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**OPIC: CIVIL AVIATION FLIGHT TRAINING AND SIMULATION MARKET -
GROWTH, TRENDS, COVID-19IMPACT, AND FORE CASTS (2021-2026)**

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INTRODUCTION

The aeronautics market is expected to enlist a CAGR of more than 5% during the estimate time frame (2022 - 2027).

Not long before the appearance of the COVID 19 pandemic carriers were forcefully growing their worldwide organizations and adding a few new airplane to their armada consistently. In any case, the present circumstance changed in 2020 and 2021 because of the appearance of the COVID 19 pandemic as a few pilots have lost their positions because of the establishing of aircraft armadas to check the spread of the infection. By the by, things are supposed to come to business as usual by 2023. Therefore, the interest for pilots might get back to the pre-emergency levels, yet leisurely, in the principal half of the conjecture time frame.

The aeronautics business saw a developing worldwide pilot interest throughout the long term which thus has prompted the popularity for preparing airplane and test systems in flight schools. Then again numerous carriers are confronting pilot deficiency issues which are influencing their day to day tasks. For the most part, trips with a term of over 12 hours require a group of four pilots. In any case, a few carriers are as yet working such long stretch courses with three pilots because of a lack of pilots. The inaccessibility of prepared pilots to take care of the consistently developing interest is supposed to create interest for pilot preparing all around the world.

The decent wing section had the biggest piece of the pie in 2019 and ruling the market all through the estimate period is normal.

RESEARCH METHODOLOGY

STEP 1: SCOPING/ PROJECT INITIATION

- Decipher client requirements/ market.
- To be studied Tailor-made research approach for customized reports
- Effective use of Mordor's knowledge repository to gather relevant insights Confirm.
- The objectives of the assignment with the client.

PRIMARY RESEARCH

- We pool in industry experts across the value chain, to gather firsthand insights on the market studied. In addition to these knowledgeable industry veterans or retired experts, consultants and freelancers are a call away to collaborate with Mordor on any assignment that requires real-time industry insights.
- We are also equipped to conduct market surveys to gather qualitative insights and the opinion of individuals related to the industry.
- Primary research is used both to validate the data points obtained from secondary research and to fill the data gaps after secondary research. Data gathered during the primary research phase are useful to arrive at critical insights, both qualitative and quantitative; these insights can be used to ascertain the following:

MODES OF PRIMARY RESEARCH

1. Telephonic
2. Interviews
3. Email
4. Interviews

SECONDARY RESEARCH

This phase involves a thorough synthesis of existing publications across the web to gather meaningful insights on the current situation of the market, technology developments, and any other market related information. The sources include, but are not limited to:

- Scientific papers, journals, and publications
- Trade information to understand imports, exports, and average traded price of the commodity, if available
- Industry and government websites for blogs, magazines, and other publications
- Conference proceedings and association publications

- Investor presentations, technical brochures, annual reports, press releases, transcripts of key personnel interviews, and other strategic publications by several competitors in the market.

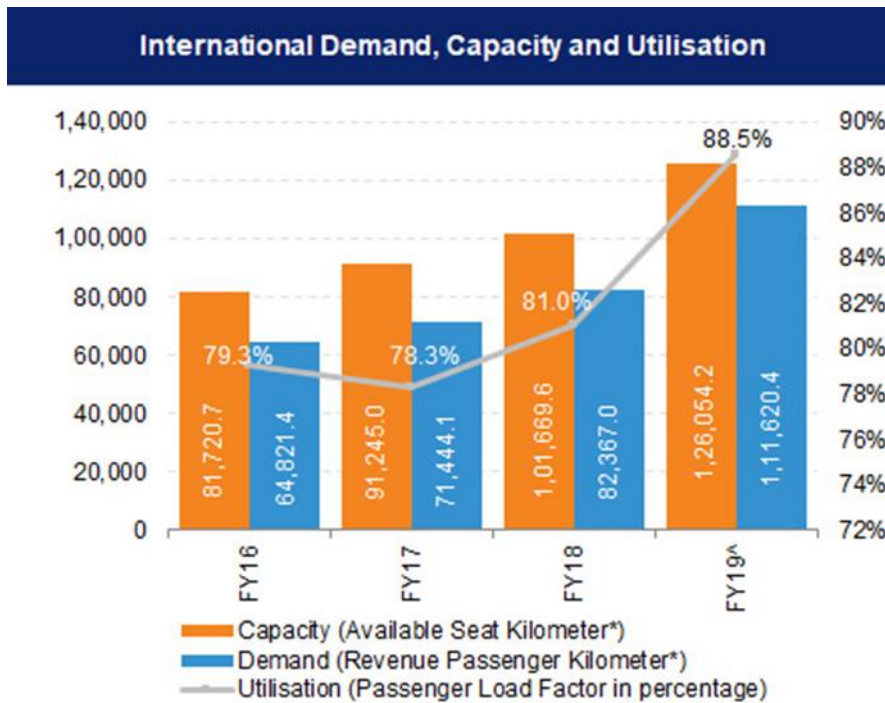
MARKET DYNAMICS

The common flight industry in India has arisen as one of the quickest developing businesses in the country during the most recent three years. India has turned into the third biggest homegrown aeronautics market on the planet and is supposed to overwhelm UK to turn into the third biggest air traveler market by 2024.

In India is supposed to overwhelm China and the United States as the world's third-biggest air traveler market in the following decade, by 2030, as per the International Air Transport Association (IATA).

