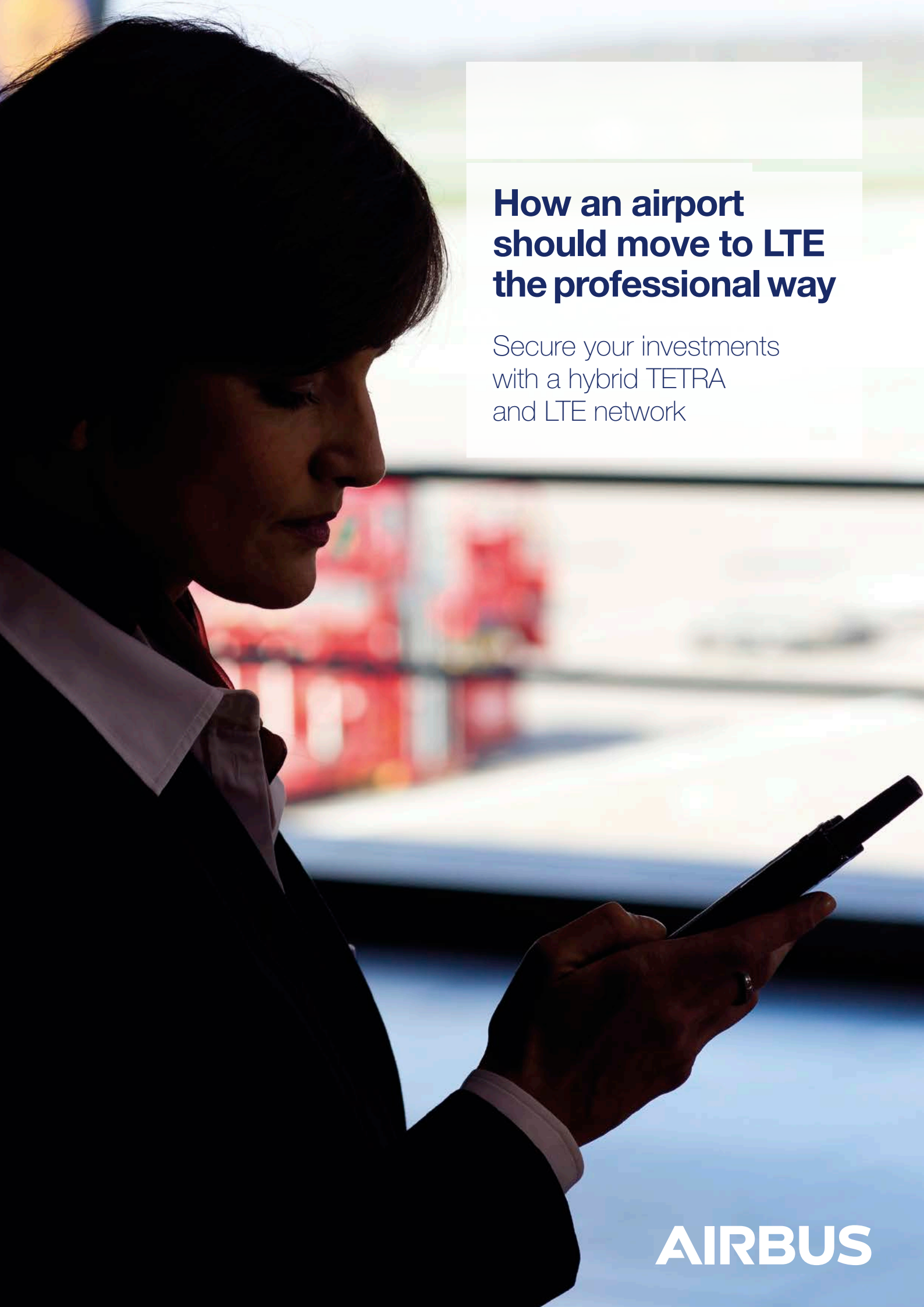
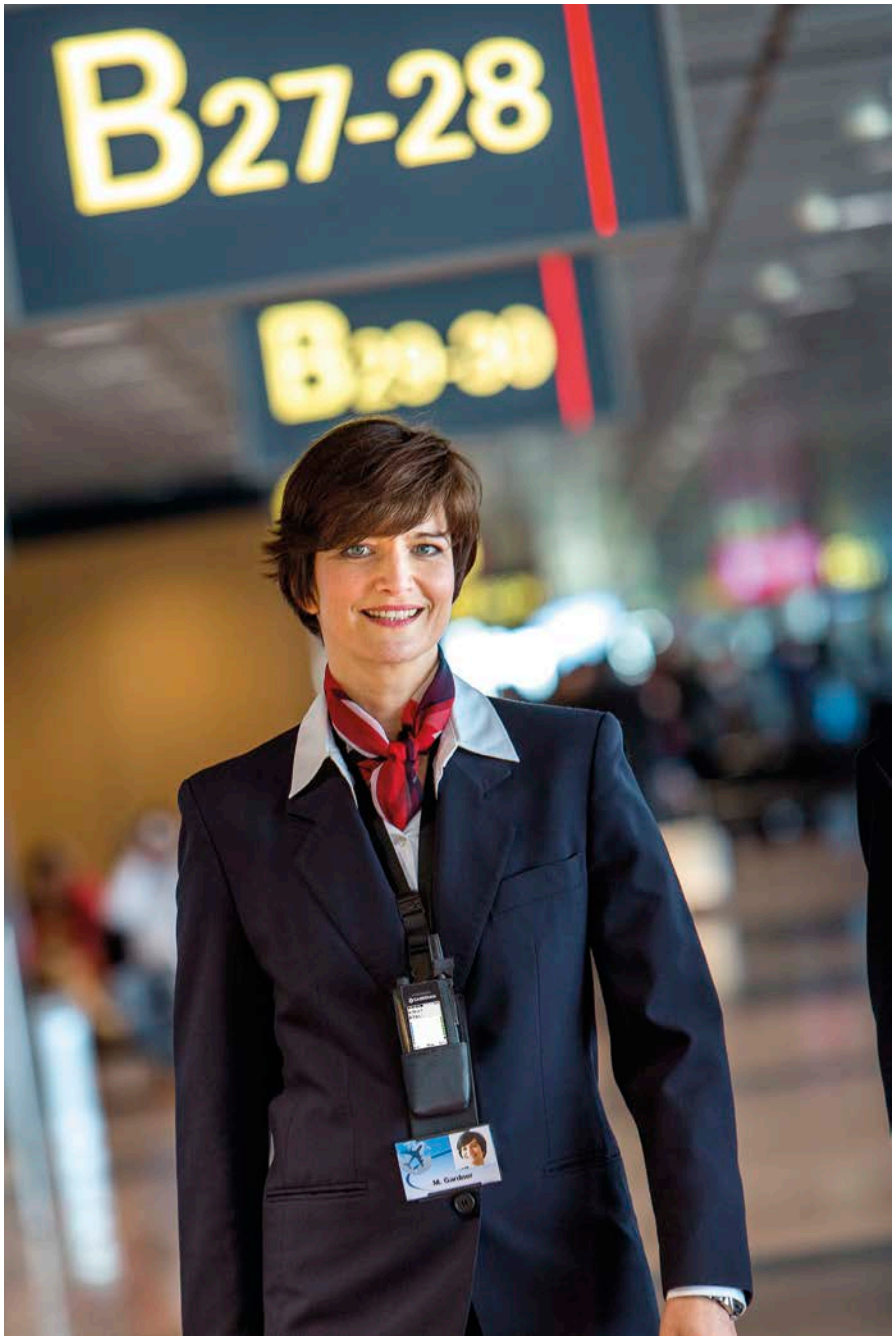


