

EUROSKY: New technologies for advanced Air Cargo Security

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Abstract— The Swedish Defence Research Agency (FOI) is one of the partners in a new EU/FP7 project on Air Cargo Security. The project will run over a period of four years and will work towards an efficient and unified air cargo handling throughout Europe. This paper presents an overview of the objectives and the expected output of the project.

I. BACKGROUND

In the report “A first step towards a national risk assessment” [1], “Disruption of transport and major transport emergencies” was identified as one of 24 risk areas that has the potential to entail consequences so comprehensive and serious that they would affect the country on a national level. The Swedish Defence Research Agency (FOI) is currently involved in several projects addressing various aspects of supply chain security. The recently started EU/FP7 project EUROSKY is one of them. Running over a period of four years, EUROSKY will work towards an efficient and unified air cargo handling throughout Europe.

II. THE EUROSKY OBJECTIVES

Each year, an approximate of 400 000 tons of goods are transported to and from Sweden by air. With these volumes, large economical values are at stake and requirements on efficient cargo handling at the airports are high. At the same time, the cargo handling process must satisfy a rigorous framework of safety regulations – which is complicated by the fact that standards and regulations vary between countries. On airports today there is an imminent need for methods and technical tools that can be used to detect potentially dangerous contents fast and efficient in large volumes of cargo, without compromising with the quality and precision of the examination. EUROSKY aims to address these issues on several different levels. The EUROSKY objectives are summarized below.

1. Undertake a Requirements Analysis from security, legal, policy, market and technology perspectives, with the objective to propose a unified framework for air cargo handling within Europe. The proposed framework should bring together international regulations, standards, best practices and maturing innovative solutions.
2. Develop a multi-energy based automated detection and alarm resolution to provide faster and more accurate detection of dangerous substances with reduced false positive rate.

3. Provide a technological infrastructure and standards that enable partner organizations to electronically connect and exchange information.
4. Bring together the partners' industrial expertise in leading edge airport solutions with the project innovations.

III. FOI'S CONTRIBUTION

In risk management it is well known that if a hazardous incident can be foreseen or detected early in its progress, then appropriate countermeasures can – and often do – have enough impact to dramatically reduce the effects of the incident, or even prevent the incident from happening. In EUROSKY the concept of “early detection” is central. In the project, FOI will work on innovative techniques for detection and identification of explosives and radioactive substances in air cargo. The explosives detection system is based on MIR absorption spectroscopy, while radioactive substances will be detected using a high-purity Germanium based detector. FOI will also work on advanced information fusion algorithms that can be integrated in computerized risk assessment tools and improve the ability to detect early signs of warning by automatically combining information from many different sensors and sources.

IV. EXPECTED OUTPUT

The work in EUROSKY aim to give a deeper understanding of promising new technologies that could contribute to improved supply chain security, with particular focus on Air Cargo Security. Expected output from the project include more detailed knowledge about the usefulness of different technologies in the field, existing limitations, the need for further developments and possibilities of integration. The output from EUROSKY will be of direct interest for Swedavia, Tullverket, Strålsäkerhetsmyndigheten and Transportstyrelsen, and will contribute to a strengthening of Swedish competence in explosives detection.

REFERENCES

- [1] Johanna Enberg, “Ett första steg mot en nationell riskbedömning”, publication no. MSB336, MSB, 2011 (English translation in 2012).

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