India's traveler traffic remained at 131.62 million in FY22 (from April to December 2021). Homegrown traveler and global traveler traffic declined at a CAGR of - 9.02% and - 28.64%, individually, from FY16 to FY21, attributable to COVID-19-related limitations on trips in FY21 anyway they are recuperating. In FY21, air terminals in India fixed the homegrown traveler traffic to be 105.2 million, a 61.7% YoY decline, and worldwide traveler traffic to be 10.1 million, a 84.8% YoY decline, over the monetary year finished March 31, 2020. In October 2021, the normal day to day homegrown traveler flight takeoffs remained at >5,857, with normal everyday homegrown traffic being >7,00,000 air travelers.

Somewhere in the range of FY16 and FY21, cargo traffic declined at a CAGR of - 1.77% from 2.70 million tons (MT) to 2.47 MT. Cargo traffic on air terminals in India can possibly arrive at 17 MT by FY40.



Plane improvement declined at a CAGR of - 7.79% from 1.60 million in FY16 to 1.20 million in FY21. From FY16 to FY21, local plane advancement lessened at a CAGR of - 6.44% and worldwide plane improvement declined at a CAGR of - 18.52%. India's local and overall plane advancements showed up at 1,062 thousand and 135 thousand, independently, in FY21.

Market Overview

Worldwide Civil Aviation Flight Training and Simulation Market was esteemed at USD 4774.56 Million in the year 2019. Prospering interest for Training gadgets and test systems emerging from preparing foundations and carriers upheld by becoming old age pilot populace and organizations significantly putting resources into integrating cutting edge innovation to offer superior grade, most recent innovation items to preparing establishments with different driving carriers putting resources into extending their airplanes armada, has been expected to imbue development on the lookout for Civil Aviation Flight Training and Simulation during the conjecture time of 2020-2025.

Under the Simulator Type fragment, Full Flight Simulators (FFS) are expected to observe the biggest portion of the overall industry, trailed by Flight Training Devices, and Fixed Base Simulators. This is a direct result of developing accessibility of full pilot test programs by driving producers including CAE

Inc., L3 Technologies, FRASCA Flight Simulators among others clubbed with makers working together with preparing foundations and carriers to more readily comprehend and meet their custom necessities with developing traveler air traffic. These variables will push development on the lookout for Civil Aviation Flight Training and Simulation during the next few years.

Market Drivers



For military associations, the blend of decreased chance to flight groups, public worry over natural issues related with low-flying and the rising expense of weapon frameworks has prompted the military tolerating the convincing cases for flight recreation. The change, coming about because of enhancements in reproduction innovation, is acknowledged by administrators, controllers and associations. Flight recreation is basic to the activity of common and military associations. Worldwide principles are presently set up to guarantee consistency and to give rules to producers, administrators and controllers. As an outcome, recreation offices can be endorsed by one country and this capability is acknowledged by controllers all through the world. Flight reenactment has made a significant commitment to common flying wellbeing by further developing the flight preparing gave to carrier flight groups. Reenactment likewise adds to decreases in ecological effect, by diminishing the necessity for airborne preparation. A wide scope of manufactured preparing

gadgets has been created to cover the preparation undertakings in both common and military flight preparing. For explicit preparation errands, compelling preparation has been accomplished with part-task preparing gadgets, frequently utilizing low constancy gear.

Growing Demand for Pilots in the Aviation Industry



The abrupt drop in air travel request has obstructed the business' record development direction. The agreement is that the way to recuperation will range more than quite a while. As the worldwide flying local area looks forward, a large number of us have recognized that our industry should defeat a few major difficulties.

As a matter of first importance, it is essential to comprehend the gradually expanding influences of the pandemic on the avionics business. In March-April 2020, travel limitations and line terminations caused an unexpected decrease in traveler air travel. Carriers and administrators all over the planet have changed their activities to line up with lower interest. Large number of pilots have been furloughed lately. Large numbers of them have turned to different callings and might not have any desire to continue their pilot vocations. From one perspective, carriers and administrators have diminished the pilot labor force to balance the monetary effect of the pandemic. Then

again, information demonstrates that the business will confront critical difficulties in the forthcoming years to satisfy the need for pilots.

Notwithstanding the momentary decrease in the quantity of dynamic pilots, examination shows that the common avionics industry will require in excess of 260,000 new pilots over the course of the following 10 years. As air travel continues continuously throughout the following quite a while, the business will encounter up compulsory retirement and steady loss rates. As a matter of fact, these consolidated difficulties are supposed to drive interest for around 27,000 new pilots as of the finish of 2021.

Rising Passenger Volume and Cargo Movements

The Kempe Gowda International Airport, Bengaluru (BLR Airport) kept its most elevated ever freight weight in Financial Year (FY) 2022, notwithstanding provoking conditions because of numerous Covid waves. BLR Airport handled an untouched high weight for a financial year since Airport Opening Day (AOD) of 411,513 Metric Tons (MT) of freight, recording a development of 26% as against 326,643MT in FY 2021. Worldwide freight recorded a 31% development, 271,988MT handled, when contrasted with 207,518 MT in FY 2021. Homegrown freight developed at 17%, with 139,525MT versus 119,125MT in FY 2021.

Short-lived freight has been one of the significant development drivers for BLR Airport. It is the No.1 air terminal in the country for taking care of perishables — assessed to represent 31% of India's all out transient shipments.

BLR Airport handled 39,518 MT of freight in October 2021 — the most elevated ever for a month since AOD. Worldwide freight handled (the two imports and commodities) was likewise the most noteworthy ever in October 2021, representing 25,695 MT. The Airport accomplished a huge record by acquiring 13% of India's air freight portion of the overall industry and 45% of South India's air freight piece of the pie. With this accomplishment, BLR Airport has turned into the main significant air terminal in the country to show development over pre-pandemic levels.

