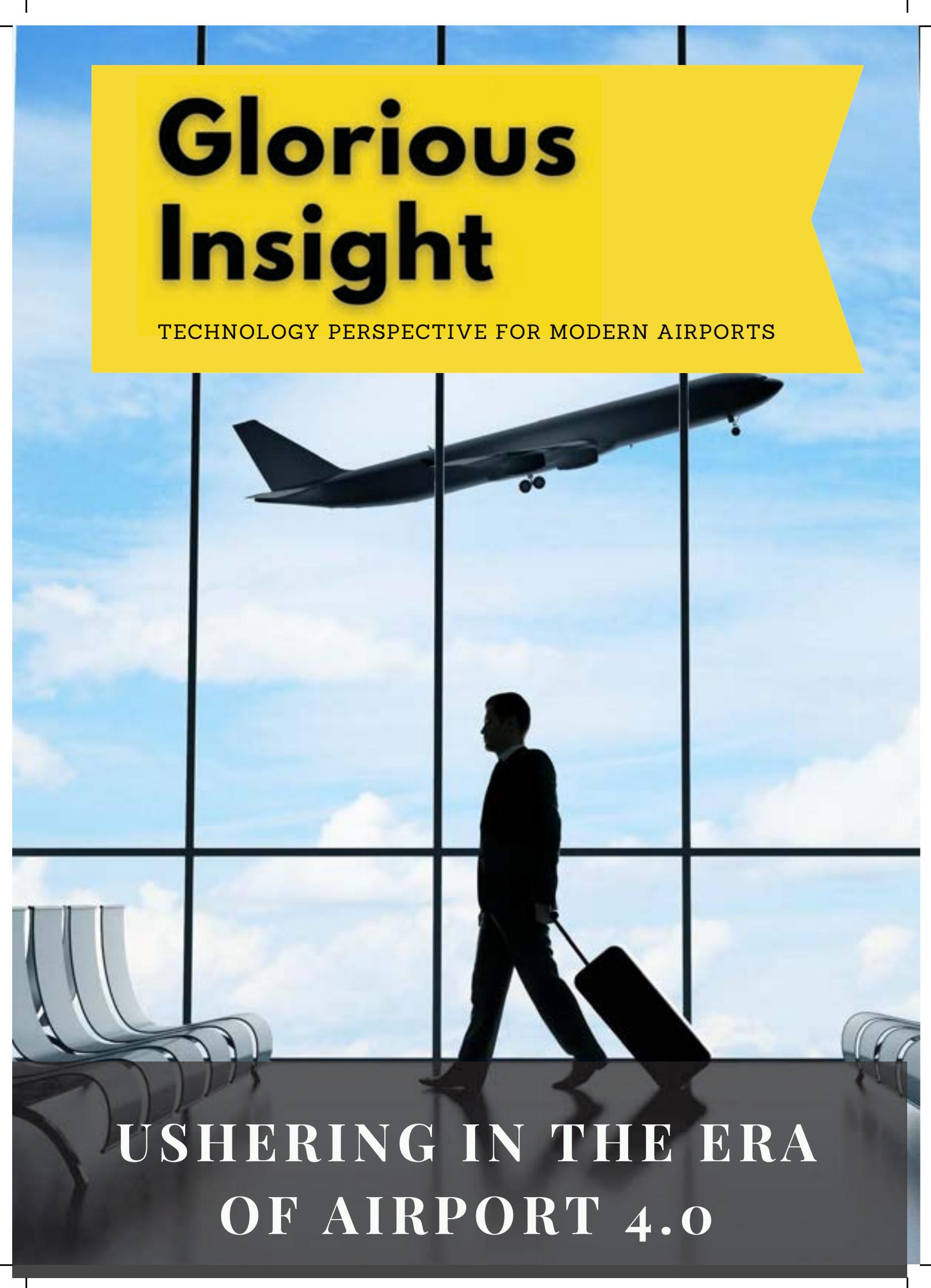# Glorious Insight

TECHNOLOGY PERSPECTIVE FOR MODERN AIRPORTS

USHERING IN THE ERA OF AIRPORT 4.0

"EITHER YOU PREVAIL OR YOU PERISH IN TECHNOLOGY TRANSFORMATION"

The only question is are airports ready to embrace the change needed to overcome their roadblocks. An in-depth analysis of overviewing the industry.

