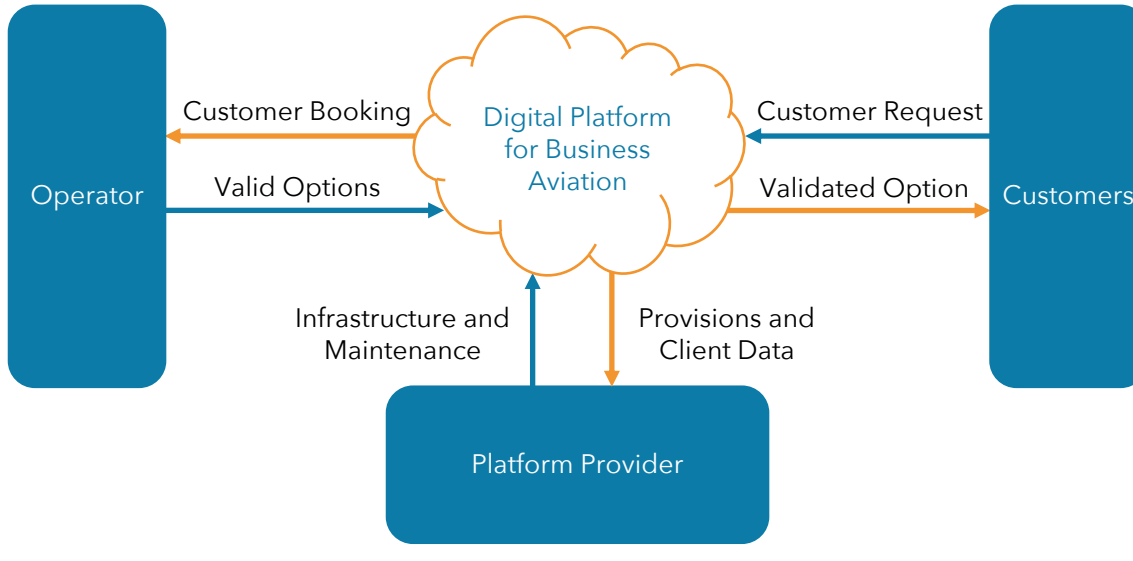
The Business Aviation industry will similarly witness the emergence of digital platforms that dynamically match supply and demand and provide a transparent, simplified, and immediately accessible view of business aircraft[21].

During the COVID-19 crisis, a great degree of uncertainty caused amongst travelers as pandemic restrictions were enacted within hours and negative COVID-19 tests were required to enter specific countries. Business Aviation users have been finalizing their travel plans at the last minute without much lead time - as a result, the time between booking confirmation and departure was usually only a few hours. Typically, the lead time for European Business Aviation bookings is between 72 to 48 hours before departure[22].

The COVID-19 crisis has given a boost to the digitization of the Business Aviation industry, as most companies offer a digital interface to their customers but perform the booking manually in the background. Digital platforms give customers a transparent view of all the inventory they need to charter without traditional brokers finding aircraft and negotiating prices. It will be a challenge to ensure dynamic availability in a highly fragmented Business Aviation fleet, develop competitive pricing while immediately accounting for the variable costs of operating a business aircraft between two locations[21].

Digital platforms in the Business Aviation industry, driven by recent crises, could

Digital platforms for Business Aviation bookings as part of the future value chain[21]



[21] Roland Berger | WINGX (2017). A new era of personal aviation. How digitization is disrupting the business aviation industry – and injecting it with new life.
[22] GlobeAir (2021). What does 2021 have in store for European business aviation?

