

**WORLDWIDE AIRPORT LAWYERS ASSOCIATION
WALA 10 – LONDON 2018**

**Emerging Insurance Issues
New Technologies and Automation in Aviation**

Tuesday, October 16, 2018

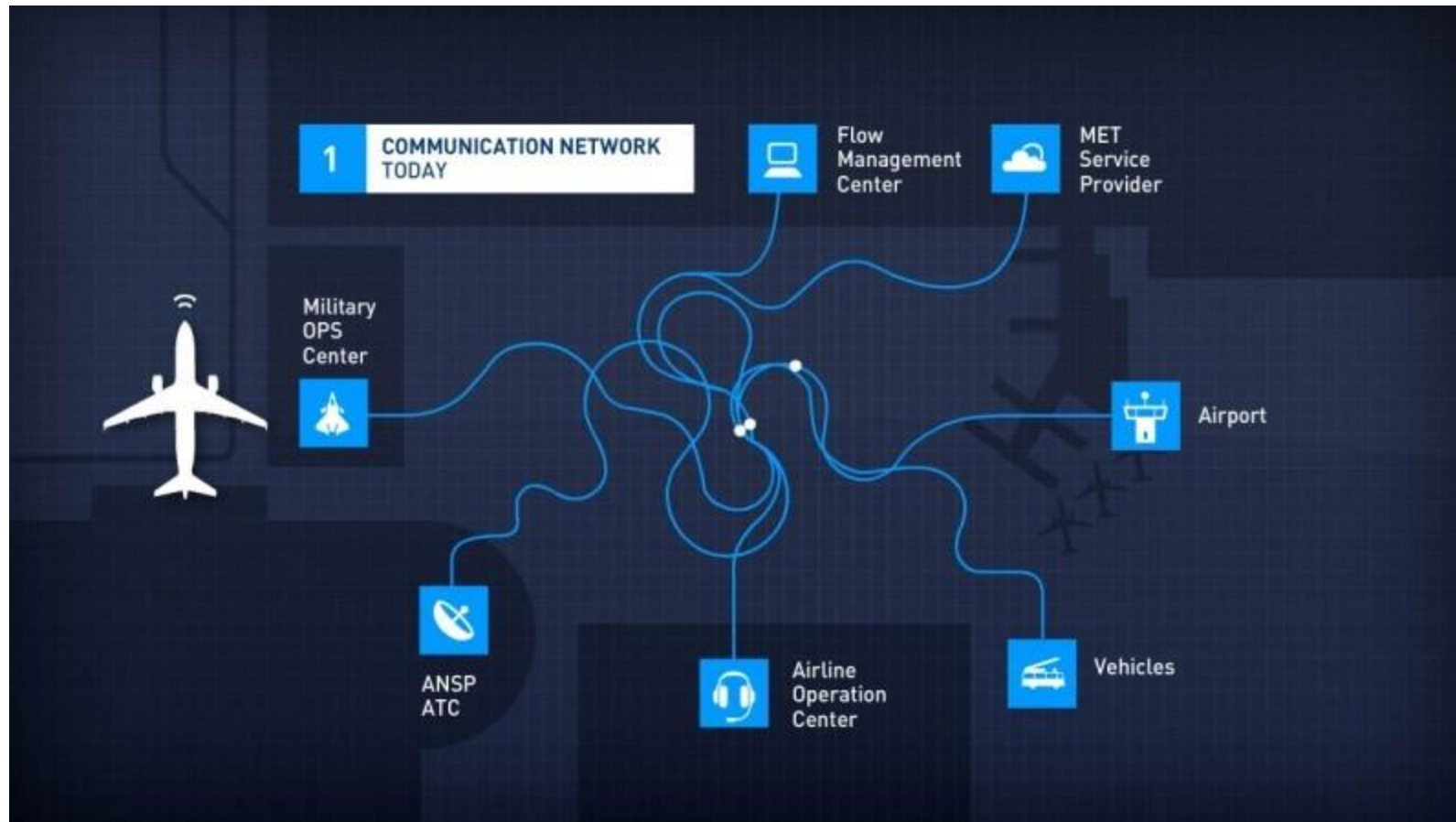
Anna Masutti

a.masutti@lslex.com

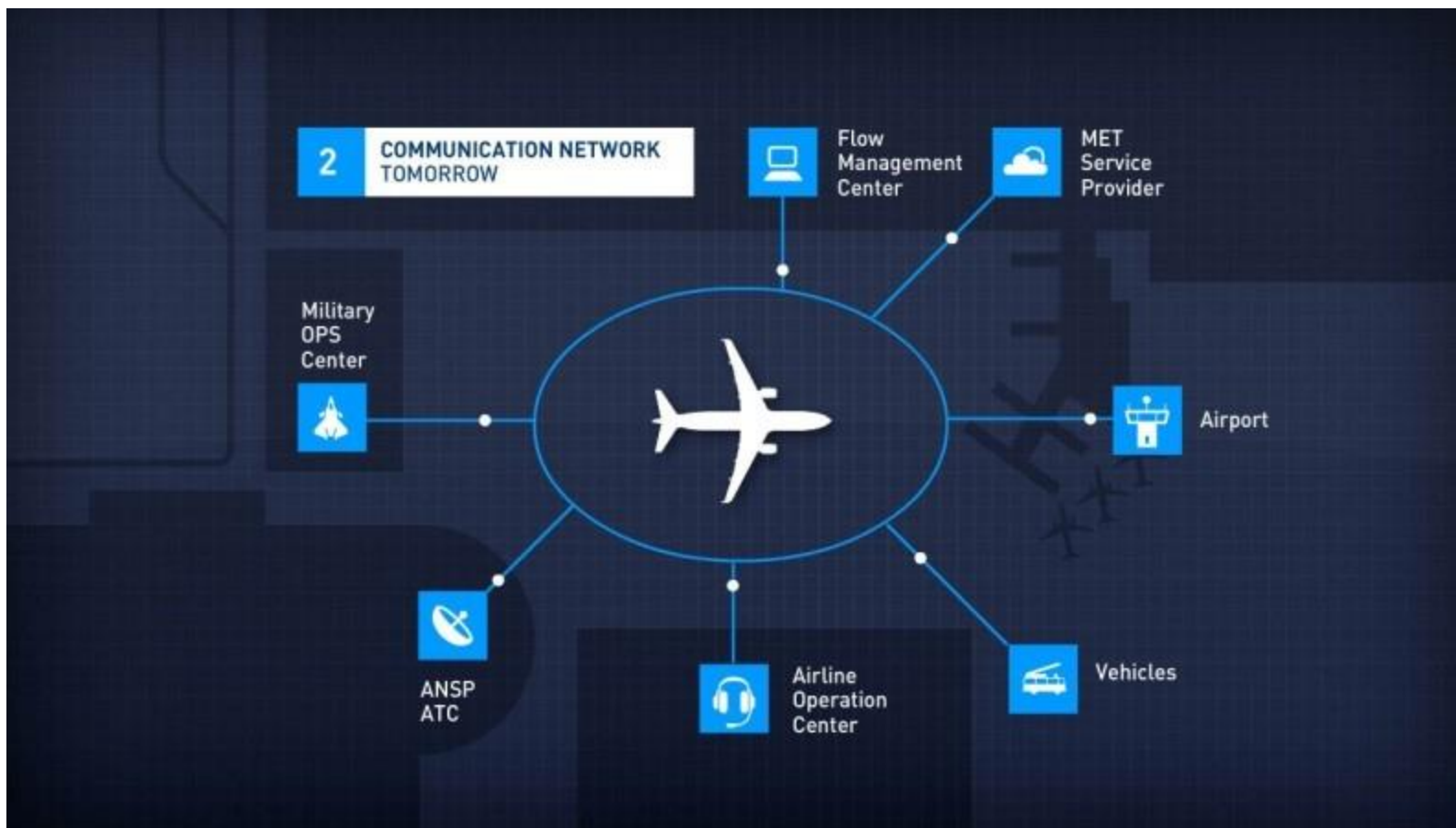
NEW TECHNOLOGIES

- Aviation is one of the sectors most impacted by **technological development**.
- Telecommunication is experimenting in aviation by applying some of the most technological and highly advanced programmes: SWIM (System Wide Information Management), which will be applied also to airports.

SWIM PROGRAMME



SWIM PROGRAMME



SWIM PROGRAMME

1. Who needs to share information?

- **Pilots** – taking off, navigating and landing the aircraft
- **Airport Operations Centres – managing departures, surface movements, gates and arrivals**
- **Airline Operations Centres** – building schedules, planning flight routings and fuel uplift, ensuring passenger connections and minimizing the impact of delays
- **Air Navigation Service Providers (ANSPs)** – organising and managing the airspace over a country and with Air Traffic Services – managing air traffic passing through their airspace
- **Meteorology Service Providers** – providing weather reports and forecasts
- **Military Operations Centres** – planning missions, blocking airspace to conduct training operations, fulfilling national security tasks

2. What kind of information needs to be shared?

- **Aeronautical** - Information resulting from the assembly, analysis and formatting of aeronautical data
- **Flight trajectory** – the detailed route of the aircraft defined in four dimensions (4D), so that the position of the aircraft is also defined with respect to the time component.
- **Aerodrome operations** – the status of different aspects of the airport, including approaches, runways, taxiways, gate and aircraft turn-around information.
- **Meteorological** – information on the past, current and future state of earth's atmosphere relevant for air traffic'.
- **Air traffic flow** – the network management information necessary to understand the overall air traffic and air traffic services situation.
- **Surveillance** – positioning information from radar, satellite navigation systems, aircraft datalinks, etc.
- **Capacity and demand – information on the airspace users needs of services, access to airspace and airports and the aircraft already using it.**

AUTOMATION IN AVIATION

- Automation and Artificial Intelligence are increasingly embedded within aviation operation systems.
- One can expect that the traditional trend of **litigating against manufacturers** of aviation autonomous technology based on the **product liability** allegations of negligent design, manufacture and installation will continue and expand, indeed:

The definition of ‘**defective product**’ is **not static**: it changes and evolves along with technological developments and use of aeronautical products.