Airports have emerged as a bridge of development for economies operating indigenously and globally. But the segment has been sitting on the tip of an ice-berg to embrace digital transformation. To operate to their full potential, they need to transcend beyond the legacy infrastructure to usher in the age of growth and transformation. Old concepts are long gone to hold to for leap-frogging to the next millennium of development. It is the era of digital transformation and sustainable development, the inclination to AI, analytics, API-first, cloud-first, mobile-first, RPA, ledgers, IoT (Internet of Things), and PoVs or Proof of Value will ultimately pave the way for a digital transformation.

Glorious Insight provides customized BI Analytics, AI-empowered mobile applications, chatbot, Autobot-support, and over the cloud migration to help airports adapt to the new normal in technology. Such technologies will help in;

- Maximizing Profitability (AERO & NON AERO)
- Elevating User / Passenger Experience
- Managing Traffic & Flight Plan
- Enhancing Security

Aviation's total contribution to global GDP stood at

US$2.7 Trillion

and airports have a major role to play in that.

How Airports Can Become Airport 4.0?

It is not just an intuitive mobile application or highly attractive website that will walk airports through to the era of Airport 4.0, they need to think beyond those dynamics for a comprehensive transformation. It is expected that 97% of the passengers will be using mobile phones for operations at the airport. With more than 74% of access to free WLAN at airport premises, a majority of hub airports, where footfall exceeds 25 million plan to launch their premium products by 2019 to integrate better market transformation for bolstering their aero & non-aero revenues.

SOME OF THE POPULAR AIRPORT SERVICES FOR SMARTPHONES THAT PASSENGERS PREFER AT THE AIRPORT

MOBILE CHECK-INS (92% PENETRATION)

BAGGAGE INFORMATION (76% PENETRATION)

FLIGHT INFORMATION (74% PENETRATION)

SHOPPING VIA RETAIL APPS AT AIRPORT (40% PENETRATION)

KEY REFORMS NEEDED IN THE AIRPORT INDUSTRY

Key Reforms

Organizational Design to Incorporate retail, digital, and innovative opportunities

Airline Profitability

Airline Technology & Process

Branding & Selling

Evolving Over the Legacy Systems

MAJOR ROADBLOCKS OBSTRUCTING A COMPREHENSIVE DIGITAL TRANSFORMATION

Transforming from Archaic Legacy Infrastructure To New Age Transformation

Migrating from Simple Ledger Base Recording To Collective Insights for Transformation

Looking not at just Big Data or AI but a Big Vision

ROADBLOCKS

Driven More By Reality Than Trends

Shifting from a Process Orientation Approach to Risk-Taking Audacity

Shifting from Data Accumulation to Data-Driven

1

TRANSFORMING FROM ARCHAIC LEGACY INFRASTRUCTURE TO NEW AGE TRANSFORMATION

That's the primary major overhaul that airports require at the moment. They need to define new technologies in their basic operations. Something that would define cost optimization and profit maximization. Intelligent automation will pave the way for a smarter future ahead. The major need is to deploy a workforce that can learn from experiences and cost half of deploying humans. AI & ML empowered robots or Robotic Process Automation will reduce costs and improve profits.

Glorious Insight has been instrumental in providing a transformation where airports have moved from acquiring big-data and insights to integrating the real-plan of action via robotics/Autobots. They have done the same for an airport in Denmark by developing a Software-Robotic support system that verifies guests' data and gives them loyalty points/ benefits based on product, price & place. The data collected in the process gets further amplified for aggressive marketing practices.

Companies across industries are motivated to invest

$232 billion

in the AI market by

2025

to automate the majority of their operations.

MIGRATING FROM SIMPLE LEDGER BASE RECORDING TO COLLECTIVE INSIGHTS FOR TRANSFORMATION

2

Business travelers account for

12%

percent of airline passengers, but they are typically twice as lucrative – accounting for as much as

75%

of profits. Airlines need to just collaborate and sell these data under GDPR compliances to grab substantial commission from it.

The need is not to just collect the data, record the same, and settle it for the good. Most airports could simply make their operations highly profitable by using the data for collective insights and predictive analysis. The aviation industry has a 70% contribution to travel economy with airports settling for just 10% to 20% of the revenue, rest going to hotels, and other supportive segments in travel.

