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## 13 new security research projects to combat terrorism

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### 13 new security research projects to combat terrorism

The Preparatory Action on 'Enhancement of the European industrial potential in the field of Security Research 2004-2006' (PARS) constitutes the Commission's contribution to the **wider EU agenda for addressing key security challenges facing Europe today**. It focuses in particular on the development of a security research agenda to bridge the gap between civil research, as supported by EC Framework Programmes, and national and intergovernmental security research initiatives. Security research will be part of the 7<sup>th</sup> EC RTD Framework Programme (2007-2013) with the Commission proposing a budget of circa €570 Million per year for the theme 'Security and Space'.

From 30 May till 4 June 2005, a European panel of independent experts evaluated the 2<sup>nd</sup> call for proposals of the PASR action.

With 156 proposals submitted the response to this call was again overwhelming. Like in 2004, with an available budget of €5 Million, thirteen proposals - 8 technology projects and 5 supporting activities - were selected.

Only one year after the latest enlargement, it is encouraging recording the participation of entities from all 25 EU Member States.

To prepare for the new financial period starting in 2007, in April 2005, a **European Security Research Advisory Board** (ESRAB), composed of private and public security stakeholders, was created and is in the process of advising the Commission on the content and the implementation of security research within the 7<sup>th</sup> RTD Framework Programme. More information on the Commission's security research

[http://europa.eu.int/comm/enterprise/security/index\\_en.htm](http://europa.eu.int/comm/enterprise/security/index_en.htm)

### The projects selected are:

#### 1. Improvement of the protection of rail passengers

The events in London show the vulnerabilities of the rail systems. Terrorists select targets based on the perceived weaknesses, on national sensitivities, on the extent of consequences and the impact on the public. The research project TRIPS (Transport Infrastructures Protection

System) will design and demonstrate an anti-terrorist security system architecture that will allow the **detection of terrorist threats** (explosives chemical, biological, radiological and nuclear substances) **on mainline or metro railway systems**. The project will combine information from sensors, remote control or autonomous cameras, ground penetrating radars and line scanners.

The consortium is composed of significant industries, research organisations, SME's and organisations representing end-users spread over 11 Member States. In addition, an **advisory group** gathering governmental representatives and railways/public transportation operators will validate the different stages of the development of the project and contribute to the dissemination and the use of the results.

Project leader: Ansaldo Trasporti-Sistemi Ferroviari S.p.A, Italy.

The consortium is composed of 17 participants from 10 countries.

## **2. Safer European borders**

The new European border is formed of 6.000 km of land borders and 85.000 km of coastlines! It thus provides **easy access for illegal migrants, drug smugglers and terrorists**.

**Surveillance across Europe** is the focus of the SOBCAH project, driven by a well balanced consortium finalised after consulting a broad panel of industries. By establishing an Advisory Board encompassing the dispersed community of green and blue borders security stakeholders, this project investigates every possibility to increase the effectiveness, connectivity and reactivity of borders and harbours.

It will allow the advisory board to formulate needs that have not yet been expressed (gap analysis, enabling technologies, net-centric architectures, standardisations issues...) and to determine FP7's technological priorities. The diversity of rules and laws of EU countries will be taken into account. In parallel, practical solutions to increase the connectivity and reactivity of current information and sensors networks will be elaborated and materialised to demonstrate more effective and further automated surveillance functions in European harbours. This demonstration will confirm the gap analysis and rally the advisory board to a common analysis mixing both bottom-up and top-down views of the security issues, with a **roadmap toward technical and operational solutions**.

The project brings together 16 partners from 9 Member States out of which one new Member State. The involvement of a user group adds value to the project which is built-up upon and develops further existing activities.

Project leader: Galileo Avionics S.p.A., Italy

The consortium is composed of 16 partners from 10 countries.

## **3. Securing computers linked to networks**

The **vulnerability of ICT infrastructure** is one of the key threats to modern society. Experience shows that this vulnerability is largely rooted in commonly used operating systems that have become incredibly complex and are thus very hard to harden against attacks. However, in practice the use of these legacy systems cannot be avoided. Even worse, stripped down versions increasingly find their way into embedded systems thus increasing the vulnerability of our infrastructure.

This project's (ROBIN) main benefit will be to **robustly secure computers linked to networks**. A robust platform will be developed by a small team of industries and universities (supported by a user group). This platform hosts legacy operating systems and their applications which will be split into security sensitive and other areas. This platform will be open and originate from Europe which will establish an alternative to proprietary US solutions that are expected to appear soon.

The consortium is composed of 4 partners from 2 Member States but with big added value on the European level because of the user group.

Project leader: Technische Universität Dresden, Germany

The consortium is composed of 4 Partners from 3 countries.

