

Airports of the future - 10 predictions for the next decade



By [Benoit Verbaere](#)

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The airport experience has morphed dramatically in the past 10 years with the introduction of biometric security, mobile check-in, and baggage tracking. And there is much more to come.



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While Africa has historically lagged the global curve when it comes to technological and industrial advancement, the evolution of digital technology is likely to ensure that African air travel will be able to evolve in pace with the rest of the world.

A recent report by the World Economic Forum reveals that more than 400 tech hubs have sprung up across the continent, with Lagos, Nairobi and Cape Town emerging as rapidly growing technology centres. The data analytics market has evolved at an astonishing pace and cutting edge technologies like 5G have also started entering the market in the continent's economic hubs. Advancements such as these are allowing Africa to overcome existing infrastructure limitations at ever-increasing rates.

On a global level, the next decade will witness an exponentially accelerated pace of change as digital native passengers and staff usher in transformative technologies, from flying taxis to airports that think for themselves. Benoit Verbaere, Business Development Director, SITA predicts major change for nearly all aspects of the airport experience.

Passenger numbers are set to double in the next twenty years, according to the International Air Transport Association (IATA), but airport expansion won't keep up. And passengers, quite rightly, want a smooth and easy journey through the airport. The only way we can make sure airports continue to work smoothly is by developing and implementing new technologies that make them more efficient while also enhancing the passenger experience.

Time travel: a stroll through the airport of the future

1. Security will be integrated into a frictionless journey

Over the next decade, going through security will mean walking along a corridor. No more taking off your coat, shoes, and belt, or putting little bottles into little bags. And no more queues. Passengers and their bags will be recognized automatically as they go through automated checkpoints. Hard checkpoints will be replaced by sensor corridors, making physical document checks obsolete.

2. Passengers will be in control of their digital identity

The adoption of digital self-sovereign identity and persistent travel tokens will put passengers back in control of what aspects of their identity should be revealed, for what purpose, as they travel. In future airports, risk will be constantly assessed by specialist artificial intelligence (AI), using the passenger's digital identity. The sensitive elements of this data will be used only by governments, which will use automated collaborative systems to approve – or, in some cases, not approve – the various steps of the journey. Airlines will no longer hold the responsibility for processing passenger data for border security purposes.

3. Travel steps will be decentralised

Everything will have tags: people, bags and cargo. And they will be tracked throughout their entire journey, whatever mode of transport they are using. This will mean travel authorization and customs checks can be made in advance of the flight, saving time at the airport. And remote bag drop-off and collection will be offered wherever it is most convenient for the passenger, at train stations for example.

4. The airport will be highly connected

Our new era of connected airports will be driven by increasingly cheap sensors, less dedicated hardware and new data lakes, fed by every device over 5G. The data will be captured through Software Defined Networks, collated and analyzed to make the airport highly efficient and to make it a much better experience for passengers.

5. The airport will think for itself

Artificial Intelligence (AI) algorithms will be key to efficiency, with sophisticated AI becoming the secret sauce for airports. Airports will use Digital Twin technology to bring real-time operations to life for all stakeholders, improving operational efficiency and enhancing the passenger experience. A Digital Twin is an advanced computer simulation that takes data from across the entire airport and airline operations to visualize, simulate and predict what will happen next.

That predictive data will then be used to streamline operational activities, automating them where possible. Automated messages such as: "Two A380s will land at the same time because one is delayed: ensure there are enough people on immigration desks." or "The feedback from the restrooms on the second level is negative: send the cleaners." The rapid exchange of information will mean proactive responses and therefore more responsive and accurately planned operations for airlines and airports.

6. Collaboration will be critical

Across every single journey, there are 10 or more different entities that are responsible for making your trip a reality. The

only way to collect all the data to make this journey seamless is through close collaboration between everyone working at an airport: the airport itself, airlines, government agencies, ground handlers, restaurants, and shops. We also need collaboration across the entire ecosystem of connected airports.

Throughout this wide network, operational data will be shared using trust frameworks and stakeholders will share single sources of truth for essential operations. This will make airports much more efficient, for example digitizing turnaround management, putting a sharp focus on getting aircraft back in the air as quickly as possible.

Here technologies such as blockchain provide tremendous potential in facilitating the secure exchange of information.

7. The airport will be highly automated

High-speed mobile connectivity at the airport will be central to mission-critical performance. Airports will increasingly run just-in-time operations, with automation and self-service making everything more efficient. And connected, automated and autonomous vehicles and robots are set to become commonplace throughout the airport.

Automation will also enable more efficient sharing and use of assets. A wide range of objects – from baggage or aircraft tugs – will be connected via 5G networks, providing massive amounts of data, offering real-time, predictive and historic views of airport operations.

8. The airport will adapt to passengers' needs

The fast and frictionless journey to, and through, the airport will make some current revenue streams, for example, parking, weaker or obsolete. Airports will, therefore, need to find new ways to augment the travel experience to replace them. Personalization will be the key, providing passengers with what they want, when they need it at any point throughout their journey from start to finish, not just at the airport.

Examples could include an airport-provided limo service comprising bag check-in at your home, office or hotel, and fast-track approvals and facilitation for regular travellers.

9. Mobility will be a service on demand

Airports will become giant flying 'park and ride' centres, providing access to a wide range of transport options. Innovations such as air taxis will be emerging by 2030 to provide much more efficient transport to and from the airport. They may even provide competition on short-haul routes. We will truly have air travel for everyone.

10. There will be an API for everything we do at the airport

Since tomorrow's travellers will be digital natives, people running airports will need to be digital natives themselves. This technologically-literate environment will result in airport complexity being sliced into a set of data services that can be shared as application programming interfaces (APIs). It will provide an ecosystem that enables collaboration and innovation, which is easier for everyone to use. For example, AI and new syntaxes will enable requests of industry-specific insight in human terms: 'Is there a pink bag as carry on at gate B34?' or 'The line at arrival concourse A is too long, send more taxis'.

The future of airports lies in connected, highly-intelligent and efficient operations that offer passengers pain-free and frictionless travel and rich, personalized experiences. Today's blockages and operational silos will dissolve, resulting in data sharing based on digital trust, shared assets and real-time calculations from AI.

Over the next 20 years, demand for air transport in Africa is expected to double, with 4.6% annual growth predicted – the second-fastest of all IATA regions. Taking these growth figures into account, along with the technological advancements that await air travel over the next decade, there is good reason to believe that African air travel has the potential to be one of

the most advanced sectors on the planet by 2030 if all stakeholders in the industry pull together.

We're entering a golden silicon-infused era for air travel and we're excited to be part of the journey. However, it's essential the industry acknowledges the need for change and collaborates. These technological shifts will happen, and faster than we think.

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