How an airport should move to LTE the professional way

Secure your investments with a hybrid TETRA and LTE network

AIRBUS



Hybrid network – use TETRA for mission-critical voice and data and introduce broadband step-by-step

Hybrid networks are the way to go

Mission-critical networks based on TETRA technology have substantially improved the efficiency and safety of airport operations, bringing a huge leap in passenger flow and richness of features. The time-critical operations at airports benefit from group communication and other TETRA features that enable efficient handling of the increasing numbers of passengers.

Today, there are more than a thousand TETRA networks in more than 120 countries and every year more than a billion passengers travel through airports that use digital TETRA products. All the top five airports in China, two of the top five European airports and the biggest Middle East airports are using TETRA from Airbus. Many users of these networks would benefit greatly from the introduction of new data applications and smart devices.

For many airport radio communication users, empowering their operations with secure mobile broadband matched to their needs is an appealing prospect. New capabilities enabled by fast access to data in the field promise innovative ways to maintain airport safety, as well as helping organizations to improve their operational efficiency.

Although today's dedicated digital networks can deliver extremely secure and reliable data services, the narrowband technology used does not have the capacity to support new bandwidth-hungry apps. More data capacity is needed for mobile applications such as video, database queries and pictures, yet without losing the vital aspects of reliable voice, security and interoperability.