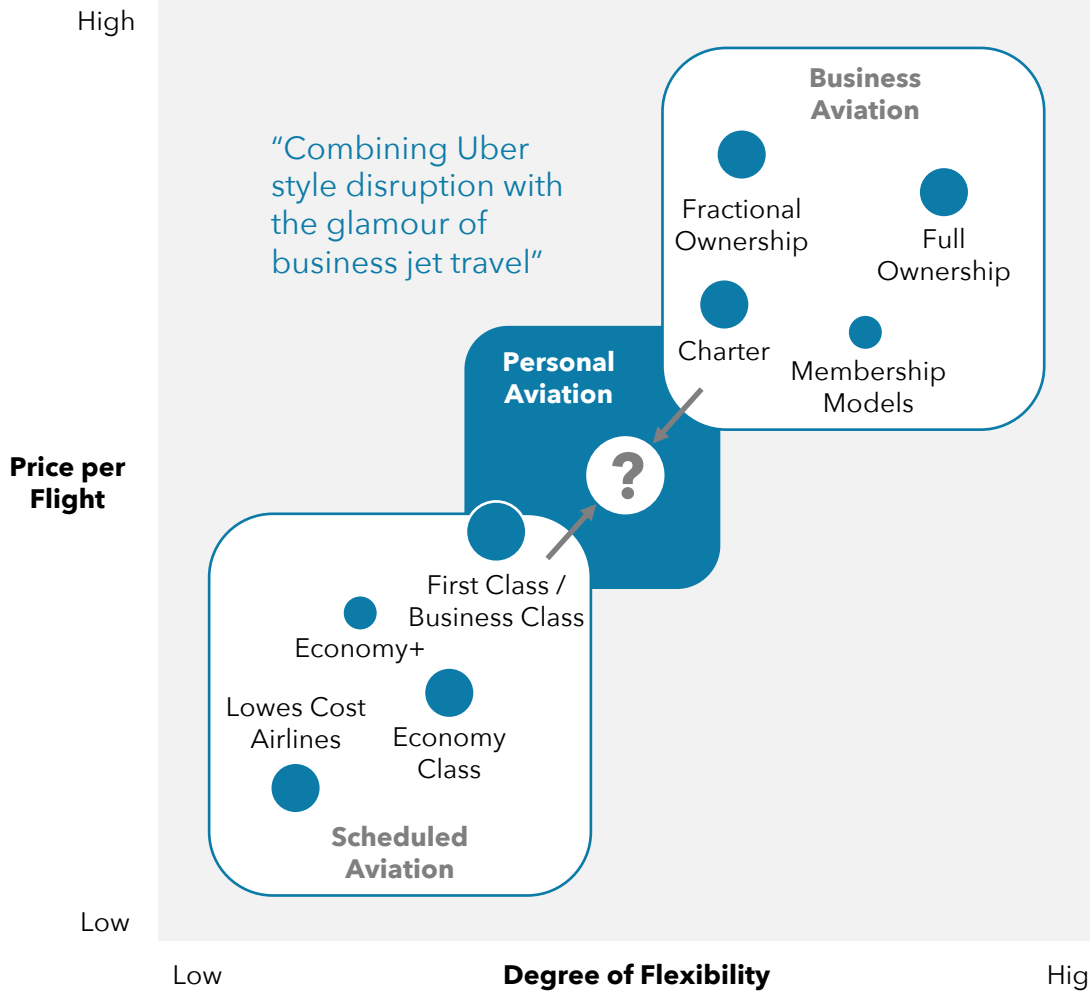
Future Business Aviation Market Development

increasingly commoditize business charter flights. This will create a new market segment between the luxury of private aviation and the mass market of airlines.

The decisive criteria for satisfying customer needs will relate to convenience, time, and price. In the end, the ultimate customer experience will be a fully integrated mobility offering - from limousine service to business jet flights and helicopter flights to new modes of transportation within the urban environment, customers will in the future be able to book a trip from A to B without having to worry about exactly what the trip will look like or what means of transport will be used[23, 24].

Between ultra-rich private aviation and mass-market airlines, a new era of Business Aviation will evolve, driven by digital disruption – called "**Personal Aviation**"[23].

Personal Aviation as a new emerging segment in the aviation industry[23]



[23] Roland Berger | WINGX (2017). A new era of personal aviation. How digitization is disrupting the business aviation industry – and injecting it with new life.
[24] NBAA | GAMA (2021). Business Aviation Fact Book.

