2019 EUROCAE SYMPOSIUM HIGHLIGHTS

The 2019 edition of the EUROCAE Symposium ended on 26 April 2019 on a positive note regarding the future of aviation and the role EUROCAE should play to support it.

Building on the conclusions from the 2018 High Leve Meeting, namely that we should expect capacity growth in the coming years yet not compromise safety, EUROCAE has carried some of the solutions highlighted last year into its Technical Work Programme to tackle the appropriate technical solutions.

The value of the activity performed by EUROCAE was once again recognised by major industry players and the European Commission, who have highlighted the need to maintain a strong, efficient and effective organisation in Europe to drive forward industry standards.

RPAS – a real game changer

RPAS was stressed again as a key game changer in the coming years, with some of the main challenges being to identify technical gaps, perform required R&D activities and set up the regulatory framework.

Urban mobility – a fast-growing segment

Rapid urbanisation, demographics and social trends show significant business opportunities, whether for commercial aviation or urban air mobility. At the same time, technological breakthroughs provide an opportunity for more autonomy. At the same time, the radio spectrum constraints pose serious limitations for aviation, an aspect that is being addressed by ICAO. Another significant challenge discussed was the social acceptance of having many drones in the skies at the same time in a city.

Automation and digitalisation

Integration of securely connected solutions into a comprehensive aviation eco-system will deliver value to the industry, from reduced fuel burn to reduced congestion, to name just two benefits. For this to happen, our industry requires harmonised regulations and standardisation. Likewise, updating the industry standards to address digital issues should be pursued. As machines become more intelligent and more connected than ever, the need for air and ground automation and integration will increase.

Safety and regulatory aspects to support benefits

At the same time, there are several obstacles to overcome. As aviation industry is innovating at high pace, this poses challenge for the regulators to keep up and cope with innovative solutions. Regulators also need to evolve and learn to enable the innovation to be implemented. On the regulatory side, EASA has a full toolbox to enable developments to happen.

Impact on ATM – old technologies must be changed

Regarding ATM, there are several possibilities of further digital transformation of the tower, beyond what is currently deployed. Innovative ATM solutions must address the needs of today's ATM and cope with its challenges: safety must not be compromised, while capacity, technological/economic efficiency and flight efficiency must increase to cope with the rising number of flights. While we are at a crossroad – we have to use technology – it emerged that we can't just put the human out of loop; at least not in the near future.

Airport developments

The symposium addressed also the question how to unleash the potential of enhanced access to airports and terminal airspace, and the environmental issues and the complexity of terminal airspace situation. A-CDM was a key element highlighted by the speakers – which would entail a cultural change. For this, collaboration must be enhanced and based on trust. In the future, the system will be driven by data exchange, data analytics, used in both strategic and tactical applications.

Avionics developments

The performance of global aviation systems depends on the capacity of all actors to perform together, cohesively. For a large part, this will require innovative avionic architectures allowing different update and certification cycles. Considering certification, the paradigm is whether to incentivise or to mandate. Whichever the approach, adapting the certification process to facilitate dynamic evolution while maintaining and improving safety remains essential.

CNS

The use of satellite-based technics was once again highlighted as a valid solution to many CNS functions. In particular the global coverage of satellite based ADS-B was mentioned as a solution for an increase in capacity and safety across those areas not covered by ground based surveillance systems. The issue of common mode failure must be anticipated. Likewise, global tracking of aircraft and the use of specific distress signals are promising solutions for accident investigation and – subsequently – prevention.

Key take-aways

The elements that will be further addressed by the EUROCAE Secretariat, EUROCAE Technical Advisory Committee and Council in an effort to deliver further value to the EUROCAE members, and to revisit the Technical Work Programme in the coming months include:

- Underlying that the cyber security elements are essential to sustainable development of aviation solutions, RPAS/new vehicles included.
- Tackle the presence of significant number of drones in the skies as when addressing the operational scenarios in an urban environment.
- There is a need for consistent automation/digitalisation of ATM, consistent over time and between stakeholders, especially as automated operations of UAS are on the rise and need to be accommodated.
- Recognising that digitalisation and automation are key for the future developments in aviation, we must acknowledge the challenges posed by automation and human-machine interface developments when it comes to deploying new technologies.
- To better prepare for the future, data is key: we have to connect systems together, and this applies also to airports. Thus, the governance of data is very important, as data should be made available safely, securely and in the required high quality. Data should be better used towards a predictive approach, and trusting the data is essential.
- From a safety/regulatory framework perspective, what is required is to exchange knowledge, understand objectives and priorities from industry, in order to allocate resources to the right areas.
- Satellite services should not be seen as the one-size-fits-all solution; legacy technologies will still play a role in future, at least as fall-back solutions in case of space related problems. Implementation of new technologies should be done in such a way so the flight-deck would not notice an operational difference between the use of ground or satellite services.