Rise in Passenger Traffic

Passenger traffic continues to recover with over 45% growth in domestic travel and about 136% growth in international travel in FY 2022 as compared to FY 2021. BLR Airport welcomed 16.28 million passengers in FY 2022 versus

10.91 million passengers in FY 2021. Traffic recovery was 54% of FY 2020 levels - domestic recovery was at 55%.

The number of domestic destinations served directly from BLR Airport has grown to 76 compared to 54 last year, and this has been possible due to enhanced connectivity to Tier II/III cities. Share of non-metro traffic to / from BLR Airport increased from 45% pre-Covid (Apr'19-Feb'20) to 60% in FY 2022, signifying growing penetration of non-metro connectivity. As a result, the transfer traffic share at BLR Airport has increased to 18% in FY 2022, compared to 10% pre-covid. With this sustained growth, the Airport has established itself as the most preferred transit destination in South India. Top domestic routes in FY 2022 were Delhi, Kolkata, Mumbai, Hyderabad and Goa, with these sectors contributing 40% to the traffic.

CARGO MOVEMENT

The development of multimodal logistics parks, roads, cargo terminals etc. under the Gait Shakti framework is likely to improve pan-India connectivity and reduce the logistics costs.

The development of multimodal logistics parks, roads, cargo terminals etc. under the Gait Shakti framework is likely to improve pan-India connectivity and reduce the logistics costs. The highway network will be expanded by 25,000 km and Rs 20,000 crore will be mobilized in innovative ways of financing to complement budgetary resources, the minister said.

"The data exchange among all mode operators will be brought on a unified logistics interface platform designed for application programming interface. This will provide the efficient movement of goods, reducing logistics costs and time in moving freight; assisting just-in-time inventory management and eliminating tedious documentation. This will provide real-time information and increase international competitiveness," the finance minister said. Contracts for multimodal logistics parks in four locations will be awarded in FY23, the minister said, and the railways will enhance logistics services for small farmers and MSMEs. This Budget continues to provide impetus for growth. As per Economic Survey 2017-18, a 10 percent decrease in indirect logistics cost could lead to an export growth of 5-8 percent. But the start of the COVID-19 pandemic that year put paid to these plans.

Last December, however, news reports indicated that the Union government was going to propose a new policy for warehouses, a lynchpin for the logistics sector, which would map out the roadmap for the development of exclusive warehousing zones on a public-private partnership mode.

Shortage of Skilled Workforce

The International Civil Aviation Organization (ICAO) tackled the challenge raised by an expected shortage of trained aviation professionals at a five-day event. Representatives from business, states, training institutions and students identified and assessed the problem. Suggested approaches to solving the problem and highlighted the leadership role of the ICAO in encouraging cooperation to reach and implement solutions among the stakeholders concerned. 42 percent of business leaders identify a labour shortage in the repair technician field as the most pressing problem in Aerospace & Aviation.

High Maintenance and Challenges Associated with Full Flight Simulator

Full-flight simulators are widely used for recurrent training and proficiency checks of airline pilots, and are even qualified for the entire conversion training to a new aircraft (“type rating”), which proves that today's simulator technology offers good operational fidelity for transport aircraft. Looking at the flight envelope, transport aircraft normally operate at low angular rates within ± 30 degrees angle of bank, pitch attitudes of 5–15 degrees nose up, and without significant G-loads. These motion parameters can be adequately reproduced by a Level D motion platform. However, the suborbital flight parameters outlined above exceed this motion envelope. While vibrations occurring during suborbital flights may still be achieved by a hexapod platform, depending on the characteristics (frequency, magnitude, direction), this definitely does not apply for the reproduction of sustained accelerations, or G-loads. As G-loads are typical of high-performance fighter aircraft, the following section describes the use of simulators in military aviation.

COVID Impact on Flight Simulation Training and Aviation Industry

The aviation industry is witnessing unprecedented scenarios from the past two months due to COVID-19. The pandemic has had the most dramatic effect on airline companies. As major countries across the world have scaled back airline operations due to COVID-19, the demand for flight training has also been negatively impacted. As a result of this, the demand for flight simulator has also fallen as the pandemic continues. According to Market Research Future, the global aircraft leasing market was estimated to reach USD 7,794.3 million by 2025 due to factors such as the growing demand for airline pilots, and the need to reduce pilot training costs had a positive impact on the flight simulator market. Furthermore, the rise in the implementation of flight simulators for training combat aircraft pilots in militaries across regions was further expected to drive the market growth. In addition to this, the expansion of fleets across airline companies in the Asia-Pacific region further drove the demand for flight simulators. The flight simulator industry was expected to witness a Compound Annual Growth Rate (CAGR) of 5.38% by 2025. COVID-19 has had a devastating impact on the aviation industry across the world. Amid the pandemic, very few countries are allowing transportation through air network.

Most airline companies have grounded their fleet due to a significant reduction in air travel. Apart from the reduction in air travel, the pandemic has painted a distressing picture for airline companies as they are presently burning significant capital towards the maintenance of the grounded fleet. The International Air Transport Association (IATA) has estimated a decrease in international air passenger revenues by approximately 50%. Due to a large amount owed to lessors by airline companies, they now look forward to the government for financial support in terms of loans, financial support, and tax reliefs to survive during the pandemic. Airline companies have also put a hold on recruiting new pilots as a result of which the demand for flight simulators have also reduced. Furthermore, flight simulator training has been rescheduled by many flight simulator service companies.

The Road Ahead: As airline companies are not currently hiring pilots, the demand for flight simulators remains low due to the pandemic. Future scenario is expected to witness the lifting of lockdown and resuming of flight operations which will restore the demand for flight simulators. However, as the pandemic

continues, the situation is expected to turn grave for flight simulator companies.

