



Cloud of everything Tech of the 21 century in Aviation

By

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Received: 15/02/2025

Accepted: 22/02/2025

Published: 24/02/2025

Pp:03-06

VOL: 4 ISSUE: 2

Cloud of Everything Tech of the 21 Century/4IE TECHNOLOGY

Artificial Intelligent, Internet of Things, Block chain, fifth Generation 5G/or 6G, 3D-4D Printer, Cloud Computing, Digital Twins, Tactile Internet

CLOUD OF Everything / 5G in Aviation

The global 5G in aviation market is experiencing a significant growth due to growing demand for high-speed internet connectivity. 5G is the fifth-generation telecommunication standard in cellular networks. 5G utilizes higher frequency radio waves than current 4G cellular networks to achieve large bandwidth capacity. Moreover, 5G can handle up to a million devices per square kilometers, and as of 3rd July, 2019 5G has reached the peak speed of 1.8 GB per second download speed on AT&T's network (an American telecommunication company with headquarters in Dallas, Texas). Further, vast data exchange speed will enable faster data bulk transfer from aircrafts for data analysis to provide proactive maintenance and improved passenger experience

CLOUD OF EVERYTHING / IOT in Aviation

- ☞ **IOT in the aviation aftermarket**
- ☞ In the case of the aftermarket, here, IOT also holds a tremendous amount of potential. The number of e-enabled aircraft is rising radically and the new sensors embedded into aircraft equipment, parts and systems have increased distributors' ability to collect valuable data.
- ☞ Satair is one of few distributors who have already started to collect, integrate, share and analyze data across the ecosystem. This increased and shared data traffic will generate deeper insights valuable for customers and suppliers, allowing them to derive added value from digital efficiencies in the supply chain. It, too, enhances customers' and suppliers' ability to provide additional digital-based services.
- ☞ Real-time tracking and tracing of parts around the globe, predictive maintenance, and smarter inventory planning systems, based on data analytics, will further link the material value chain with

customer demand in an anticipating and predictive manner.

- ☞ The future truly is now and the companies that are able to create new revenue streams using new technologies will have a head start in the race of sustainable profitable growth in the future.
- ☞ **Two examples demonstrate the concept of IOT in aviation:**
- ☞ 1. IOT system based on open architecture.
- ☞ 2. IOT-based system for operations of individual devices in aerospace
- ☞ With mechanisms like these, data can be shared more efficiently across all aviation partners. This is accomplished through features like:
- ☞ Connection among various data systems so that users can access multiple systems with a single connection.
- ☞ Decoding data from different systems into a standard data format so that it can support collaboration among industries and government.
- ☞ Providing related to weather and flight planning that will enable airline correspondents and traffic managers to co-operate on the routing and rerouting of traffic based on real-time information like current traffic management initiatives and airport runway configurations.
- ☞ The SWIM Terminal Data Distribution System can decode the data into standard format, so that airlines can use this information to streamline surface operations.
- ☞ Provides data access to traffic flow information to the subscribers of Aircraft Situation Display to Industry (ASDI).
- ☞ Converting flight data into an easily accessible format by providing it in the form of general messages.
- ☞ Various information like estimated time of arrival, scheduled time of arrival can help in better navigation planning.
- ☞ Five steps to implement IOT in aviation companies



- ☞ **Ideation and strategy- Pilot and roadmap-Capture, store, and process- Scale and deploy- Operate.**