Technological and Ecological Trends for Business Aviation

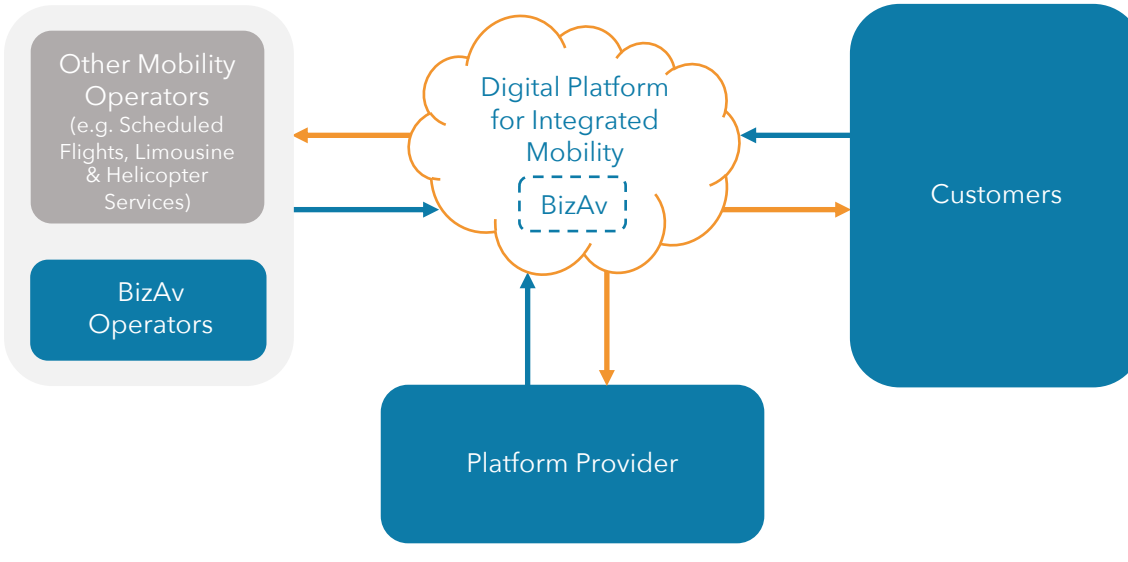
The aviation sector is undergoing a (digital) transformation that has been accelerated by recent disruptions. Business Aviation must also embrace this transformation – optimizing operator performance and providing customers with a unique smart travel experience followed by new modes of transport and new aerospace applications.

To remain competitive and satisfy both new and old customer bases, companies in the Business Aviation industry must improve existing products or develop new concepts. Stakeholders in the Business Aviation industry must continue to innovate to increase their profits and market share, and to increase the attractiveness of Business Aviation to new customers and additional application purposes. This includes fundamental innovative propulsion technologies such as electric/hybrid propulsion, significantly improving connectivity during business flight, for example by equipping business aircraft with 5G connectivity networks, or by using integrated digital mobility platforms that enable customers to automatically book their entire journey with different modes of transportation[25, 26, 27].

Business Aviation has been at the forefront of innovation since the dawn of aviation. More than ever, the industry is in flux, bringing new modes of transportation and new applications to market. At its core, Business Aviation embraces the future and how to reach it faster[28].

In addition to digitization, which will impact the Business Aviation industry in terms of accessibility, instant availability, and flight services, the concept of the sharing economy has gained popularity, especially among the younger generations. Currently, there are a number of Business Aviation options for on-demand charter flights, including companies like Blade, Jetsmarter, PrivateFly, Victor and Wingly[29].

Business Aviation as part of an integrated mobility platform[27]



[25] Jacobs, J., Goebel, B. (2020). The Business Aviation Industry: Growth, Contraction and Consolidation. In: Business Economics, Volume 55, pp. 53–61.
[26] Times Aerospace (2021). Business Aviation: A Thriving Industry Despite the Challenges.
[27] Roland Berger | WINGX (2017). A new era of personal aviation. How digitization is disrupting the business aviation industry – and injecting it with new life.
[28] NBAA | GAMA (2021). Business Aviation Fact Book.
[29] EBAA (2018). How Millennials See the Future of Business Aviation. A Focus on Sustainable Personal Air Transport.

Technological and Ecological Trends for Business Aviation

All in all, according to a study of EBAA on how millennials see the future of Business Aviation, four megatrends can be derived for the upcoming generation of Business Aviation customers[30]:

Pioneering: Transforming flight with innovative and sustainable technologies

Accessible: Open, modern and engaging

Desirable: Taking people where they want, when they want

Indispensable: Connecting regions and people, providing jobs, and offering vital services

Millennials see Business Aviation as part of an ecosystem of integrated modern and environmentally friendly mobility options. They also recognize its potential to drive technological change across the aviation sector[30].

Within the ecosystem of integrated modern and environmentally friendly mobility options, urbanization is also having a massive impact on the future of mobility and thus on Business Aviation - new forms of sustainable individual air transport in the context of Urban Air Mobility (UAM) can help meet the growing demand for mobility in megacities and provide connectivity between urban and more rural areas[30, 31].