Business Intelligence and data analytics can help predict consumer behavior and fuel actionable claims for business benefits. These in-depth insights help in understanding consumer habits to develop strategies that can counteract challenges for the profit and sales maximization.

Glorious Insight through BI and analytics solutions have helped a few of their airport clients in analyzing passenger data to understand their preferences of food, accommodation, and travel leisure during visits to new locations.

3

LOOKING NOT AT JUST BIG DATA OR AI BUT A BIG VISION

Most airports have just been following its counterparts by stressing more on their ancillary services rather than innovating with the existing archaic systems. Manual distribution process, inadequate technology for revenue management, and flawed operational areas have shrouded their long term vision. Only adopting smart technology can help pave the way.

Smart airport technologies have the potential to improve customers' experience at airports. Hong Kong International Airport uses Bluetooth beacons to provide real-time flight information, boarding alerts, indoor navigation, and translation of airport signage into nine languages. The tech can tell when bags will arrive at the baggage claim! Gatwick Airport has also installed iBeacons but airports will have to look beyond that. AR navigation system can cover more area with less budget.

iBeacon navigation system costs almost

10$ to 20$

per device with the battery and other maintenance further inflating the bills. AR indoor navigation system can cover more space and provide accuracy

up to 5 meters

over a large area in comparison to Bluetooth Beacon Technology.

DRIVEN MORE BY REALITY THAN TRENDS

4

Fact

Airline market capitalization is much lower than their service providers whom they use for operational efficiency. For example, some of the IT service providers are worth more than the aviation clients they serve. For example, Lufthansa has a lower market capitalization than the IT servicer provider they hire for setting up their IT infrastructure.

Airports and technology business are two different things and they must be dealt with differently. Adhering to technology is a low hanging fruit and everyone wants that. Airports have to adjust their requirement and act accordingly since they have to surpass operation driven challenges, hierarchy, silos, big projects, long timelines/deadlines, staff reduction, complexity, and fear of change. These are not the problems with other sectors, especially, the IT whom they hire for their operations

Most airlines or airports have been still using old technology for their reservation system that they need to overhaul to emerge as changemakers in the industry. When we talk about Airport 4.0, it should be comprehensive, not fragmented.

5

SHIFTING FROM DATA ACCUMULATION TO DATA-DRIVEN

Airlines have huge customer data at their behest and the capability to use it to their best advantage. Most airlines haven't fully adopted digital technologies like airport analytics, business analytics to understand the customer's trends. Such an approach cost them a lot to make the operations live up to its true potential.

This can easily be resolved with predictive analytics that can give collective insights by looking at passenger traits, flight classes, airport terminals, plane types, time of day, and flight capacity. All of these inputs can help predict the no-show probability and give better decision making power to the ticket booking system to register and book customers based on their past habits.

Departure delays, no-shows, or last-minute cancellation cost airlines roughly

$2.5 million

per year.

SHIFTING FROM A PROCESS ORIENTATION APPROACH TO RISK-TAKING AUDACITY

6

The statement with which we started "Either you prevail or you perish in technology transformation" rightfully fits in when we talk about airlines and airports. The sector has been hugely process-driven and averse to adapting to an agile environment. They have the fear of keeping a fail-early & fail-fast approach. With technology transformation, airports have to use advanced technologies in their screening, ticket-booking, boarding pass management, and on-premise crowd management system using technology.