Porter's Five Forces Analysis

Porter's Five Forces Analysis is an analytical framework developed in 1979 by Harvard Business School professor, Michael E. Porter. Porter's goal was to develop a thorough system for evaluating a company's position within its industry and to consider the types of horizontal and vertical threats the company might face in the future. Delta Air Lines, Inc. (DAL) is the oldest airline still in operation in the United States. The company was founded in 1928 and has its headquarters in Atlanta, Georgia.

From May 2020 to April 2021, Delta ranked third in domestic market share for U.S. airlines at 14.3%.³ Delta's sheer size and status as a longtime leader in the airline industry have helped ensure its continued success. As of July 2021, the company's market capitalization was around \$26.6 billion.



Industry Competition

The level of competition in the airline industry is high. The big airlines essentially fly to the same places out of the same airports for about the same prices. The amenities, or lack of amenities, they offer are similar, and the seats in coach are just as cramped no matter which airline you choose. Delta's traditional rivals include United and American, but the company also faces major competition from the growing popularity of value carriers, most notably Southwest, but also JetBlue and Spirit. 70 million the number of passengers Delta Air Lines carried in 2020. Because the air travel experience for customers is remarkably similar no matter which airline they take, airlines are constantly threatened by the prospect of losing passengers to competitors. Delta is no exception. If a customer is planning to book a flight from Houston to Phoenix on Delta but a third-party price aggregator, such as Priceline, reveals a better deal from United, the customer can make the switch with a simple click of the mouse. Delta manages these competitive threats with extensive marketing campaigns that focus on brand awareness and the company's longstanding reputation.

The Threat of New Entrants

Potential new entrants to the marketplace represent a minimal threat to Delta. The barriers to entry in the airline industry are remarkably high. The operating costs are massive, and the government regulations a company must navigate are numerous and exceedingly complex. There is not a single airline founded during the 21st century that has even a 2% market share. JetBlue, founded in 1998, represents the newest airline to make a dent in the industry, and the company's market share is still less than one-third of Delta's.

Bargaining Power of Suppliers

The list of airline suppliers is actually quite long. The list of airlines for suppliers to sell to, however, is short. This asymmetry places the bargaining power directly in the hands of the airlines. Bargaining power is particularly

strong for Delta, given its position as the world's largest airline by passenger revenue in 2019. put simply, Delta's suppliers have a strong incentive to keep the relationship on good terms. Delta can likely find a replacement supplier without a problem if the relationship goes bad. The supplier, by contrast, is unlikely to find another buyer capable of replacing the sales volume represented by Delta.

Threat of Substitutes

A substitute, as defined by the Five Forces model, is not a product or service that competes directly with the company's offerings but acts as a substitute for substitute for a Delta flight with the same start and endpoints. Examples of substitutes are making the trip by train, car, or bus. Unless a trip is very short, such as traveling from Los Angeles to Las Vegas, no methods of travel rate as viable substitutes for air travel. New York to Los Angeles is a 6.5-hour flight. The trip takes 41 hours by car or bus, and a train cannot get you there much faster. Until a new technology comes along that supplants air travel as the fastest and most convenient way to travel long distances, Delta faces little threat from substitute methods of travel.

MARKET SEGMENTATION

The global flight simulator market size was USD 3.55 billion in 2020. The global impact of COVID-19 has been unmatched and staggering, with aircraft flight simulator systems witnessing a negative impact on demand across the globe amid the pandemic. Based on our analysis, the global market exhibited a low growth of -39.75% in 2020 compared to the average year-on-year growth during 2017-2019. The market is projected to grow from USD 3.67 billion in 2021 to USD 5.75 billion in 2028 at a CAGR of 5.99% in the 2021-2028 period. The rise in CAGR is attributable to this market demand and growth, returning to pre-pandemic levels once the pandemic is over.

Based on type the market is divided into full flight simulator, flight training device, full mission simulator, fixed based simulator. The full segment is expected to hold the largest share in the base year and is anticipated to dominate the market

throughout the forecast period. This system is projected to experience high demand around the globe due to its excellent training capability for the pilot, crew and ground support. It is widely used for various training applications such as commercial pilot, business jet pilot, helicopter and rotary wing pilot. It is also used for efficient aircraft design and development.

Flight training device's FTD

Commercial flight training simulator technology is well known to train key security arms including the military, navy, and air force. These simulators are widely used to train soldiers for several applications such as tanks, aircraft carriers ships, helicopters, tankers aircraft, and transport aircraft. They have tremendous scope in the military and defense sector, owing to the increasing capability of various security arms in several countries.

Moreover, mission based training, tactical and strategic techniques are required for the recruits and officers. It also includes flying in battle emergency recovery and coordination with air support and ground support during critical operations. These factors are projected to boost the growth of this segment in the coming years

By platform the market is segmented into a fixed wing simulator rotary wing simulator and UAV simulator. The UAV simulator segment is projected to grow at the fastest rate in the aircraft simulator market during the forecast period. The increasing demand for unmanned aerial systems .UAS for commercial and defense applications is likely to fuel this segment's growth across the globe by 2027. Several defense agencies are heavily investing and focusing on the development of medium-altitude long endurance MALE and high-altitude long-endurance HALE UAVs for intelligence, surveillance, reconnaissance ISR application. These factors are projected to boost the market growth during the forecast period.

Aviation flight training type

The civil aviation flight training and simulation market is moderately fragmented.

CAE Inc. is the simulator manufacturer on top as the global market leader mainly due to its huge geographical presence and brand image. L3Harris Technologies Inc. TRU Simulation + Training Inc. Flight Safety International, and The Boeing Company are also some of the other prominent players in the market. Simulation

and training providers and equipment manufacturers constantly strive to build brand reputation and reach out to geographic extremes to attract more customers.