In combination with emerging technologies in lightweight construction or in the field of autonomous control systems and with breakthrough sustainable technologies such as electrification in the course of propulsion technologies and battery technologies and alternative fuel sources, the basis for long-term transformation in the aviation sector can be ensured. The development of electric-powered vertical take-off and landing (eVTOL) aircraft for short distances has already rapidly gained momentum, driven by companies such as Lilium, Joby, Volocopter and others. Permission for passenger test flights in a specific test area and flight envelope has already been obtained from the European Aviation Safety Agency (EASA)[31].

© Joby Aviation – eVTOL Aircraft

It is expected that companies that operate business jets will be among the first adopters of eVTOL, as these vehicles can transport passengers the "last mile" to urban city centers near existing helipads or new landing sites[32]. For example, in March 2022, NetJet, the world's largest business jet operator, announced its partnership with eVTOL aircraft manufacturer Lilium to expand its fleet options and provide its customers with new and flexible means of private air travel[33].

In addition to eVTOL aircraft, which generally belong to the Advanced Air Mobility (AAM) technology field, the Business Aviation industry is pioneering the implementation of technologies known as "NextGen". "NextGen" describes the ongoing modernization of airspace systems and includes technologies such as radar-based surveillance and satellite monitoring of aircraft – with "NextGen" technologies implemented on business jets for the first time[32].

[30] EBAA (2018). How Millennials See the Future of Business Aviation. A Focus on Sustainable Personal Air Transport.
[31] GlobeAir (2021). What does 2021 have in store for European business aviation?
[32] NBAA | GAMA (2021). Business Aviation Fact Book.
[33] NetJet (2022). NetJets + Lilium. Investing in Private Aviation's Sustainable Future. March 2022.

Technological and Ecological Trends for Business Aviation

Further technologies that have their first application in business jets are, for example, supersonic technologies. Supersonic aircraft such as the Concorde, which was retired in 2003, are once again under development. NASA is leading the development effort with supersonic technologies including new engines that can reach speeds up to 60 % faster than conventional aircraft. Supersonic technology is expected to be deployable first for business jets by 2025 and then finally adapted for commercial aircraft[34, 35].


© Aerion – Supersonic BizAv Aircraft

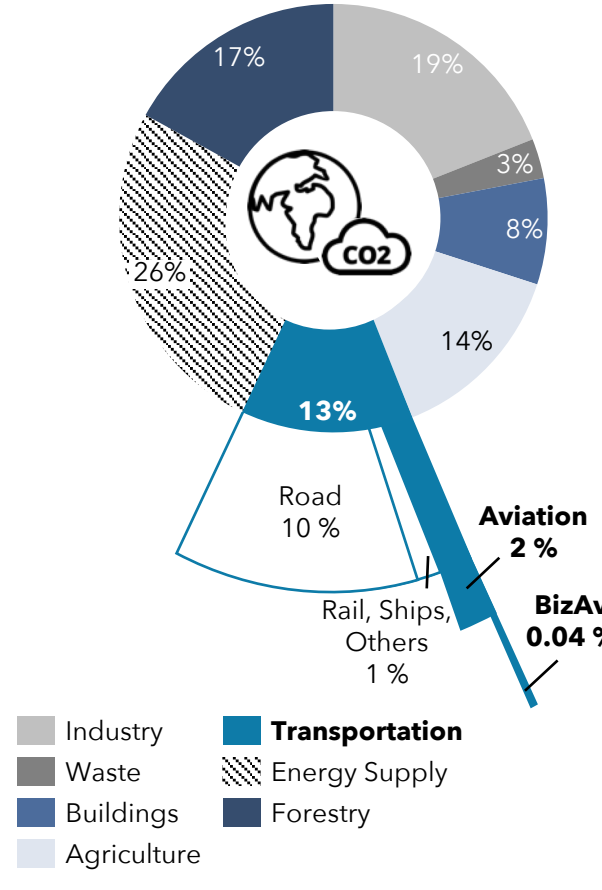
In the wake of the global climate crisis, stakeholders in Business Aviation made a commitment back in 2009 to address climate change to improve aircraft fuel efficiency and reduce CO_2 emissions. New innovative technologies such as aircraft electrification or hybrid solutions and alternative fuel sources, followed by their pioneering application in the Business Aviation segment, are leading the way for change in the aviation industry.

Adopting innovation in Business Aviation bridges the gap between technology trends and sustainability trends – **even if progress seems slow, it will inevitably come**.

Innovative technologies are also being developed and driven forward in the Swiss aviation sector. Swiss International Airlines (SWISS) and the Lufthansa Group, together with Synhelion, a spinoff of ETH Zurich, have established a collaboration in March 2022 to develop and apply a sustainable solar fuel. A new process for using concentrated solar heat to produce synthesis gas can then be used to synthesize kerosene with standard industrial processes[36].