Kanban and design thinking could help airports anticipate and understand future changes and adapt accordingly to sustain in an agile environment. This approach can help them overcome the old technologies that they are currently using in the form of ticket management and booking systems. But the only question to raise, will they ever do that?
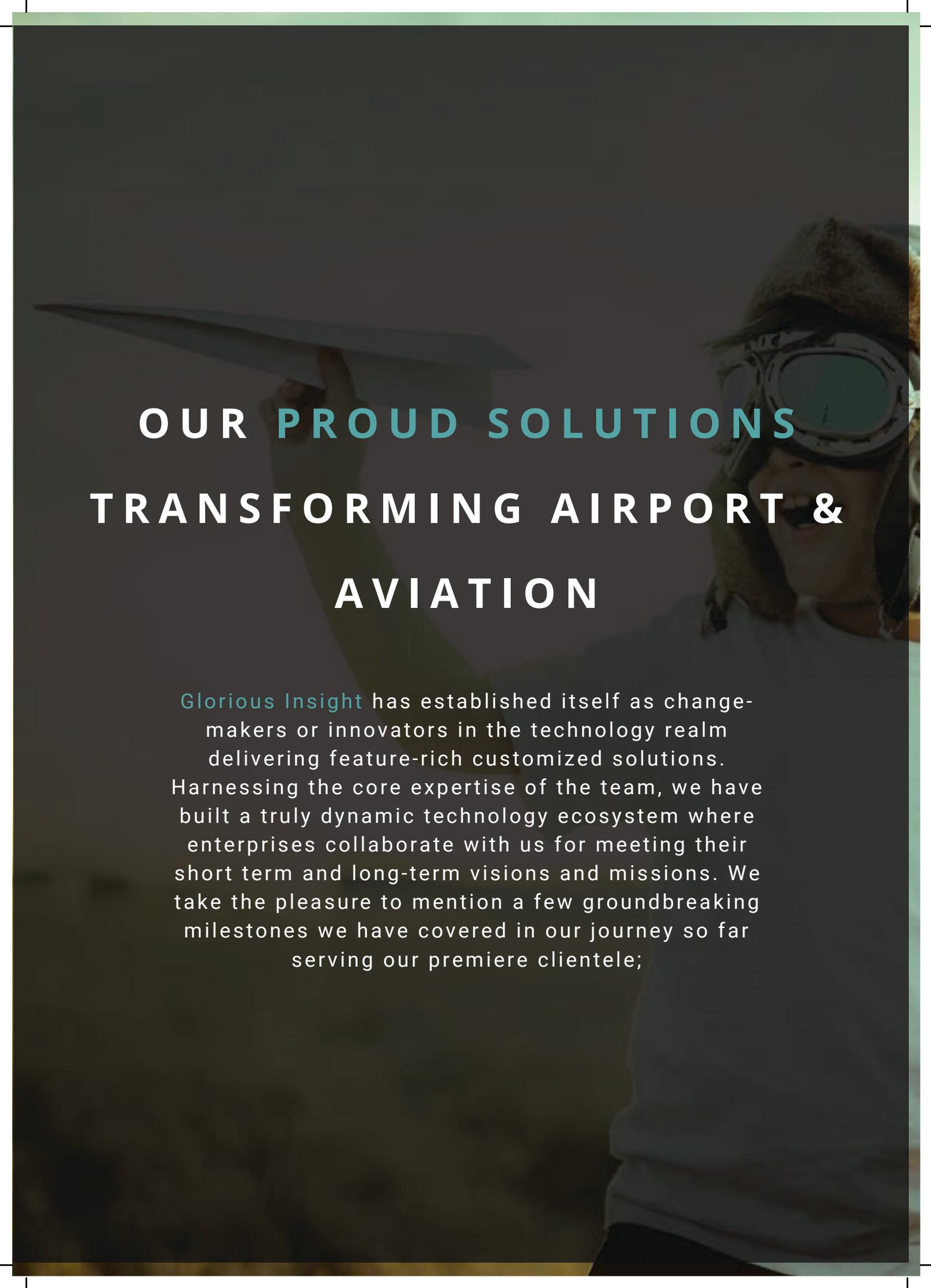
# OUR PROUD SOLUTIONS TRANSFORMING AIRPORT & AVIATION

Glorious Insight has established itself as change-makers or innovators in the technology realm delivering feature-rich customized solutions. Harnessing the core expertise of the team, we have built a truly dynamic technology ecosystem where enterprises collaborate with us for meeting their short term and long-term visions and missions. We take the pleasure to mention a few groundbreaking milestones we have covered in our journey so far serving our premiere clientele;