Flight schools are looking for long-term collaborations with the airlines and aircraft operators for the pilot training programs which may help them make sustainable revenues for longer durations. There is a growing demand for simulators that can be re-configured or possibly be upgraded to support newer aircraft models and the focus on manufacturing such simulators will drive the growth of the players during the forecast period. Different way of giving training to employee takes effective way of skill to Student.

Due to covid 19 effect flight training devices and other training type for pilot and different aircraft occur in this way. Rising Adoption of VR Pilot Training System is a vital Trend.

The growing technological adoption in the airline industry is enhancing aircraft efficiency to a great extent due to an increase in high-level safety measures. Also, well-trained pilots are fueling the demand for simulator systems. The pilots are needed to train in the tactical interaction by knowing the detailed use of aircraft equipment due to regular aircraft model, size, and technology changes. The flight deck crew and cabin crew undergo simulator practice equipped with augmented reality (AR) and virtual reality (VR). These benefits are projected to boost demand for these simulators in the future.

Aircraft type

An aircraft type designator is a two three or four character alphanumeric code designating every aircraft type and some sub-types that may appear in flight planning. These codes are defined by both the International Civil Aviation Organization and the International Air Transport Association. ICAO codes are published in ICAO Document 8643 Aircraft Type Designators and are used by air traffic control and airline operations such as flight planning.

ATR, Airbus and Boeing Aircraft Types

AIRBUS A318/A319/A320/A321 (CFM56)

AIRBUS A319/A320/A321 (IAE V2500)

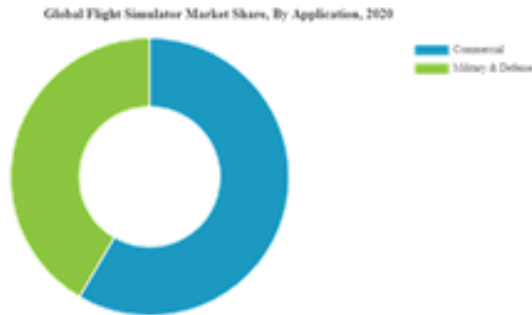
The aviation industry has exhibited strong growth in the last few years. This is credited to an increase in air traffic and tourism activities around the world. These factors have also proved to help airline operators maximize the revenue from the air passengers. However, the increasing pressure on commercial pilots is one of the key reasons for leaving the workforce before retirement age. The reduced workforce has directly impacted the unavailability of skilled pilots in various countries.

However, the European and the Middle Eastern countries have recorded average pilot retirement age, i.e., Europe has 43.7 years, and the Middle East and Africa have 45.7 years. The airline industry is facing high requirements for active new pilots as first officers and captains. It is estimated that the airline industry requires around 300,000 active pilots by 2027. These factors are likely to raise the demand for training systems through these simulators to make the pilots ready for commercial airlines in the future.

High Cost of Aircraft Simulator Systems is a Major Restraining Factor

Aircraft simulator systems consist of various computer systems, which handle different aspects. These systems need to provide the actual application of flight controls. The effects of the aircraft systems and reaction to the external factors include cloud, precipitation, air density, and turbulence. These factors are necessary to incorporate in the systems for creating a replica of the actual flight operations. The aircraft design & development experts and engineers create artificial characteristics in simulation. These factors are responsible for the high cost of aircraft simulation systems.

Moreover, the technological advancements in motion sensors are profoundly used in the simulation. Highly used technologies, such as vibration and dynamics pilot seats in the simulation, are proven to be the most effective in commercial pilot training, which further triggers the system cost across the globe. Hence, the high cost of simulator hardware and product development is the primary factor restraining market growth.



Increasing Air Passenger Traffic to Boost Market Growth

An exponential rise in air passenger traffic has increased the requirement of additional flight frequencies and commercial pilots to reduce extra loads. However, the airline companies were operated through commercial aircraft at the maximum load factors to gain high-profit margins and added revenue. The increased load factor is accelerating profits and reducing operational costs for global companies. In 2019, Airbus S.A.S. and the other vital companies had estimated that around 39,000 and above new aircraft would be operating by 2028. These factors are set to fuel the demand for new, professionally trained pilots and first officers in the future years. An increase in passenger traffic resulting in more pressure on airlines to recruit commercial pilots around the world is also likely to boost the market growth. For Instance, in 2020, CAE Inc. released the 2020-2029 pilot demand outlook, which states that there will be a short-term need for approximately

This Report Focuses on the Civil Aviation Flight Training and Simulation Market manufacturers, to study the sales, value, and market share and development plans in the future. It is Define, describe and forecast the Civil Aviation Flight Training and Simulation Market Growth by type, application, and region to Study the global and key regions market potential and advantage, opportunity and challenge, restraints and risks. Know significant trends and factors driving or inhibiting the Civil Aviation Flight Training and Simulation Market growth opportunities in the market for stakeholders by identifying the high growth segments. Strategically it examines each submarket with respect to individual growth trend and their contribution to the Civil Aviation Flight Training and Simulation Market.

The civil aviation flight training and simulation market encompasses the training of pilots operating civil aviation aircraft. Flight simulators mentioned in the study are devices that artificially recreate the environment for pilot training purposes. Pilot training for civil aviation applications is included in the study. The revenues from military training purposes are not considered. Training for all fixed-wing aircraft

(including commercial and business jets) and rotorcraft are included in the study. The civil aviation flight training and simulation market is segmented by training type into full flight simulator FFS flight training devices FTD and other training types. By aircraft type, the market is segmented into fixed-wing aircraft and rotorcraft. The report also offers the market size of and forecasts for the market in major countries across regions. For each segment, the market size and forecasts are represented by value (USD billion).