CLOUD OF EVERYTHING / Ai in Aviation

- ☞ Successful AI Applications in Aviation
- ☞ 1. Passenger Identification
- ☞ 2. Baggage Screening
- ☞ 3. Customer Support
- ☞ 4. Predictive Maintenance
- ☞ Successful AI Applications in Travel Industry
- ☞ **Journey Management System**
- ☞ Chat bots
- ☞ **Recommendation Engine**
- ☞ 4. Cost Optimization
- ☞ Fraud Detection
- ☞ American Airlines, the #1 ranking U.S. commercial airlines based on revenue.
- ☞ -American Airlines in the field of artificial intelligence by conducting an annual competition in which more than 700 designers and specialists participated to create a new and useful idea for customers and employees and the first winner offered the possibility of an application that allows customers to prepay any possible expenses for luggage before moving to the portal
- ☞ -Delta Air Lines established four automated kiosks for checking bags, facial recognition technology, matching customers' faces with passport photos, and airlines' interest in self-service and automation in
- ☞ Their operations
- ☞ -Southwest Airlines
- ☞ Time series analysis and pattern recognition, thus being able to identify flight defects in existing
- ☞ -United Airlines
- ☞ Using Alexa artificial intelligence to answer questions about flight status, times, and amenities.
- ☞ AI also could spot Terror suspects in airports, Lie Detecting KIOSKS IN THE AIRPORT AND FOR SAFER FLIGHTS BY DETECTING FOD/FOREIGN OBJECT DEBRIS IN THE Ramp, IN Airport editing and AI Traffic Modification , IN Real time Event detection for video surveillance applications, In Improving Airport customer experience ,Forecasting Airline passengers using Machine/deep learning, In Design techniques in saving money and time ,Airline Maintenance using Watson, In Intelligent Aircraft Maintenance using Smart Glasses ,Airport TSA WAITING TIME MANAGEMENT, Airplane Turn Management/Task Tracking, Accident Prevention, Air traffic Management ,Energy Management ,Trolley and Wheelchair Availability and Management, Smart Maintenance ,Context awareness, Ground Fleet Management and in Safer Flights by telling what a Guilty passenger look like.

- ☞ - The goal to make flying more autonomous without changing the software of the airplane itself Airplane and Aviation will soon move into the Age of I phone.

CLOUD OF EVERYTHING /VR AR MR in Aviation

- ☞ **Increasing efficiency and cost savings are expected to drive the augmented and virtual reality market in aviation growth.**
- ☞ AR VR in aviation enables smoother and efficient operations that lead to cost savings in aviation functions such as manufacturing, maintenance, airport operations, airline operations, aviation training, among others. AR VR provides an immersive and interactive approach that connects the aviation ecosystem to improve the efficiency of various tasks. Smoother airport and airline operations lead to more revenue as aircraft spend less time out of service and more time flying.

By product, the gesture tracking device segment is expected to grow at the highest rate during the forecast period.

- ☞ *By technology, virtual reality segment is expected to lead the market for AR VR market in aviation during the forecast period. Asia Pacific augmented and virtual reality market in aviation is expected to witness the highest CAGR during the forecast period.*
- ☞ A member of the Microsoft Mixed Reality Partner Program, Airbus has created Microsoft HoloLens apps to train engineers and cabin crews, along with Japan Airlines (JAL) and JAL Engineering. Image credit: A. Doumenjou/Airbus.
- ☞ there is something wrong with the techniques and technologies that pilots use while flying.
- ☞ Even the smallest decisions such as checking the weather, reading control panels, evaluating the maintenance of an aircraft takes a lot of effort in the aviation industry. And that is where AR becomes a perfect solution.
- ☞ **1.AR navigation in commercial flying**
- ☞ 2. AR in air traffic visualization
- ☞ 3. AR in aircraft maintenance
- ☞ **By function, the operation segment is projected to grow at a higher CAGR during the forecast period., By component, the software segment is projected to grow at the highest growth rate during the forecast period, North America is expected to lead the market in aviation during it**
- ☞ , How AR/VR/MR can transform the Aerospace Industry?
- ☞ - **Virtual Reality for Airport Security and Safety Training- Virtual Reality for Airport Security and Safety Training- Augmented Reality for Aircraft Windshields- Augmented Reality for Aircraft Maintenance- Virtual Reality for**

Airport Security and Safety Training-Augmented Reality for Aircraft Windshields-Virtual Reality in space systems infrastructure and operations- Using Microsoft HoloLens for training on aircraft engine parts.

