ICAS WORKSHOP

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SAFETY & SECURITY

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CONTENT

1 - SUMMARY of ACARE WT3 SAFETY & SECURITY FINDINGS

- The GoP has defined a vision for 2020+ of the Air Transport System able to respond to citizens' needs :
  - Three fold capacity
  - Quality : all weather operational, on time, airport operation 24h/24h, environment respect, affordable to a large public.

- A fundamental requirement in this vision
  - Safety : 80% of accident rate reduction
  - Security : no successful hijack.

- WT3 was set up to define a Strategic Research Agenda to reach these challenges on Safety & Security.

  Three pillars :
  - Breakthrough technologies and systems
  - Human factors
  - Certification/regulation

1 - WT3 FINDINGS :
THE WAY AHEAD FOR SAFETY

- Generalisation of automatic aids, with proper "pilot in the loop" design concept, to suppress the major causes of accident : Controlled Flight into Terrain, Loss of Control, Approach and Landing.

  - ◆Airborne system for total protection of Flight Envelop and Flight trajectory, with automatic recovery.

  - ◆Generalisation of automatic approach & landing, safe ground movements in all weather operation, by affordable means (GNSS...)

- Real time detection and avoidance of all weather hazards : clear Air Turbulence, Icing, Windshear, Wake vortex..., by airborne sensors and data link.

- Airborne systems for automatic separation assurance, for the Autonomous Aircraft, 4D navigation.
  Aircraft separation and navigation on ground.

- Smart total Vision Cockpit for gate to gate operation in all weather conditions, a key component for the pilot in the loop concept.

- Methods and tools for large systems development and certification, human centred design.

1 - WT3 FINDINGS :
THE WAY AHEAD FOR SECURITY

- Airborne Security :

    - Automatic aids for abnormal passenger behaviour detection,

    - refusal of the A/C control devices to obey to unauthorised person,

    - automatic interdiction to fly into protected areas

    - ultimate resource : removal of the Aircraft control from the cockpit.

- Air Transport infrastructure security based on :

    - efficient and "hassle free" system to control person, goods and intrusion into large areas.

    - Robustness of software/hardware with regards to all aggressive agents : software virus, jamming, spoofing...

2 - OUTLINE CONCLUSION

- From the technical view, WT3 propositions are at reasonable reach :

    - beginning of maturity curves
    - no major technology wall foreseen

- Safety & Security call for global and systemic approach, including social factors.

    Efforts should be constant and permanent : not waiting for tragic events to happen to "wake up".

- Security depends largely on Public Authorities.

- Priority should be given to Systems/Products that can serve both Safety and Security, for economical reasons.

3 - FROM SRA1 to the GoP VISION

● SRA is just a Research Agenda

● From R&T acquisition to actual realisation of the GoP vision :

  ◆ International agreement on operational procedures : ICAO...

  ◆ Definition of common standards for development of products/systems : EUROCAE, RTCA...

  ◆ Development of products/systems by Industry, cooperation...

  ◆ Certification by public authorities : EASA, FAA...

  ◆ Incentive for Air Transport operations to adopt new systems, transition issues.

● A long and challenging route !

4 - THE COMMON INTEREST

- The International aeronautic community has a common interest to support Air Transportation which is a key asset for world-wide economics development.

- A clear common objective : to restore/enhance public confidence in Air Transport to pave the way for Air Transport growth : Safety and Security are the building blocks.

- Common approaches in different international bodies : ICAO panels, RTCA, EUROCAE... to ensure common standards, interoperability.

- Co-operation for shared cost burden :
  - international co-operation
  - inter sectors co-operation : Industry, Research Centres, Academia.

Thank you for your attention