- Courts in EU States generally hold the principle that to exclude liability under Article 7, letter e), of Directive No 85/374 **the manufacturer must prove that** *‘the state of scientific and technical knowledge at the time when he put the product into circulation was not such as to enable the existence of the defect to be discovered’*.

DEFINITION OF ‘DEFECTIVE PRODUCT’

- The term ‘**accessible**’ is not clear-cut: a distinction should be drawn between accessibility from the technological point of view and the actual availability of such technology (in aviation subjected to the certification by the competent authorities).
- The CJEU’s position have been followed by national courts ruling on the meaning of the term ‘**accessible**’.
- For instance, Spanish courts adopted this approach in the decision rendered in the proceedings brought against the producer and the designer of the Traffic Collision Avoidance System (TCAS) installed on both aircraft involved in the Überlingen accident.

ÜBERLINGEN ACCIDENT I

- The Barcelona Court of Appeal held the producer's and designer's liability for having:
- *“Concebido, diseñado, fabricado, comercializado, vendido y/o instalado un product defectuoso (TCAS II) system, que no cumplía con los estándares de seguridad impuestos por la industria y la normativa”.*
- The Court emphasised that in light of the Eurocontrol technical reports submitted during the trial **the producer could provide a more recent and secure version** of the TCAS (although the latter was still in the planning stage and not certified yet by the FAA) holding that:
- *«El producto podría ser más seguro, es decir, si existía un diseño alternativo que podría haber reducido el riesgo de danos sin comprometer el servicio o la utilidad del mismo [. . .] aunque no se podía fabricar porque no se contaba con la financiación y las autorizaciones necesarias».**

* Audiencia Provincial De Barcelona, Section X, 7 May 2012, Judgement No. 230/2012.

ÜBERLINGEN ACCIDENT II

- The TCAS manufacturer and designer objected that the most evolved version which the Courts referred to in the judgement, **was not certified by the FAA at that time, and could not be distributed in the market.**

The argument was upheld by the Spanish Supreme Court....

-which nonetheless held the defectiveness of the product for the lack of indications in the **manuals made available** to pilots, of the **inefficiencies of the TCAS version 7** and its inadequacy to reach more performing safety standards.
- The Court held that the manual did not mention with sufficient clarity the risks **involved.**

- Lessons from autopilot litigation in the United States can also provide valuable guidance for those introducing **new aviation autonomous technology** as to how courts could assess culpability if something goes terribly wrong.



NEW TECHNOLOGIES AND NEW CHALLENGES:

US COURTS

- In *Ferguson v. Bombardier Services Corp.*²⁴ representatives of the deceased passengers on board a C-23 Sherpa that crashed in a field brought a claim against the **autopilot designer and manufacturer** for its alleged role in the fatal accident.
- The plaintiffs argued that, among other factors, the autopilot system improperly **went into ‘torque limiting mode’** (restricting the effectiveness of any pilot input) and there **was no device available “to warn the pilot”** when torque limiting mode started.



NEW TECHNOLOGIES AND NEW CHALLENGES: US COURTS

- In *Nelson v. American Airlines, Inc.*,²⁵ plaintiffs pursued damages against American Airlines when a passenger was thrown about following a sudden and unexpected movement when the **autopilot overcompensated**, causing the aircraft to nose down rather than stay level.
- The aircraft logbooks indicated that there were altitude control issues found the previous day and a component part of the autopilot was replaced and the equipment tested as a precaution, but there was no flight test in between the replacement and the flight.
- At trial the airline was found not liable for the autopilot malfunctioning but the decision was overturned on appeal.
- The appeal court found that **there were possible errors** made in the installation of a **replacement autopilot component** part and **earlier routine maintenance** on the autopilot was either **incomplete or improper.**

NEW TECHNOLOGIES AND NEW CHALLENGES: US COURTS

- Both of these court cases were focusing on allegations of negligent design, manufacture, installation and maintenance of the auto flight systems:
- They fail to **provide adequate guidance** on the **maintenance of their autonomous technology**, and they did not comply with their **'duty to warn'** of the risks related.

NEW TECHNOLOGIES AND NEW CHALLENGES: US COURTS

- Courts can determine that a product is defective if a manufacturer fails to include appropriate **warnings** and **instructions** for its safe use, maintenance, or upkeep.
- As the systems become **more complex** together with their interface with human interaction, questions arise as to whether manufacturers and end users, such as airports, will be targeted following alleged failures in their **'duty to warn'** and/or **'duty to train'** on autonomous technology.
- Claims founded on an alleged defective or poor quality of education → The so called doctrine of educational malpractice.

NEW TECHNOLOGIES AND NEW CHALLENGES

- The strict position taken by the courts shows that technological innovations in the aviation industry are designed to reduce accidents but inevitably introduce **new challenges**, vulnerabilities and further risks for the manufacturers and the **direct involvement** of the **insurance industry**.



CONCLUSIONS