The Fixed-wing Aircraft Segment is projected to dominate the Market during the Forecast Period

By aircraft type, the fixed-wing segment held the largest market share in 2021, and it is further expected to dominate the market throughout the forecast period. Before the advent of the COVID-19 pandemic, the growth in global air passenger traffic had encouraged the fleet expansion programs of several airlines, while the potential business opportunities led to the entry of new airline operators to cater to the demand on new routes. Before the COVID-19 pandemic, with the global unique city pairs growing each year gradually to cross 22,000 in 2019, airlines invested over USD 1 trillion toward the procurement of new aircraft in the last decade.

Flight simulator for Commercial application is likely to register a CAGR of 6.5% during forecast period 2021-2026. Rise in the global air passenger traffic is driving the growth of the aviation industry, which is leading to the demand for commercial aircraft deliveries. For Instance, Bell's Textron Inc. delivered 192 commercial aircrafts in 2019 as compared to 132 in 2018. Similarly, Honeywell Inc. is forecast to deliver 4000 to 4200 civilian aircrafts 2018-2022 despite the Coronavirus led slowdown. Rising demand in commercial aircrafts will create opportunity for Flight Simulators. The rise in demand for aircraft is similarly driving demand for UAVs especially in commercial markets where the use cases of UAVs continue to grow.

Geographic region

The global market is segmented on region into North America, Europe, Asia Pacific, and the rest of the world. Our research methodology's findings indicate that North America was estimated to hold the largest market share in 2020. According to CAE Inc., the region is projected to require around 85,000 active pilots to cater to the airline industry in the next ten years. Moreover, the region has the presence of a large number of aircraft simulator system manufacturers and several end-users that would facilitate market growth during the forecast period.

Europe was estimated to hold the second-largest market share in the base year due to prominent simulator system manufacturers and aircraft manufacturers in this region, such as Airbus, Thales Group, and Indra Sistema's.

The Asia Pacific is expected to show strong growth in the market during the forecast period. The high demand for commercial aircraft deliveries in developing countries such as India and China owing to growing air traffic is likely to drive the market in the coming years.

Furthermore, the Middle East & Africa market is anticipated to grow at a rapid pace on account of the rising air travelers in the Arab countries from the past few years. Also, the increasing investment in the tourism sector and the presence of well-established airlines such as Emirates, Etihad Airways, Oman Air, and Gulf Air in the region are expected to drive the market in the Middle East. Moreover, the rest of the world's market will showcase moderate growth due to the increasing global air passenger traffic and domestic flight operations.

North America

The North American region held the largest market share in 2021, mainly due to a large aviation market in the United States. Air passenger traffic in the country increased at a rapid pace in the past decade, which has also generated the need for airlines to expand in terms of fleet size and new routes. According to the Bureau of Transportation Statistics, in 2019, US airlines carried 925.5 million passengers. However, the COVID-19 pandemic greatly affected the airline demand in the region. For 2021, US airlines carried 670.4 million passengers, an increase of 83% from 2020 but an overall decrease of 27% from pre-pandemic 2019. According to the FAA, the total number of pilots in the United States has drastically reduced since 1990. However, in the last few years, the number improved, with 103,879 commercial pilots serving the airlines in the United States in 2020. Though the COVID-19 pandemic has resulted in furloughing of pilots in the region in the last two years, a great demand for pilots in the region is anticipated in the latter half of the forecast period. Voluntary departures, changed fleets, and the rapid rise in domestic travel demand created a significant demand upsurge for pilot training in 2021. Hence, several airlines have taken measures to increase their pilot training capabilities. Airlines like American Airlines, United Airlines, and Delta Air Lines have reported that they have ramped up the pilot training to help pilots return to service as quickly as possible. This helped the growth of the market in the region in 2021, and it is expected to continue during the forecast period.

Civil Aviation Flight Training and Simulation Market - Growth Rate by Region (2022 - 2027)



As Flight simulators are used to train the pilots by creating the virtual environment, increasing demand for new pilots will in turn rise the flight simulator market share globally.

For instance, demand for new pilots is expected to rise dramatically over the next two decades as a result of new aircraft entering the global fleet. According Boeing, 790,000 new pilots is likely to be required by 2037 to meet growing passenger fleet. Similarly, in 2018, Airbus estimated a worldwide demand of pilots to reach 450,000 by 2035. UAVs similarly are also showcasing continued growth driven by rising demand from end use markets. The need for flight training for these aircraft is particularly going to drive the market.

Europe

The European aviation market was valued at USD 37.78 billion in 2020, and it is projected to reach USD 68.41 billion in 2026 with a CAGR of 7.47% during the forecast period (2021-2026).

Europe is one of the earliest and most affected regions in the world due to the COVID-19 pandemic. The aviation industry is a strategically important industry for several countries in the region. The decline in passenger traffic and flight activity in 2020 resulted in huge losses for the airlines in the region. Several airlines, including some of Europe's most prominent flag carriers, requested substantial economic support from governments for their survival. Major commercial airlines have grounded a majority of their fleets and have canceled orders of new aircraft, thereby hampering the growth of the market studied during the forecast period

With new airlines emerging in the Eastern Europe region, there has been a noticeable shift in the perception of aviation aspirants seeking to undergo the required training for obtaining their CPL or PPL license.

The relatively lower investment required to undertake an aviation certification course in the region has driven the number of aspirants who enroll in the aviation institutes in the Eastern Europe region. This has encouraged regional aviation institutes to modernize their infrastructure and induct new simulators. For instance, in March 2021, BAA Training announced signing a major contract for procuring nine Reality Seven FFS from L3Harris Technologies Inc. While the first four systems would be installed at the training facilities in Lithuania and Spain, the

remaining five are to be installed in Vietnam and Italy by 2022. Moreover, in December 2020, air Baltic procured an A220 FFS to support its envisioned fleet of 80 A220-300 aircraft.