CLOUD OF EVERYTHING/Block chain in Aviation

- ✧ Block chain
- ✧ In this day and age, the aviation industry is certainly one of the fastest growing industries of the 21st Century. The emergence of block chain technology has given rise to a new hype of technological innovation which certainly could add value to numerous aspects within the aviation industry itself. The use of block chain in aviation could open up new opportunities in the sphere of transparency namely with regards to maintenance, flight data security and passenger information which will ultimately help in increasing efficiency and accuracy levels.

BENEFITS FOR THE AIRLINE INDUSTRY

- ✧ **Automate repetitive processes and payments**
- ✧ **Improve the customer experience**
- ✧ **Simplify revenue accounting and payment reconciliation**
- ✧ **Reduce dependence on intermediaries and reallocate industry value**
- ✧ **Track components, luggage, and shipments**
- ✧ **Improve ground operations and on-time departures**
- ✧ **Potential use cases of Block chain in Aviation**
 - ✧ *Tracking of Baggage and Cargo*
 - ✧ *Identity Verification*
 - ✧ *Ticket Overbooking*
 - ✧ *Aircraft Maintenance*
 - ✧ *Automated Payments*
 - ✧ *Loyalty Programs*
- ✧ Block chain promises to resolve current issues of trust, security, control, and transparency in a complex ecosystem of industry players
- ✧ Two models show promise:
- ✧ **Apply the technology to a closed, private network of players to create a competitive advantage**
- ✧ **Apply the technology more broadly across the industry ecosystem through a public or public-permissioned block chain.**
- ✧ **The Problem:** What the aerospace industry doesn't know about its planes is costing it serious money
- ✧ **The Solution:** A decentralized, immutable consensus-based technology
- ✧ **Having a more accurate view of a plane's configuration and maintenance history could:**
- ✧ help reduce costs and losses related to downtime and unplanned maintenance,

- ✧ boost the value of planes in the secondary market and at the end of leases,
- ✧ and improve worker productivity.
- ✧ In tackle the following: Maintenance-finance-workforce.

CLOUD OF EVERYTHING / DIGITAL TWINS in Aviation

- ✧ Digital twins leverage artificial intelligence (AI) and the power of cloud technology to bring IOT to life.
- ✧ In the aviation industry, digital twins can take the form of virtual, three-dimensional, working models of a real airplane or any parts of the airplane e.g. an engine. Several aviation manufacturers also can help managers assess problem areas and:
 - ✧ improve production planning
 - ✧ reduce waste
 - ✧ increase traceability
- ✧ it's no surprise that airlines focus on cutting the MRO (maintenance, repair and overhaul) costs while ensuring operational availability
- ✧ -Aircraft digital twin tracking and development potential in airports
- ✧ -Improving the maintenance of aircraft using virtual twin simulations for AMVAC

Utilizing the simulation technology to optimize load

- ✧ Today we are moving away from people telling machines what to do to a world where machines tell people what to do – digital twin is the best example. Although achieving a fully-functional digital twin will demand a premeditated and persistent effort to reap the rewards, it will be game-changing and can deliver incredible results
- ✧ . Digital twin capabilities can be seen as the single source of truth playing an extremely important role in aircraft MRO operations and sustenance. By structuring and executing digital twin initiatives appropriately, airlines can save huge amount through productivity gains.

CLOUD OF EVERYTHING/ Cloud computing in Aviation

- ✧ The benefits cloud computing models can bring to aviation:
 - ✧ **-Lower total cost of ownership (TCO)**
 - ✧ **-Reinvent the airline corporation**
 - ✧ **-Scalability**
 - ✧ **-Fast implementation of apps and services**
 - ✧ **-Redefine the customer engagement**
 - ✧ **-Increased productivity**
 - ✧ **-The internet of flying things could help prevent air disasters**
- ✧ ALL THE Sectors in the world INC Aviation Must recognizes, Appreciate and Get Benefit of the technological gift of the 21st century COE INC AI,

Block chain, Digital Currency, Cloud, Cloud of Things, Tactile Internet, Digital Twins, IOT, AR, VR, MR, U commerce, data and robotics.

CLOUD OF EVERYTHING References

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