Apps plus mission-critical voice

Mobile broadband will at first be used for data applications, with mission-critical voice communications continuing to be supported on digital narrowband networks. This approach is needed because today's commercial broadband networks simply don't have the standardization, group communication and other features needed. They cannot replace narrowband networks in mission-critical communications. Their availability and resilience need to be improved.

Although work is under way to make mission-critical voice available on broadband, standards-based products are still many years away. TETRA will be used well into and most probably far beyond the next decade.

Hybrid model complements airport networks with mobile broadband

Yet there are options for airport organizations seeking to implement mobile broadband services. One method is to use the services of regular mobile operators. However, this is not suitable because the standard mobile data services typically available do not meet the stringent communication needs of airports. Another approach is to build a dedicated broadband network owned and operated by the user organization. This would require dedicated frequencies which might not be available.

Between these extremes is the Tactilon MVNO (Mobile Virtual Network Operator) approach, which uses the radio capacity of commercial mobile operators, while the airport's own organization remains in control of subscribers and security.

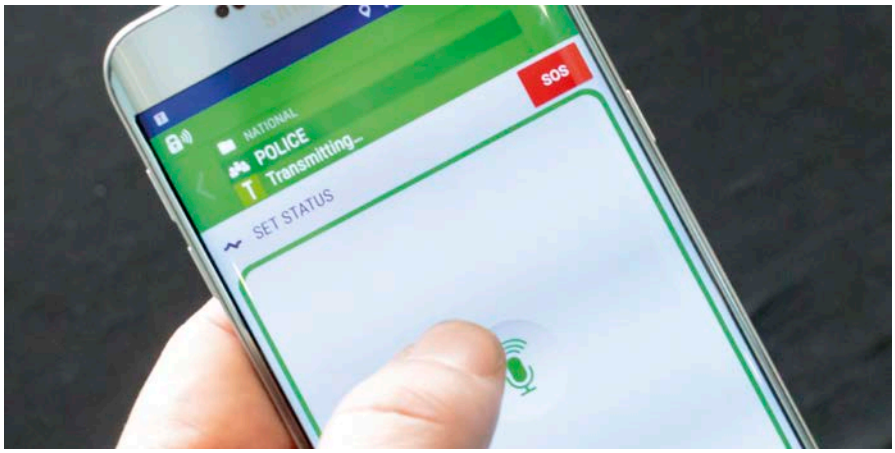
One very cost-effective approach is the hybrid network, where an airport organization can continue to use its TETRA network for mission-critical voice and data and introduce mobile broadband services step-by-step. These services can be based on a dedicated broadband network, commercial services with Secure MVNO, or a combination of the two.

Using a hybrid network means investments can be made gradually as and when needed. Hybrid network investments add value today, but also offer long-term benefits by bridging existing narrowband networks and future solutions.

The broadband network can be developed in different ways depending on which applications are needed and the level of investment available.

One way of evolving towards broadband is to start with a Secure MVNO service, using several mobile operators' services to achieve improved coverage and reliability. This is particularly suited to mobile office applications. Dedicated broadband capacity can be added as needed to improve the coverage, or when applications become more mission-critical.

Combining TETRA and smartphone users at airports



The Tactilon Agnet app extends TETRA group communication to smart devices. In other words, a smartphone user connected via broadband can use TETRA voice and messaging services, while TETRA and smartphone users can use the same talk groups. Smart device users can talk to the group by pressing the PTT key on their screens; they hear the other members and all members can exchange messages within the group. And because Tactilon Agnet is a smartphone app, it can work outside TETRA network coverage area.

For example, a large Middle Eastern airport is planning to equip all relevant office workers with the Agnet app on their smartphones, so that they can join TETRA communications when needed.