USING ADVANCED ANALYTICS TO UNDERSTAND PASSENGER FLOW FOR PROFIT MAXIMIZATION AT THE AIRPORT

1
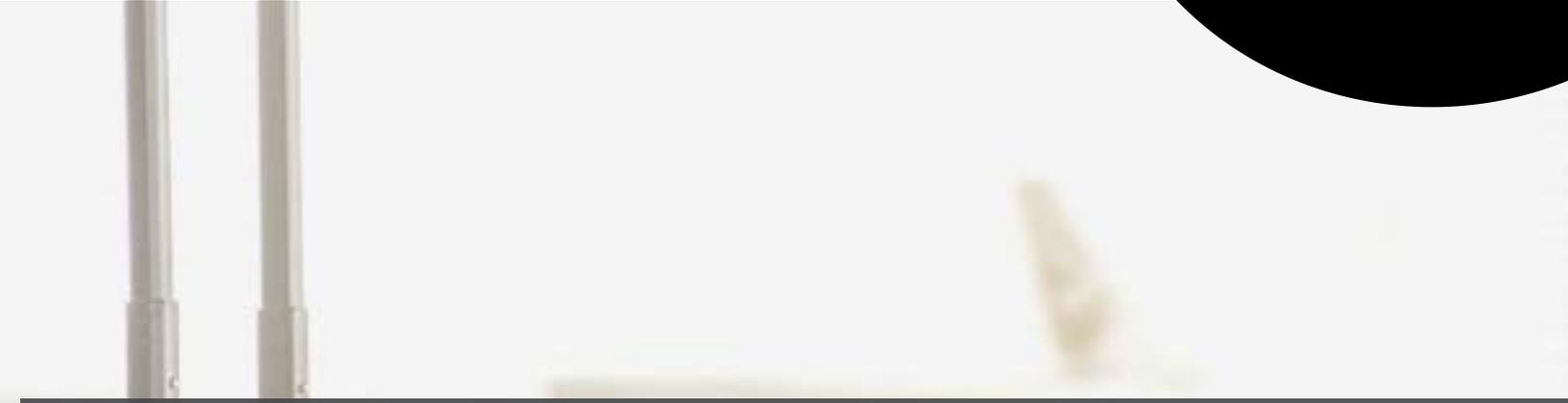
One of the airport clients wanted a customized approach where they can track the behavioral changes and preferences of passengers who are arriving and leaving the terminal. Their main goal was to transform the business intelligence architecture with an intuitive dashboard that can aid faster decision making for improving arrow and non-arrow revenue at airports. Big data analytics solutions were deployed to understand the cross-references of data with data charts. In the process, airport Wi-Fi records were used.
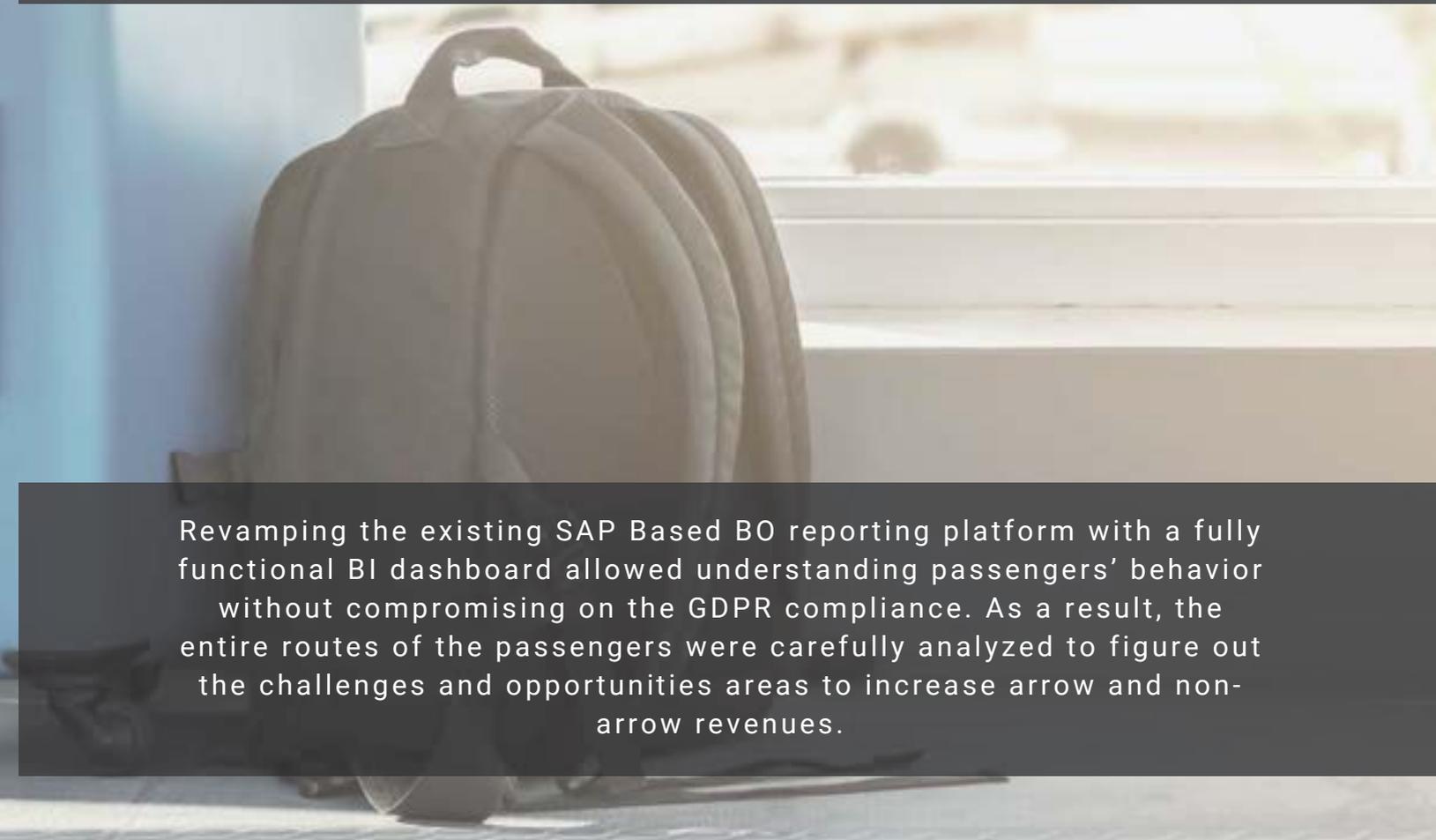
Revamping the existing SAP Based BO reporting platform with a fully functional BI dashboard allowed understanding passengers' behavior without compromising on the GDPR compliance. As a result, the entire routes of the passengers were carefully analyzed to figure out the challenges and opportunities areas to increase arrow and non-arrow revenues.

