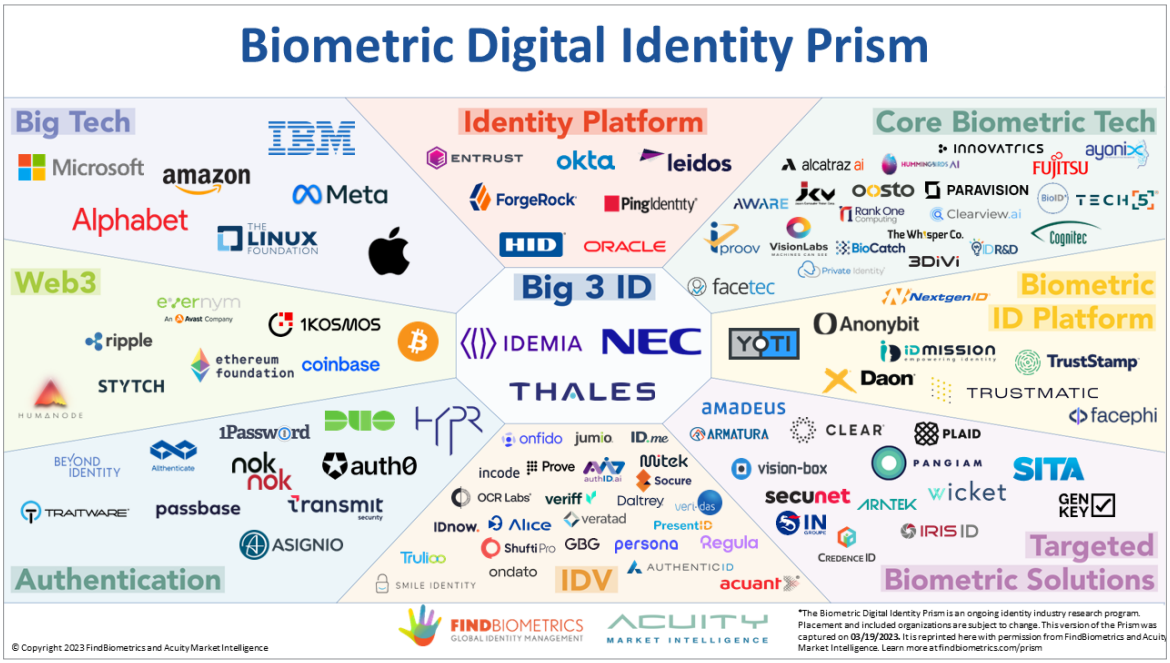
Investing in Aviation's Identity-First Future

The most crucial identity industries, defined by FindBiometrics and Acuity Market Intelligence are: financial services, government services, healthcare, hospitality, and travel. These foundational sectors rely on a complex, rapidly evolving ecosystem that spans big tech, web3, authentication, identity verification, targeted biometric solutions, biometric identity platforms, core biometric technologies, and identity platforms. This ecosystem is envisioned in the Biometric Digital Identity Prism, a proprietary visualization describing the current digital identity landscape as it relates to the aforementioned industries.



The aviation industry is evolving quickly as flight volumes return to pre-pandemic levels. With over 4.1 billion travelers expected to fly in 2023, airports and airlines are being put to the test as passenger demand meets the reality of operational challenges. Digitization technologies like artificial intelligence (AI) and analytics are being looked at to ease the burden in coordination with identity automation.

Aviation is a unique sector in the context of the Prism. The needs of airports, airlines, government travel and border agencies are interrelated and cannot be served by discrete, siloed solutions. From booking to arrival at a destination, passenger identity must remain consistently trusted and secure throughout the journey, not just for the best possible customer experience, but for the sake of security and operational efficiencies. While identity platforms are well suited for this sector, companies in the Prism's "Big 3" segment best serve the complexity of the passenger identity lifecycle.

Passenger Demands Shape the Future of Aviation

Know Your Passenger

5.1 billion
smartphone users globally

27%
high-friction touchpoints like security and health checks stressful

75%
are comfortable with biometrics at high-friction touchpoints

20%
opt for mobile experiences (up from 8% in 2019)

*data compiled and extrapolated from SITA 2022 Passenger IT Insights report & GSMA The Mobile Economy 2023

The passenger experience is the catalyst for evolution in the aviation sector. Today's passenger is a technology-literate traveler who expects a mobile-first experience and is not accustomed to delays. Operational struggles experienced by airlines and airports in 2022—from misplaced baggage to significant delays and cancellations—have marred the travel experience in mainstream and social media. Thankfully, enhancing the customer experience by reducing friction within the passenger journey has the effect of improving operations through streamlined throughput, automation, and enhanced security.

Following the passenger journey, one sees a map of identity transactions: booking, check-in, bag check, security, boarding, flight, customs, and baggage pickup. And that's not including the retail and service transactions along the way. Every time a passenger interacts with an airline, agency, retailer, or other stakeholder during their travel journey, they must prove who they are. The easier that is, the less friction and stress they experience.

According to SITA—the world's leading aviation IT services provider with deployments in over 200 countries—the most pressing pain points for passengers are the touchpoints with the most friction: health checks, security screening, and bag collection. Invasive, time-consuming, and out of the passenger's control, these three processes are in opposition to on-demand services. Thankfully, they are also the areas seeing the highest levels of innovation, and therefore the greatest rate of improvement.

Following passenger demand, we see the evolution of aviation trending toward frictionless, identity-first gateways that leverage consumer mobile technology and robust IT infrastructure to allow for fast and reliable identity checks at every touchpoint. By the end of the decade, the travel experience will allow travelers to enroll their biometrics and identity data when they book a trip on their phone, check-in and drop-off their bag in a fully automated fashion, speed through security without invasive measures, purchase food, retail items and airport amenities with their face or their phone, and board their plane in record time without having to dig through their belongings for their physical ID.