Tactilon® Suite for controlling security, subscribers and services

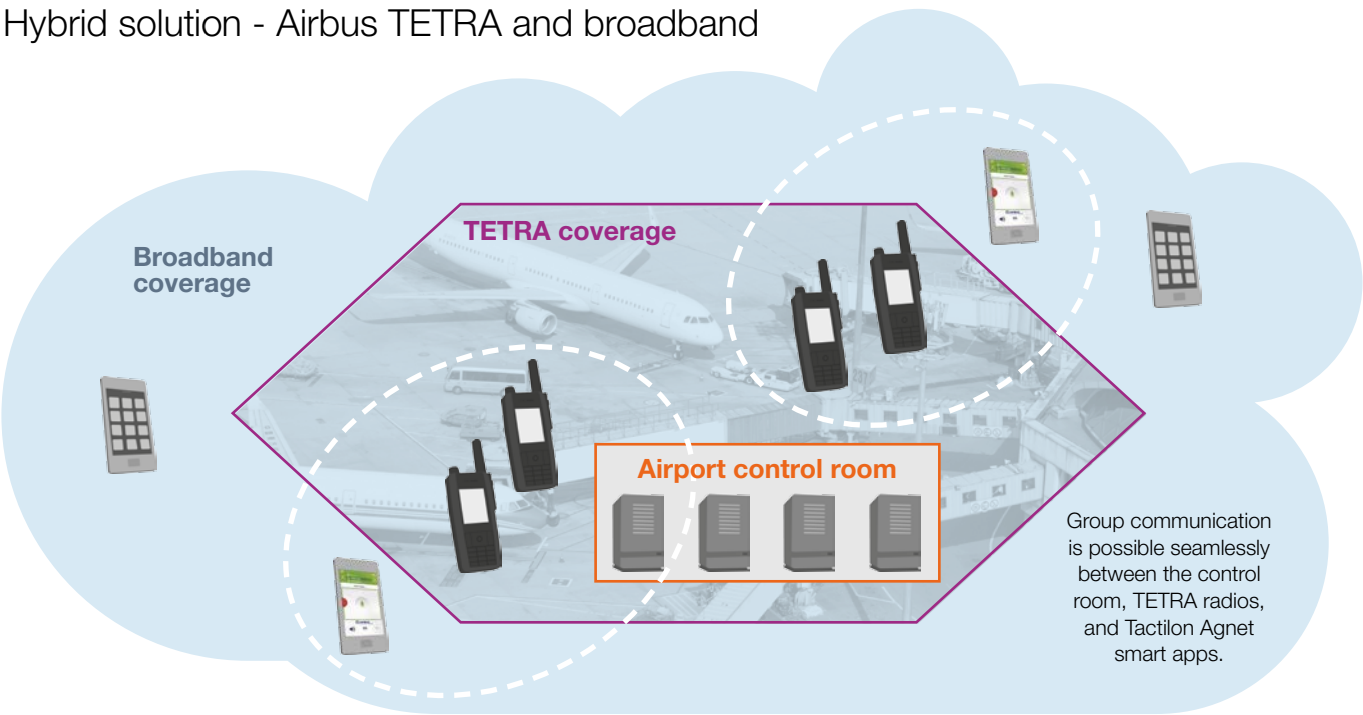
Difficulties can arise when a single user is active on several networks and devices. The challenge is to ensure secure and controlled management and high service levels. This is best achieved by adopting a centralised management solution. This enables agreed security and other policies to be implemented and supports the professional management of the whole system. It also simplifies the introduction of new capabilities.

Airbus Tactilon Suite meets these needs by helping airports to manage hybrid networks, devices and broadband services. Subscribers can be provisioned both in the narrowband and broadband networks, including mobile operator networks. Tactilon Suite also handles security management and asset management and aids integration with mobile operator networks. With Tactilon Suite, trusted personnel securely manage all subscriber credentials. Tactilon Suite also provides the means to manage IP security certificates.

Network modernization – a bridge to hybrid networks

Many airports have invested substantially in professional communications, not only in networks and user devices but also training, developing operational models and integrating their networks with other critical systems and command rooms. The networks

Hybrid solution - Airbus TETRA and broadband

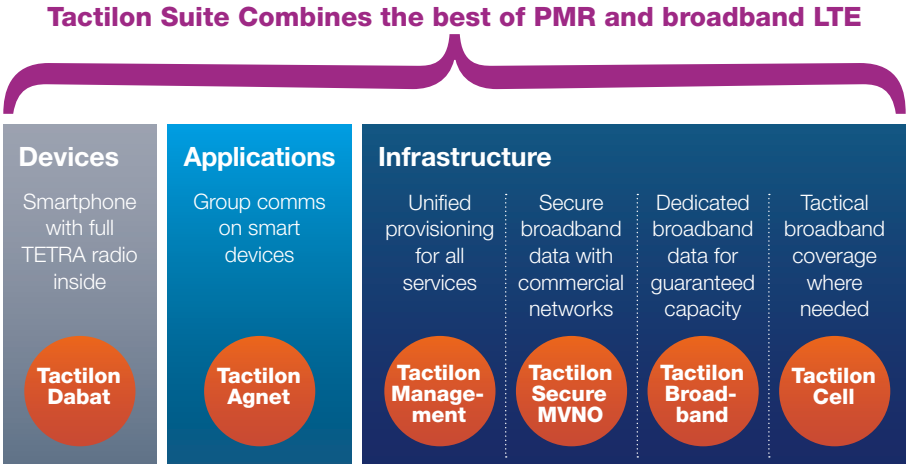


will continue to give valuable service, but only if they are kept up to date. The lifespan of mission-critical networks is typically around 20 years. They need to be modernized every ten years, as well as undergo more frequent minor upgrades.