By successfully implementing innovations over the past four decades, Business Aviation has already achieved a 40 % reduction in CO_2 emissions. Overall, the aviation industry contributes to 2 % of global CO_2 emissions, while Business Aviation accounts for "only" 0.04 %[34].

Business Aviation as a relatively small contributor to global CO_2 emissions (from 2021)[34]



[34] NBAA | GAMA (2021). Business Aviation Fact Book.
[35] EBAA (2018). How Millennials See the Future of Business Aviation. A Focus on Sustainable Personal Air Transport.
[36] Synhelion (2022). SWISS to be the world's first airline to use Synhelion solar fuel.

Technological and Ecological Trends for Business Aviation

Furthermore, in order to reduce CO_2 emissions in aviation, the Swiss "Road Map Sustainable Aviation" study was conducted in 2021 by the Aviation Research Center Switzerland (ARCS), the company Ecoplan and a working group with representatives from SWISS, SBAA, easyJet, the national airports of Zurich, Geneva, and Basel, the federal offices FOCA and FOEN, as well as the ETH Zurich and the Zurich University of Applied Sciences ZHAW. The study is based on work by global, European and Swiss aviation umbrella organizations. At its core, four key measures were elaborated to drive the sustainable development of the Swiss aviation industry[37]:

Sustainable Aviation Fuels (SAF) market development: Fossil kerosene needs to be replaced by biogenic and synthetic SAFs

Promotion of more efficient aircraft: Promote and incentivize the use of more fuel-efficient aircraft on long-haul routes and the use of electric aircraft for short-haul routes and hydrogen aircraft for short- and medium-haul routes

Operational measures: More fuel-efficient handling of air traffic on the ground and in the air

Offsetting: Short- to medium-term CO_2 offsetting through voluntary compensation and medium- to longer-term development of global markets for negative emission technologies to reduce remaining climate-relevant emissions

The airline industry must demonstrate its believable commitment to sustainability and social responsibility while significantly reducing its carbon footprint, especially to win back the younger generation. Innovative propulsion technologies, sustainable aviation fuels, and more efficient aircraft in combination with emerging business models such as digital integrated mobility platforms need to be at the heart of these strategies. Business Aviation in particular can make a valuable contribution in this respect as a frontrunning pioneer.

Business Aviation is regarded the Formula 1 of the aviation industry – it drives innovation paving the way for advancements in the international aviation sector

[37] Aviation Research Center Switzerland (ARCS) | Ecoplan (2021). Swiss "Road Map Sustainable Aviation" - Ways to Decarbonize Air Traffic. Final Report.


HB-FWA

Abbreviations

AAM	Advanced Air Mobility
ARCS	Aviation Research Center Switzerland
ATC	Air Traffic Control
ATO	Approved Training Organization
AOC	Aircraft Operator Certificate
BizAv	Business Aviation
DETEC	Federal Department of Environment, Transport, Energy and Communications
EASA	European Aviation Safety Agency
EBAA	European Business Aviation Association
eVTOL	Electric-powered Vertical Take-off and Landing
FAA	U.S. Federal Aviation Administration
FBO	Fixed-base Operator
FOCA	Federal Office of Civil Aviation
FOEN	Federal Office for the Environment
GAMA	General Aviation Manufacturers Association
GBAA	German Business Aviation Association
GDP	Gross Domestic Product
IACA	International Civil Aviation Organization
IATA	International Air Transport Association
IBAC	International Business Aviation Council
MRO	Maintenance, Repair, and Overhaul
NBAA	US-based National Business Aviation Association
OEM	Original Equipment Manufacturer
OPS	Operations
SAF	Sustainable Aviation Fuels
SBAA	Swiss Business Aviation Association
SME	Small and Medium-sized Enterprise