2

Even tracking one customer could help generate significant revenue for the airlines, you can just imagine what a million database can do. One of the clients in the airport sector approached us for support. They wanted to analyze all the bookings on their portal to set-up a loyalty program for maximum customer acquisition.

We provided a collect, detect & act protocol that closely analyzed how the passengers were responding at the airport terminal and different stores. The data that we collected enabled the airlines to set-up a custom offer for all their passengers with a loyalty bonus. After integrating this approach, there was a 15% year-on-year increase in the revenues of the airport.

AI-BASED RESULTS BASED ON PREDICTIVE ANALYSIS

3

Business professionals wanted a customized solution for their preferences at the airport. In the absence of limited time, the airport authority approached us to customize a solution based on their previous buying habits at the airport. We developed an intelligent "Know Me Feature" AI intuitive dashboard that pushed offers to passengers based on their previous purchase patterns.

The targeted offers appealed to the passengers since they could get the product that they were seeking based on their past experiences. Such an approach lead to the rise in the positive feedback for the airport since they knew what their passengers were needing.

4

AUTOMATIC PRICE FIXATION USING PREDICTIVE ANALYSIS

One of the airports wanted to set-up a system that could transform their data collection and use it to the true potential for price fixation. To do that, at Glorious Insight, we deployed advanced analytics that thoroughly analyzed all the routes and found out the fluctuations in prices and the consumer/customer reaction on the same.

Once we were able to do that, it will very easy to analyze the customer response pertaining to the fare increase on specific routes. The AI-enabled intelligent ticket booking software analyzed the flow of anticipated future demand and fixed prices based on such inputs. In this way, the airport was able to adjust to new routes and find out the profitable routes for operations.

INTELLIGENT ALGORITHMS TO MITIGATE ACCIDENTS

5

An airport client was looking for a solution where they can use data to predict any future uncertainties. To make sure that happens, our experts deployed a solution that could track all data like pilot reports, warning reports, control positions, and air traffic control communications that had happened in the airlines.

After carefully assessing all the possibilities, our predictive analysis powered by an intelligent algorithm system that we built could analyze data and give accurate reports of probable future accidents based on previous insights. This enabled us to ensure safe air-travel to passengers since we could track anomalies on behalf of our clients and suggest them preventive measures for a memorable flying experience.

6

BAGGAGE TRACKING VIA IOTS

Baggage misplacement or lost scenario at the airport poses a significant challenge to the passengers. To help overcome this problem, Glorious Insight used the application-tracking system with IoT solutions. The apps started to work in the same manner as GPS with a tracker. The trackers used in the luggage could locate baggage in no time using the mobile application.

