Benefits of NEXTT

Nick Careen
SVP, APCS

Anne Carnall
Program Manager, NEXTT

Will Squires
Project Manager, Atkins

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Our forecasts predict there will be 8.2 billion passengers per annum by 2037, which is nearly 100% more than travelling today. Naturally, we wish to ensure that all those who need and wish to travel can do so.

Similarly, the cargo industry needs to prepare to support growth expectations: It is anticipated that by 2035, there will be 70% more freighters flying, which is over 3000 cargo aircraft.

It is worth emphasizing that a global doubling of passengers doesn’t mean that every airport needs to be twice the size. Growth is not evenly spread. Demand in Asia may triple.

In some Chinese cities, they have struggled to build airports fast enough with new terminals at capacity upon opening.
Growth is a combination of more people travelling and people travelling more often. Back in 1996 the average citizen flew just once every 50 months, and in the year 2000 every 43 months. The average world citizen will travel once every 21 months. This changes the average passenger’s expectations about their journey.

Similarly, cargo customers have more demanding expectations of the level of service and information they should receive.
How can we accommodate growth, maintain manageable operations, provide excellent passenger experience and make the most of our infrastructure?

We do not think the current concept of airport design and build will be able to best serve the future expectations of our passenger and cargo customers. And we are concerned that the current pace of build will only lead to more slot constrained airports. We will be at risk of not being able to cater for the growth projected for passenger and cargo markets.

There are many initiatives underway, including ones led by IATA, however, in today’s world these initiatives may only be implemented in certain counties or airports or within but their use would most probably remain siloed and/or fragmented.

Our focus on New Experience Travel Technologies stems from these concerns.
The NEXTT vision identifies technology and advanced processes within a forward-looking aligned strategy to transform on-ground aspects of air travel.

Importantly for the industry consensus required, this is a joint venture with the Airports Council International.

Having set the scene and the rationale for our NEXTT initiative – we wanted to better understand the potential impact of all the underlying concepts being deployed in an integrated manner.
Where are we now?

Largely the core building blocks of NEXTT are either deployed in other sectors, or currently at prototype within the aviation sector.

The challenge is related to interoperability and scalability.

Implementations are tending to be operational area specific e.g. siloed development of data exchange solutions for passenger processes separately from those for ground operations. This creates issues in terms of interoperability and does not capitalize on the opportunity to leverage solutions from one area to the accelerate development in another.

Additionally, coordinated solutions such as progress in expanding airport collaborative decision making to include terminal operations is occurring differently in different location. This presents challenges in terms of scalability. Without a globally common approach, it will become a costly and complex process for airlines to contribute to these CDM processes at every airport in their network.
We undertook a cost-benefit analysis, which considered 20 year assessment period. A likely scenario for how technologies could be delivered in different global regions with coordinated approach. It’s not a one-size fit for all locations; decisions will need to be made by airports, airlines and governments based on their local circumstances and complexity.

The analysis of NEXTT focused on each of the NEXTT vision elements (passenger, baggage, cargo and aircraft) and the emerging concepts that are being developed.

During this exercise, three distinct categories for investment arose. These categories have been used for this analysis to capture the benefits and costs arising over the assessment period.

Data processing: capturing impacts related to the advancement of connected digital (or IT) technologies on the aviation sector, including efficiencies driven by an ability to increase optimisation and utilisation of resources as a result of shared data.
Automation: identifying impacts related to the automation possibilities created by new types of physical infrastructure with more advanced, next generation technology.

Off-airport, allowing for impacts of using technological advances to enable more activities to take place in places outside of current airport boundaries.

Significant benefits were realised against all stakeholders, with the key take-away being that global connectivity for data (ie. The data processing initiative) drove by far the most benefit from all stakeholders.
Passenger

- In 2040 average global passenger can save ~45mins compared with today’s airport processing times

A coordinated industry approach to implementing NEXTT technologies will deliver significant long-term economic benefits. Improved information sharing, the eradication of queues at traditional points of friction and enhanced boarding processes are expected to deliver an overall 25% reduction in airport processing time. Monetizing value of time this translates to $5 per journey in gained time from;

- Boarding time savings from the introduction of biometric technologies, process automation and personalized passenger information allow for reduced waiting time at the gate for passengers

- Security check time savings due to increased scanning capabilities and effective data processing to evaluate the risks which lead to more efficient queue management and infrastructure use

- Check-in time savings from the implementation of off-airport check-in points supported by improved data processing of baggage information and automated on-site baggage drop points
• Passport control time savings realized through biometric control points and walking pace arrivals immigration combined with passenger pre-vetting

• Baggage pick-up time savings due to implementation of baggage tracking services and introduction of off-airport baggage delivery services

Passengers will benefit from being able to do more traditional processes off-airport and use technology to give them more control over their journey.
Governments

This translates into significant economic and social benefits through having the necessary infrastructure in place to support an additional 4.1 billion passengers of over the next 20 years.

Guiding investment in appropriate infrastructure for aviation growth, facilitates tourism and business, enabling trade and generating economic growth.
Airports

- Maximising capacity of existing facilities

All the aspects mentioned to benefit the passenger adjust the space and facility requirements at airports. Improved data processing and automation measures shall reduce the need for additional terminal infrastructure as by as much as two thirds.

In the same manner that more comprehensive information and control is available to passenger, this in turn combined with other information improves the focus and efficacy of operational staff. They shall be able to give their attention to more complex and valuable issues.

And as with terminal infrastructure, technology enhances which, for example, enable measures such as time based separation of aircraft on approach and improved information sharing to make collaborative decision making (CDM) high effective – drives a higher utilization and increased capacity of existing apron and runway space.
Airlines & their service providers

- Improved information and automation enables a focus on more complex and valuable activities

Airlines will see a reduction in flight delays, mishandled baggage and improved on-ground staff and equipment utilization.

Primarily we see that improved data processing will promote the biggest benefits to airlines and their service providers. Particularly this reduces station costs. With staff able to focus their attention to more complex or valuable activities as the routine tasks with little value-add are automated.
It’s investment in data processing elements that has shown to deliver the biggest proportion of the benefits. This investment is also key to unlocking the full benefits of all the technology deployments.
Implementation of NEXTT clearly creates an opportunity for a step-change in operational performance, and systemic optimisation is therefore likely to be the main economic differentiator for the global aviation sector.

However, NEXTT will also create a disruptive ‘technology’ economy that may lead to the evolution of new business models and aviation-sector companies.

Without a central, coordinated vision, the benefits detailed here for all stakeholders will not be realised at scale.

The investigation has highlighted that delivery of coordinated technology systems at a global scale will unlock benefit significantly in excess of an isolated approach.
In an attempt to evaluate the quantitative impact of NEXTT on the global aviation industry, Atkins-SNC Lavalin (Atkins) undertook the difficult task of creating a preliminary cost benefit analysis. The findings within this report were created using educated assumptions and relevant data but should be seen as one viewpoint in the dynamic and constantly evolving aviation industry. We invite you to look at Atkins’ work and form your own opinions on the exciting future and impact of NEXTT. Please find the link below:

Thank you
nextt@iata.org