Glossary

Aircraft Movements	Number of aircraft departures and arrivals at airports.
Aircraft Operator Certificate (AOC)	Certificate required for the issuance of an operating license for the provision of commercial air transport services by aircraft operators.
Aircraft Registration / Tail Number	Alphanumeric registration usually placed on an aircraft's tail or engine that indicating the country of registration of an aircraft.
Air Traffic Control (ATC)	Service provided by ground-based air traffic controllers who direct aircraft on the ground and through a given section of controlled airspace.
Business Aviation	Business Aviation is the use of any "General Aviation" aircraft for a business purpose. A distinction is drawn between commercial and non-commercial Business Aviation: Commercial Business Aviation refers to operators holding an Air Operator Certificate (e.g. executive charter, ambulance flights). Non-commercial Business Aviation refers to the operation of aircraft without an AOC and comprises private flights, owner-operated flights and corporate flight operations.
EBAA	European Business Aviation Association, the leading organization for operators of business aircraft in Europe representing more than 700 companies across the value chain of the European Business Aviation industry.
Fixed-base Operator (FBO)	Private company providing services such as aircraft handling, parking or fueling. In the business jet industry, FBOs are also private terminals welcoming and guiding customers to their aircraft.
General Aviation	General Aviation is defined as all civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire.
National Airport	The function of national airports is to connect Switzerland to the European and global centers of air traffic. They have to offer an infrastructure that allows airlines to handle the traffic generated on the free market in competition with other European airports. National airports should also be available to aircraft for private traffic as far as capacity remains.
Regional Airport	Regional airports complement the national airports as carriers of public air traffic with direct connections to domestic and foreign destinations. They serve business and tourist aviation as well as aerial work. In addition, training and air sports play an important role at regional airports.

Methodology

The Business Aviation Study Switzerland was conducted between January 2022 and May 2022 by Logistics Advisory Experts GmbH, a certified spin-off of the University of St. Gallen, on behalf of the Swiss Business Aviation Association SBAA. The study project aims at analyzing the significance of Business Aviation for Switzerland. For this purpose, a focus is set on the economic analysis with regard to the impact at the national level as well as for regional regions. The aim is to provide an up-to-date insight with the ambition of a comprehensive and resilient picture of the current market conditions.

Study focus – The following questions are at the core of the survey

- What is the economic impact of Business Aviation for specific regions and for Switzerland on the national level?
- What benefits does Business Aviation offer to customers and stakeholders?
- In which respect is Business Aviation a location factor for multinational companies and international organizations? What are the interests of national and international companies concerning Business Aviation?
- What trends are affecting the Swiss Business Aviation market and how will it develop over the next decade?

Approach – Considering the core questions, the design of the study is directed at providing a comprehensive overview of the contribution of Business Aviation to the Swiss economy. The methodology follows a mixed-methods approach, whereby both existing secondary data is accessed, and primary data is collected in the form of qualitative interviews with industry experts.

Procedure – In the period from January to March 2022, published studies related to Business Aviation in Switzerland were identified and analyzed. Based on a longlist of 73 sources, these were systematically classified according to scientific quality standards and sources with limited quality were excluded. Relevant criteria for the exclusion of sources are data quality, reference to the Swiss or European market, and timeliness.

In addition, qualitative interviews were conducted in March and April 2022 with industry experts. The interviews were conducted as semi-structured interviews based on an interview guide ensuring a detailed collected of information and, by allowing for a more flexible setting of topics, that personal views of individual interview partners are included.

Market data – To offer readers a detailed and transparent overview of the current development of the Swiss Business Aviation market, also in comparison to the European market, market data on aircraft movements and other performance indicators are provided in the publication. For this purpose, the official market data of the European Business Aviation Association EBAA and WingX are used. If not stated otherwise, the market data refers to these two data sources. Assumptions and estimates have been made in a few places where this was necessary due to missing officially published statistics.

Mini cases – At the same time, one to two-page mini cases were developed from particularly relevant topics that clearly illustrate the importance and vividly reflect the development of current events.

Limitations – The study results are based on extensive desk research and qualitative interviews with selected market experts. One limitation is the lack of comprehensive primary data collection to quantify the economic impact of Business Aviation.

Concluding remarks – Logistics Advisory Experts GmbH acts independently without any personal conflicts of interest and does not assume any liability for the topicality and correctness of the information provided.

About

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About Logistics Advisory Experts GmbH

Logistics Advisory Experts GmbH is a consulting company specializing in logistics and supply chain management, based in Arbon (Switzerland). The company is a certified spin-off of the University of St.Gallen (HSG) and focuses on project-related cooperation with renowned clients. Logistics Advisory Experts GmbH is primarily active in the business fields of consulting, business development, mediation and know-how transfer.

Please cite as: Haeberle, L., Stoelzle, W., Sievers, T. F. (2022). Business Aviation Study Switzerland 2022. Impact – Benefits – Trends. 1st edition - Göttingen: Cuvillier, 2022.


HB-VXB