# FACE DETECTION CAMERA TO HANDLE QUEUE MANAGEMENT FOR BETTER AIRPORT EXPERIENCE

7

Airports face a persistent challenge of managing queues that could hamper the possibility of revenue generation. More people at the airport retail outlets rather than at boarding pass queue would contribute to more revenue generation. To help resolve the problem, Glorious Insight deployed its Queue Management AI-Embedded Systems. The high penetration camera-tech can track and monitor infrared imagery. All the collected data are stored on servers and a specific analysis process identifies faces and their responses at specific areas of the airport.

The solution that Glorious Insight provided didn't streamline the complete video but just identified faces and records their activities at locations. Such a thing removes the disadvantage to manage the huge cost of setting up a complete infrastructure that could inflate installation charges for deployment. The airports were able to take necessary action regarding crowd management and turn specific times of the day profitable as per flight schedule well in advance.

8 DIVESTMENT IN CHECKING AND FRISKING VIA FACIAL RECOGNITION SYSTEM
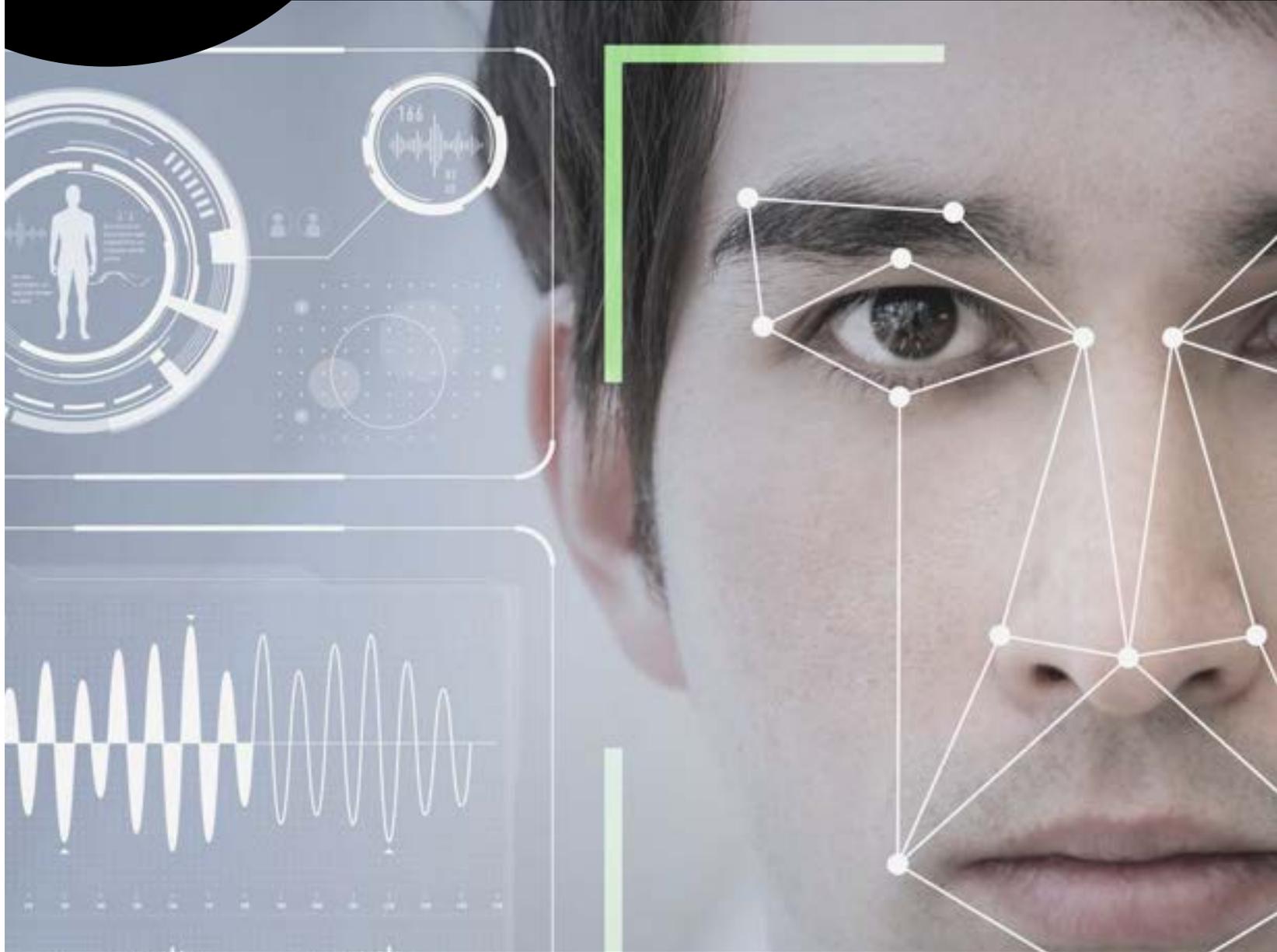
Airport authorities were facing significant revenue loss when passengers were frisked at multiple checkpoints. To help mitigate the revenue losses, Glorious Insight provided a facial recognition system that could help airport authorities perform divestment during the screening process. The process identifies passengers based on their enrollment image experience earlier at the day and allows them to Scott free at the airports. The authorities get access to images via a standard interface that helps them to take important decisions regarding safety compliances and prevent repetitive frisking to save time & money. Removing repetitive frisking in operations and check-ins allowed passengers to have more time at the airport dedicated for involving in purchasing spree from different outlets.

