



Erkmar

The Digital Airport



Use cases at Airports

This short paper explores the use cases that can be applied to an Airport environment with an effective wireless infrastructure.

Airports are often early adopters of new technology, such as facial recognition for passport control, monitoring systems

for passenger flow and apps for boarding passes. But there is so much more that they could do, and given the density of people and the cost of delays and inefficiency, the business case for new technology is typically easily made. Studies have suggested over thirty different areas where digital technology could make a difference, this note highlights a few.

Operational

Airports could benefit substantially from Internet of Things technology that could:

- Ensure that the thousands of items needed at a stand as an aircraft arrives are all in place, tracking their position, taking action if they are not moving and monitoring parameters such as fuel level and maintenance requirements.
- Providing a communications group around the aircraft where personnel can be called by function (e.g. “baggage handler”), allowing, for example, the ground staff to exchange images with the captain.

- Robots for multiple functions such as moving out-of-gauge baggage to the belt area for the standard luggage, cleaning, disinfecting areas and inspecting the airport, assisting passengers, and delivering items around the airport.
- Use of drones (carefully coordinated with air-traffic control) to rapidly inspect security alerts such as perimeter fence breaches, to rapidly examine runways for debris and to speed tasks that would otherwise involve dispatching a team.
- Temperature, location and other sensor reporting from high value freight movement.
- Autonomous vehicles around the airport includ-

ing baggage trucks, fuel rigs and more.



Passengers

The passenger experience could be much improved, with concepts such as:

- Digital signage and flight information that can help passengers find their way around and provide individual personalised guidance and information.
- Baggage monitoring and location that can show passengers where their bags are, reassure them that they are on the plane and help them locate them at the baggage carousel.
- Taxis and onward travel coordination, allowing passengers to easily use services such as Uber with simple dispersed pick-up that avoids airport congestion and possibilities for ride sharing and other innovative approaches.
- Advance services for the disabled such as autonomous electric wheelchairs that can take the passenger through the airport in a way that is both preferable for them and removes the need for a staff member to care for them.
- High precision location and tracking within the terminals for passenger navigation, shopping and security.
- Entertainment services for those waiting for flights



such as AR/VR gaming zones, video entertainment and other ways of relaxing and passing time.

Underlying all of these is excellent connectivity using a range of systems tailored to people, to machines and to demanding application. Many also require links into airport IT systems and interaction with passenger phones.

Infrastructure

All the use cases identified, and possibly many more, are all feasible today. The factor that holds their deployment behind is the connectivity available within the airport environment. The mixture of networks typical installed today give rise to fragmented and often limited connectivity to the user.

To move forward a strategic review of connectivity, the selection of unified solutions, and consideration of both current and future demands for quality and bandwidth are necessary. Whilst 5G is often considered as the only way forward there are other blended wireless solutions that may result in effective connectivity.

The best place to start though is with a consideration of the uses any future network will be put to, where on the airport it needs to cover, and what capacity it will be required to deliver.

About Erkmar Ltd.

Erkmar Ltd is an international consulting firm based in the UK. Our consultants are experts in technology and business, not just 5G. Whether it is Wireless networks, IoT, use case definition, network design, wireless and network cybersecurity, operational implementation, tender specification, running procurement exercises, or implementation assurance we have the people to support you.

We are vendor neutral, and technology neutral and work in all sectors independently.

Based in the UK with our subsidiary in Estonia we can bring together world class leaders in their subject matter through our extensive network of associates if necessary.

We have direct experience in delivering wireless assignments in the airport sector and implementation of enterprise 5G networks in the airport environment.