Asia Pacific

The Asia-Pacific General Aviation Market is poised to reach USD 3384 million by 2026, registering a CAGR of 6.84% during the forecast period 2021-2026.

The COVID-19 pandemic has resulted in the governments of several countries imposing travel restrictions and lockdown measures, which has affected the business travel and the tourism sectors in the region. Although the situation improved by the end of 2020, the pandemic has affected the aircraft demand from the region's end-users in the short term. The orders and deliveries have witnessed a decline in 2020. This, coupled with a reduction in demand from the Chinese market has resulted in a short-term decline in the general aviation market revenues.

Asia-Pacific, which has some of the fastest-growing economies in the world, has witnessed a sharp increase in the HNWI population in the last decade.

Simultaneously, the demand for general aviation aircraft, especially business jets and helicopters, increased in the region over the years.

COMPETITIVE LANDSCAPE

The civil aviation flight training and simulation market is moderately fragmented. CAE Inc. is the simulator manufacturer on top as the global market leader, mainly due to its huge geographical presence and brand image. L3Harris Technologies Inc., TRU Simulation + Training Inc., FlightSafety International, and The Boeing Company are also some of the other prominent players in the market. Simulation and training providers and equipment manufacturers constantly strive to build brand reputation and reach out to geographic extremes to attract more customers. Flight schools are looking for long-term collaborations with airlines and aircraft operators for pilot training programs, which may help them make sustainable revenues for longer durations. There is a growing demand for simulators that can

be re-configured or possibly be upgraded to support newer aircraft models, and the focus on manufacturing such simulators will drive the growth of the players during the forecast period.

Vendor Market Share

The services segment is projected to grow at the highest CAGR during the forecast period. Growth of this segment is attributed to the increase in the maintenance cost of flight simulators. These are used for both, primary and regular training. Also, the repaid upgradation in simulation technology and its applications are some of the factors driving the growth of the services segment. Also, rise in the demand for hardware and software upgradation services from the flight training market is driving the growth of services segment. Flight simulators can be used on various platforms, including commercial aircraft, military aircraft, helicopter simulator and Unmanned Aerial Vehicles (UAVs).

The commercial aircraft segment is projected to lead the flight simulator market during the forecast period. Rise in the global air passenger traffic is driving the growth of the aviation industry, which is leading to the demand for commercial aircraft deliveries. This rise in the demand for new aircraft creates additional demand for commercial pilots, which acts as a major factor in driving the growth of the flight simulator market. Market growth in the Asia Pacific region is majorly driven by the increasing number of deliveries of unmanned aerial vehicles and commercial aircraft. Changing demographics and increase in disposable income in the region is driving the demand for air travel, which supports the demand for new pilots, thus, resulting in the demand for new flight simulators in the region.

For instance, increase in pilots by China's Eastern Airlines is driving the flight simulator market. The flight simulator market is expected to grow substantially owing to the growing demand for pilots in the aviation industry across the globe. Other major factors impacting the growth of the market include the acceptance of virtual pilot training to ensure aviation safety and the need to reduce the cost of pilot training. The flight simulator market is projected to grow at a CAGR of 5.2% during the forecast period (2019-2025). The development of flight simulators for unmanned aerial systems (UAS) and air accident investigation are some of the major opportunities for market players. Some of the major emerging technologies and use cases disrupting the market include Real-Time Computer Image Generation, Optimal Motion-Cueing Technology, Reconfigurable Flight Simulation and Training, Importance of Simulation in IoT, Functions of

Simulation in IoT and Smart Simulation with Augmented Reality (AR) and Virtual Reality (VR), among others.

Contracts and agreements are some of the key sustainability strategies adopted by the leading players such as CAE (Canada), L-3 Communications (US), Flight Safety International (US), Airbus Group (Netherlands), Avion Group (Netherlands), Boeing Company (US), Collins Aerospace (US), Fresca International (US), Indre Sistema's (Spain), Raytheon Company (US), Thales Group (France), and TRU Simulation + Training (US), among others. Asia Pacific is anticipated to have the highest share of the global flight simulator market. Owing to the changing demographics and increase in disposable income in the region is driving the demand for air travel, which supports the requirement of new pilots, thus, resulting in the need for new flight simulators in the region. Furthermore, the rise in pilot training centres across the region is also leading to an increase in demand for flight simulators during the forecast period.

Company Profiles

Low cost airlines are passenger airlines, which offer travelling service tickets at relatively cheaper rate compared to other airlines (full service or traditional airline). Low cost airlines are also known as "no frills airlines," "prize-fighters," "low-cost carriers (LCC)," "discount airlines," and "budget airlines." Some of the popular low cost airlines include Ryanair and EasyJet.

The growth of the market is attributed to the rise in economic activity, ease of travel, travel and tourism industry, urbanization, changes in lifestyle, consumers' preference for low cost service along with non-stops, and frequent service, increase in purchasing power of middle class households especially in the developing regions, and high internet penetration coupled with e-literacy. However, factors such as volatile crude oil price and increase in terrorism and crime rate, political uncertainty, and natural calamities hinder the market growth. Conversely, sustainable airport governance, operational and financial improvement is anticipated to leverage the growth of the low cost airlines market.

In 2018, the global Low Cost Airlines market size was million USD and it is expected to reach million USD by the end of 2025, with a CAGR of % between 2019 and 2025.

This report studies the Low Cost Airlines market size by players, regions, product types and end industries, history data 2014-2018 and forecast data 2019-2025; This

report also studies the global market competition landscape, market drivers and trends, opportunities and challenges, risks and entry barriers, sales channels, distributors and Porter's Five Forces Analysis.