SECURITY ASSURANCE THROUGH AI TECHNOLOGY

9

Security was a key concern at the airport after 9/11, Brussels Airport Bombing, and other such events. Glorious Insight paved the way for better security experience by deploying AI-solutions at the airport. The AI-image detection system was so designed to identify any abnormal imagery that doesn't belong to the human body. The system can track infra-red & x-ray images that could easily identify guns, knives, explosives, plasticized weaponry. The 3D radar images availed to authorities frisking the passengers identify any possible threat and neutralize the same anywhere. The system could identify weapons hidden under clothing, baggage, or any other storage options that could be used to hide things.

To counteract the hospitality industry challenges, Glorious Insight developed smart Autobots that could closely analyze the pricing and other benefits that peers are providing. Such leverage helped the airlines to fix specific prices as per the customer demand and attract traffic for their airlines. Had they used a manual process, it would have taken days and a consistent rise in the expenditure was unavoidable. But the Autobots faster processing mechanism could perform the task at 1/4th of the time and half the cost.

ENTERING A SMART FUTURE OF AIRPORT 4.0

All these while airports have been susceptible to adapt to the changing technology. They have to show the courage to transform beyond their doubts and apprehensions. An age that is greatly dominated by technology, either you have to live as per the tablet-age or race back in time to skip this timeline. Most sectors are still confused about technology transformation. We, as an emerging force in technology, try to answer their fallacies by our in-depth research, and application as demonstrated in our use cases.

Our collective efforts have helped industries usher in the technological landscape and bask in the glory of tech transformation. This is just the beginning of the dawn of technology and enterprises that have embraced this change are more likely to sustain in the competition that will get more fierce with time.

> "
> *Airports must be bold to adapt to the change for sustainability and dominance in aviation*

About Glorious Insight

Glorious Insight is one of the leading IT Services Partner for the customers looking for Digital Transformation Solution in the areas Social, Mobility, Analytics, Cloud, Digital Business Automation and Custom Application Development.

The Company has its Delivery Center in Noida, India and International Sales & Marketing Offices in NJ (US), Ontario (Canada), Singapore, Dubai, Sydney (Australia)

The Company is one of the leading solution partner for large OEM's and provides solutions built on them.

Research & Innovation

The Research and Innovation team provides comprehensive support throughout the research and innovation lifecycle @ Glorious Insght. From first ideas through to commercialisation and industry partnerships, we provide guidance and expert advice to support the delivery of the Glorious Insight's research and knowledge exchange strategies.

What ever be your business challenges around 3P's of Organizational Success, i.e around people, process & product , Glorious Insight brings best of its solution built onto the right value proposition offered in conjunction with Research & Innovation Lab built in Glorious Insight .

The Research & Innovation Group focuses on research and development of solutions around various issues being faced by the client, the strategies built by the team covers the detailed apects of the problem statement at both Micro and Macro Level.

Contact Glorious Insight

Glorious Insight

www.glorinz.com

info@glorinz.com

We are empowering decision-makers, reshaping enterprise operations and helping companies to transform digitally to thrive in this competitive world.

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