And while that's all great for the customer, it's even better for the airlines and airports.

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Global Market Growth for Digital ID in Air Travel 2023-2027:

North America
65% CAGR

Latin America
91% CAGR

Europe
71% CAGR

Middle East & North Africa
90% CAGR

Asia Pacific
80% CAGR

Customers Rate Biometric Boarding

In 2022, NEC processed 3.8 million face match transactions for Delta Airlines international flights. Surveyed Delta customers rated biometric boarding on the following criteria:

3.95 / 5
Trust & Privacy

4.14 / 5
Speed

4.25 / 5
Convenience

According to the latest 2023 research from Acuity Market Intelligence and Find-Biometrics, the global aviation passenger facilitation market is set for transformational growth. As the market moves away from on premises hardware-dependent eGates and kiosks toward a more versatile digital identity, cloud native platform approach, the overall opportunity for biometric and digital identity technologies to further integrate into every passenger touchpoint grows. The current global market for aviation biometric digital ID is $1.4 billion, growing at a compound annual growth rate of 73% over the next five years to $12.9 billion in 2027. That reflects a total addressable market of $63.4 billion from 2023 through 2027.

Each passenger touchpoint represents an opportunity for verification, and each verification through a digital ID platform can lead to tangible returns on investment (ROI).

Operational Speed and Passenger Throughput: Platform-based digital ID eliminates bottlenecks by automating processes like check-in, bag check, security, customs, and boarding. By replacing human-driven verification experiences, trials have shown a 60% improvement in processing time. The average time to board a 130-passenger aircraft is 40 minutes, but with currently available digital identity technologies, that plane can be fully boarded in 11 minutes. That is an additional 30 minutes for passengers to spend on airport amenities.

Cost Savings on Hardware: A digital ID platform is constantly evolving, and unlike the proprietary, closed hardware-based solutions common throughout airports today, it does not require costly maintenance. Digital identity platforms are easy to deploy and service, and rather than becoming outmoded or obsolete, only improve with hardware innovations, as mobile devices and connected cameras improve on an annual cadence.

Verification Revenue: Every verification within a digital identity platform carries the potential for earned revenue through service fees. The emerging industry standard for digital identity platforms is to attach a fee for each identity transaction—onboarding, verification, authentication—and pass that to the customer as a small value-added service fee. Because identity technology improves customer experiences, and because these platforms facilitate improved passenger throughput, this revenue paradigm is expected to grow.

The adoption of the next generation of digital ID for aviation has already begun and is seeing institutional support from government agencies. US Customs and Border Patrol is implementing customs declaration through a mobile app that leverages face recognition. European nations like Greece are allowing for government mobile IDs to be used throughout airports. Merchant services and payments leaders like Ingenico and Mastercard are implementing frictionless biometrics payments. And in an airport, all of these new elements need to work in harmony in order to maintain a high level of security and deliver on the promise of delightful travel experiences.

An Established Platform Approach

"The adoption of innovative technological and digital solutions can also help to overcome the issue of staff shortages by improving daily tourism operations as well as mobility and border security. This not only alleviates pressure on staff but also ensures safe and seamless travel and an enhanced customer experience."

WORLD TRAVEL & TOURISM COUNCIL, 2022

The future of aviation will be facilitated by Big 3 companies on the Biometric Digital Identity Prism. The flexible and robust IT infrastructure required to fulfill passenger expectations and capitalize on the opportunity presented by the evolving trends in air travel will need a cloud-native foundation, providing elasticity and rapid deployment capabilities. In addition to its leadership in the full spectrum of the digital identity ecosystem, NEC is well suited for this market thanks to its core technologies, partnerships, and experience.

Technology: A seamless passenger experience requires a complex network of synergistic technologies working in the background, verifying, authenticating, and adapting. Point solutions are not enough to achieve the end-to-end passenger facilitation demanded by aviation's evolution. A viable identity platform for aviation can match a passenger's face to their identity document on booking and carry that strong identity through the entire journey. But it can also self-refine and adapt to real-time circumstances thanks to robust AI and be fine-tuned through insights from analytics gathered at every customer touchpoint. This system must adhere to privacy-by-design and be interoperable through compliance with international standards.

Partnerships: Public and private partnerships are essential for properly implementing a smart identity infrastructure. Government partnerships ensure national security and play an integral role in creating the most trusted digital IDs by providing a system-of-record ensuring synthetic identities are not enrolled in a digital ID platform's database. Private partnerships enable retail and payment functionality, as well as value-added services for VIPs, like lounge access. These complex transactions can only work through cooperation and partnerships with leading payment networks, retail brands, airports and airlines.

Expertise: Aviation is a living industry, constantly facilitating travel and evolving with the demands of passengers and regulations. Identity technology is a mature aspect of the air travel ecosystem and has been adapting to the sector for decades. The importance of institutional knowledge gained through long-term experience is unequivocal. Trusting in an established pattern of excellence is the best way to ensure the implementation, upkeep, and day-to-day operations are as seamless as the future of air travel.

Aviation is returning to full force, and digital identity is already playing an integral role in enabling a safer and more convenient future for air travel. With an established platform approach with state-of-the-art digital ID, AI and analytics technology, as well as proven passenger facilitation experience, NEC is ready to elevate airports, airlines and the passenger journey.

Learn more by contacting NEC today.

Visit **necam.com/IDelight/Aviation** to see how NEC I:Delight combines digital technologies to interconnect people and processes.

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