Network modernization ensures that investments continue to bring value in the future. In addition, a modernized network can cost less in maintenance, it can be more reliable and enable new services for users.

Network modernization at its best is a series of maintenance steps rather than a single large investment. A smooth, staged modernization project ensures that the end user experience and critical services are not compromised, even over a long migration period.

Tactilon® Suite, value for TETRA users today and for future opportunities



Essential steps for introducing hybrid network modernization

Modernizing an airport's network to allow it to provide value today and in the future means adopting several key elements, including subscriber management in a hybrid network environment and IP connectivity.

An IP Backbone is an essential element. It enables operational cost savings, makes system integration easier and improves disaster recovery and site redundancy. In the future, it will also provide more data capacity and flexibility. A nationwide IP Backbone solution is an asset, allowing further development of services and achieving more value from existing investments.

An essential **enabler of the IP Backbone for TETRA is an Airbus TB3 series base station**, the world's most-installed TETRA base station. Offering best-in-class coverage and supporting both IP and TDM/E1 transmission, it allows a smooth transition.

As described previously, Tactilon Suite manages subscribers, security and services within hybrid networks and hence is ideal for network evolution. In today's networks with complex organizational structures, a centralized tool enables individual organizations to provide services to their own users and confirm the identity and authorization of those users.

The new base stations, IP Backbone and Tactilon Suite are a solid basis for gradually introducing dedicated LTE capacity when needed, for example when mobile broadband applications become mission-critical.

How to add value with network modernization:

Technology	Value with TETRA	Value with broadband
Tactilon® Suite	• Subscriber and organization management	• Subscriber management • Security and service control • Tactilon Agnet app
IP Backbone	• OPEX savings • Improved disaster recovery	• Enough transmission capacity for broadband
TB3-series TETRA base stations	• Better coverage • OPEX savings • IP and TDM/E1 transmission	

Applications reveal the value of hybrid networks

Hybrid networks enable many new mobile applications and support for smart devices.

1. **Growing passenger numbers and rising expectations from passengers and airlines:** Airports face rising pressures as passenger numbers continue to increase. Small delays or disturbances can create big problems. Communication and information sharing make decision making easier enabled by apps that range from chat apps to mobile access to baggage handling and other IT systems.

2. **Case reporting for airport officials:** Much of an airport officer's daily work involves office-based tasks, such as writing reports and recording incidents. This takes them away from their frontline role. A hybrid network with mobile broadband enables IT applications to be deployed in their mobile devices, allowing officers to complete their paperwork on the move, giving them more time to serve passengers.

3. **Field command/fleet management applications:** Broadband services also make it easier and more efficient to manage units and resources in the field. The principal needs are allocation of tasks to units and efficient communication, both between units and with the control room. Map-based interfaces increase awareness of situations as they develop. This leads to more efficient operations, improved co-operation between different airport staff groups and reduced reaction times.

Other applications at airports that can benefit from combining TETRA and mobile broadband networks include baggage handling apps, role oriented communication, indoor location systems, PSIM, FMS.

Mobile broadband for airports is becoming a reality

Many network operators (ranging from airports to public safety, from oil companies to metros) in Europe are looking to adopt new data applications based on mobile broadband services.

Airbus / Secure Land Communications is working with its airport and other mission-critical customers globally in network evolution projects. These aim to improve the efficiency of operations and the safety of passengers, citizens and first responders, while also ensuring that users continue to have a good experience of existing services.

Airports in Paris and Beijing, for example, rely on the Airbus TETRA solution. Find examples of airport references on page http://www.securelandcommunications.com/customerstories/topic/segments-airports

Contact marketing@securelandcommunications.com to learn more on how to modernize your network and bring mobile broadband to public safety communications.

Find out more about radio communication solutions from Airbus / Secure Land Communications: http://www.securelandcommunications.com/radio-communications-for-airports

Airbus / Secure Land Communications has provided mobile broadband enablers to customers in Belgium, Sweden, and Finland, for example.

Use this experience to your advantage: please contact your local Airbus representatives, or send an email to marketing@securelandcommunications.com and we will put you in contact with them.

The hybrid network model complements airport networks with mobile broadband.

Mobile broadband will at first be used for data applications, with mission-critical voice communications continuing to be supported on the digital narrowband networks.

How to get there?
Adopt Tactilon® Suite from Airbus as the first step towards the future.

Tactilon Suite - Solutions for evolving security needs.

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