COPRA: Comprehensive European Approach to the Protection of Civil Aviation

Security has become a major factor in civil and commercial aviation. In recent decades, the number of threats to aviation security has grown significantly. This has led to even more security regulations as the threats evolve. Security procedures have become exceedingly complex and invasive to passenger privacy. At the same time passenger and cargo traffic are expected to double in the next 15 years. It is clear that the current complex security system cannot be adapted to such a growth. It has already and will increasingly become a major market restraint.

Therefore, the project COPRA was initiated under the Seventh Framework Programme of the European Commission. The objective of COPRA was to develop requirements and recommendations for future research activities which could lead to a more resilient, flexible and comprehensive approach. To that aim COPRA brought together a well-balanced consortium of research organisations, industry and major air transport providers with a wide range of European stakeholders who contributed in experts' workshops.

Taking into account previous and existing activities in aviation security, COPRA partners and experts collected, analysed and categorised 70 current, emerging and new threats to airports, aircrafts and auxiliary infrastructure. The team then went on to compile more than 350 possible security measures to counter these threats. Over 50 conceptual ideas for overarching approaches to passenger, cargo and external security concepts were described, analysed and assessed according to the balance of security benefit, costs, impact on the aviation system and public acceptance and constraints.

Using all of these results as a basis, the requirements for future research and development have been laid out in the COPRA Aviation Security Research Roadmap. The present summary gives an overview of the roadmap. A separate document has been compiled describing the roadmap and the research recommendations in detail.

For more information visit www.copra-project.eu or contact:

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Aviation Security Research Roadmap

DRIVERS AND TRENDS IN FUTURE AVIATION



AVIATION SECURITY RESEARCH ROADMAP

 → Increasing number → Higher capacity aircraft 	→ Privacy concerns → Proliferation of technology and	information Increasing geopolitical unpredictability
 → Increasing number → Increasing of aircraft → Increasing global competition 	 Demand for safe, comfortable and less intrusive checks capa 	ease of interacting International harmonization of regulations
→ Increasing costs → De for security pro	emand for quicker • Quickly evolving technology development	
 RESILIENT Be resilient against current and emerging threats Be measurable in terms of the entire security system performance 	 Cover and balance the complete resilience cycle Include risk Be easily adaptable based measures and flexible 	 Be resilient to known and unknown threats Have regulation based on system performance
 Address both physical and cyber threats targeted at all stakeholders including security systems 	 Include a comprehensive aviation security management system to be shared by all stakeholders 	Be based on a harmonized security management process across all stakeholders
 Address technical, organisational and human related issues combined 	 Be based on a shared strategy Consider social and ethical 	 Have a seamless, comfortable, acceptable and safe security process for relevant stakeholders Automative technological
GOALS FOR FUTURE AVIA	aspects of security measures	10 ⁺ VEAR ³ New process flows on increasing thro
COMFORTABLE AND SAFE	 Be safe for passengers, staff and goods 	 Have an aviation security system that remains affordable and efficient Multifunctional detection systems
 Consider the appropriate communication Consider the effect of security measures for all relevant stakeholders 	 Be based on a business case for security 	↑ Integrating multiple security systems (technical, processes, actors)
Require no divesting of personal items	 Be integrated with the economic management tools and systems of the aviation system 5+ VE 	ARS Automated bulk detection Countermeasures for bluff threats A and threats from social media*
AFFORDABLE AND EFFICIENT	5-10 YE	 Test-beds for aviation Quicker and more efficient security process to improve passenger experience
Be measurable in terms of efficiency	Countermeasures for ground-to-ground three	↑ On-the-fly biometric Asserts* identification and verification Asserts* identification and verification
0-5 YEARS * 0-5 YEARS * Countermea close range	Countermeasures Aviation for cyber threats* detection systems laborato asures for IEDs, firearms and A Countermeasures A destructive threats* for CBR threats*	 A security research A Measurability of the (cost-)efficiency Organisationa of the entire security system Countermeasures for electromagnetic threats* Measurability of the (cost-)efficiency Organisationa continuously electromagnetic threats

RECOMMENDATIONS ON FUTURE RESEARCH AND DEVELOPMENT

Joint risk and threat analysis platform for all stakeholders

 Self-healing and self-correcting security systems and structures

Performance assessment method (metrics, tools, processes, etc.) for the entire security system

tic detection by new imaging ogies of potentially dangerous item

s with focus oughput Flow performance management of the entire security system

 Community based approaches to increase resilience

fferent security for aviation

 Aviation security management system

↑ Countermeasures for ground-to-air threats (such as manpads and laser dazzling)*

Applicability of economic models on security and the transparency of these models

ses

 Countermeasures for sabotage, seizure and hijacking*

essment of public acceptance of security asures and effects on human rights

al framework and technical tools to evaluate threats with all stakeholders

Methodologies for an iterative risk management approach

* = as identified in COPRA