The Low Cost Airlines market economy has improved in recent years. More inputs and technological breakthroughs will be made, as well as a rise in the rate of expansion as a result of actions measures to resolve the short-term economic recession. This report is based on a variety of research methods. The findings were collected through the use of primary and secondary data gathering techniques. The report is a wonderful blend of qualitative and quantitative data, outlining major market changes as well as the problems of the gap analysis, as well as new potential to become trendy. The information is presented using a variety of visual presentation approaches.

The Major Players in the Low Cost Airlines Market Include: Leading player's profiles based on various factors including market dynamics that thoroughly analyses the drivers, restraints, opportunities, challenges, and trends.

AirAsia Berthed

Virgin

Norwegian Air Shuttle

EasyJet

Jet star Airways

West Jet Airlines

Indigo

Azul Lintas Areas Brasilia's

Ryanair Holdings

Air Arabia PJSC

Flight Safety International (Berkshire Hathaway Inc.)

The experience gained in our simulators and classrooms empowers aviation professionals with unwavering calmness and composure needed for all situations, from the everyday to the unusual. We raise the bar on training because the

resulting confidence and preparation mitigate risk and save lives. This elevated level of consistent, standardized training can only be provided by FlightSafety International (FSI) and its incredible reputation earned from 70+ years of incomparable experience and the unique backing of Berkshire Hathaway. The undisputable value of FSI training lies in the extensive number and range of services, equipment, and locations available. This includes core and advanced master-level courses and instruction tailored to specific needs. For optimal flexibility and accessibility, many courses are also offered as e-learning and Live Learning training. Whatever your needs—initial, recurrent, advanced, or special operations training—take advantage of our global network and easily access the world’s best training. Discover a complete list of locations here.

TRU Simulation + Training Inc. (Textron Inc.)

TRU Simulation + Training (TRU, usually pronounced as in "true") is a Canadian-American manufacturer of flight simulators and training devices for civil and military markets. It is a subsidiary of Textron and was formed in 2014 when previously acquired simulator manufacturers Mechtronix and OPNICUS were merged with part of Textron Systems division. A further company, business jet training provider ProFlight, was acquired and merged later that year.

In 2014, TRU was selected by Boeing for the development and supply of a 737 MAX full flight training suite, and two years later the company secured a 10-year agreement for a similar solution[buzzword] for the newly developed 777X.

In November 2020, the non-US based (Quebec based) civil aviation business (previously Mechtronix sites) were sold to CAE [5] after Textron announced shutting down this section of its TRU Simulation business in July of the same year.[6] With the purchase of CAE continued its expansion in the simulator business during a difficult economic time for airlines and the industry purchasing the assets of TRU after Textron invests more than \$100M to enter the business

The Boeing Company

The Boeing Commercial Market Outlook (CMO) is our long-term forecast of commercial air traffic and airplane demand, including global and regional analysis. The CMO has been the industry standard for insights into the future of air travel since 1961 and annually provides valuable analysis to airlines, suppliers and the aviation community.

The 2021 CMO reflects that the global market is recovering largely as Boeing projected in 2020. Demand for domestic air travel is leading the recovery, with intra- regional markets expected to follow as health and travel restrictions ease, followed by long-haul travel's return to pre-pandemic levels by 2023 to 2024.

2021 CMO forecast highlights include:

- While health and regulatory dynamics will continue to shape the near-term outlook, Boeing's analysis of market dynamics shows that commercial airplanes and services are showing signs of recovery and resilience.
- Availability and distribution of COVID-19 vaccines will continue to be critical factors in recovery of passenger air travel. Countries with more widespread vaccination distribution have shown rapid air travel recovery, as governments ease domestic restrictions and open borders to international travel.

MARKET OPPORTUNITIES AND FUTURE TRENDS

Flight reproduction has been generally embraced by the avionic business, where its advantages have been perceived for north of 30 years. Essentially, there is a culture of recreation, especially in aviation organizations where reproduction assumes a basic part in the plan of airplane and airplane frameworks. Reproduction reaches out to flight control framework plan, limited component strategies utilized in underlying examination, CFD devices utilized in streamlined investigation and numerical instruments utilized in functional examination. Organizations that have utilized recreation devices have valued the advantages managed by reproduction, specifically; quicker configuration times, less plan flaws, more successful frameworks, cost saving and further developed decision making in acquisition.

A similar pattern is recognizable in preparing associations. The underlying hesitance to utilize flight recreation in light of an apparent absence of authenticity has been supplanted by the advantages which incorporate better preparation viability, decreased preparing costs and expanded security. Reproduction will become unavoidable in numerous businesses. Its methods will be applied to give framework configuration apparatuses, empowering specialists to explore model plan far quicker and with more noteworthy comprehension than conceivable until recently.

- submarines and defensively covered vehicles, where four benefits legitimize the utilization of recreation.
- The diminished expense of preparing, especially the overall hourly working paces of the gear during preparing.
- The expense of preparing on genuine gear, which might should be removed from administration or be harmed in a preparation job, for instance rehearsing motor turns over on a fly airplane.
- Expected harm to the climate, for instance additional transports on metropolitan streets.
- Chance to the learner or observers, where explicit exercises are essentially more secure where preparing is attempted in a manufactured climate.

CONCLUSION

Report gives fundamental and nitty gritty data about the worldwide market. This report gives a complete examination and precise insights. It likewise incorporates organization definition, central issues, and complete income. Common Aviation Flight Training and Simulation Market gives an outline of the market by market size, market inclusion, market conversion scale, division, and portion of the overall industry. This report examinations the ongoing serious climate in and gives fundamental data like market information, item presentations from driving organizations in this industry. It likewise features the essential investigation for Companies to deal with the effect of COVID-19.

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