## **4. Security information network, airport, terrorism, protection exercises**

This proposed project aims to ensure a comprehensive integrated system to improve the **security of EU citizens by protecting the complete air transportation system**, including aircraft, ground infrastructure and information networks against terrorist – including CBRN (Chemical, Biological, Radiological or Nuclear) - attacks.

The project (PATIN) will assess aspects of **crisis management, interoperability and optimisation of security networks**. The project's primary aim is to deliver tangible results in a field of immediate security challenge. PATIN analyses all potentially relevant threats and technologies. It derives from these a set of viable future operational concepts. On this basis a conference and joint exercises will be organized where the entire stakeholder community, users and security organizations can assess the operational concepts and the improved security provided.

The project is built on a layered protection mechanism which forms a system-of-system interconnected through networks. A top level information network will provide situation awareness for the whole European air transportation. Local networks will detect anomalies at airports followed by reactive and proactive measures against co-ordinated terrorist attacks. Major deliverables are the basis for developing the **roadmaps required to establish a platform for the future European Security Research Programme**.

A pan European consortium from nine countries including end users, SMEs and research establishments has been formed.

Project leader: Diehl BGT Defence, Germany  
The consortium is composed of 20 partners from 10 countries.

#### **5. More rapid and efficient crisis management**

The main benefit of the proposed MARIUS project lays in the development of a pre-operational **autonomous command post**, equipped with its own sensors, information and communication systems, which can be deployed quickly **to monitor crisis management operation**. Its importance lies in the implementation of a demonstrator which could easily be deployed for inter-agency cooperation, situation assessment and decision making. The Demonstrator will be deployable by helicopter and will incorporate open scalable IT infrastructure, generic gateways, decision support and crisis communication support.

MARIUS focuses on improving Crisis Management efficiency: deployment rapidity, inter-agency co-operation, situation assessment and decision-making. It addresses other priority missions through the operational scenarios and (pre-)normative aspects.

Participants:

- the **User Group**, comprising national end-users and European Stakeholders, will warrant the operational pertinence of the project, from the present situation (NATO/Framework Nations dependency) to the 2010 Headline Goals,
- the **Consortium**, composed of 13 selected industrial and academic partners, will provide a pre-operational version of an easily deployable Command and Control Centre integrating technological components to evaluate innovative functions.

Project leader: EADS Defence and Security Systems S.A., France

The Consortium is composed of 13 Partners from 5 countries.

#### **6. Protection of airliners against MANPADS attacks (man portable air defence systems)**

Airplanes are vulnerable and attractive targets for terrorists. Recent events showed that **man portable air defence systems** (MANPADS) have become a new weapon in the hands of terrorists. Aircraft protection against missiles is already mastered in the military field but a mere adaptation of existing products will not match the much more demanding requirements of the civilian environment.

The proposed project (PALMA) addresses the protection of commercial aircraft against MANPADS with an appropriate and recognised industrial and technological expertise. The project aims to define both the required technological solutions and supporting operational concepts. In addition the project will offer the possibility to gather experience in handling classified information within research projects which will be an important aspect

for the future security programme.

The consortium covers 4 Member States and includes large industrialists, SME's and research centres.

Project leader: EADS CCR, France

The consortium is composed of 12 partners from 4 countries.

### **7. Highway to security: Secure interoperability of intelligence services**

The vision of the proposed project HiTS/ISAC is a more secure Europe through **prevention of terrorism and organized crime**. It addresses the interoperability of intelligence services to exchange information on suspicious activities in order to enable information analysis and fusion from different sources.

Superior situation awareness and cross-border interoperability are key enablers, leading to new technical and operational methods to work, train and co-operate across Europe. Today, information on suspicious activities in databases at law-enforcement authorities is distributed across Europe. The information is **not easily available to other authorities** in Europe, especially not "on-line".

The objective of HiTS/ISAC is to enable information analysis and fusion from many different sources, through secure cross-border on-line group co-operation between authorities, in order to detect and provide early warnings for suspicious activities, be it communication between suspected criminals, or anomalous movement of persons, goods or money, etc. HiTS/ISAC will develop a problem solving environment and demonstrate it in a virtual operations room which can be established anywhere, at any time. Tools and processes will be developed and implemented, and demonstrated using realistic scenarios.

The consortium is composed of industries and SME's covering 9 countries of which 4 new Member States.

Project leader: Saab AB, SV

The consortium is composed of 12 partners from 10 countries.

### **8. Crisis management: People real-time observation inside buildings**

**Visualization and tracking of people inside buildings** is a powerful tool to guide security forces in surveillance and crisis management. The objective of the PROBANT project will be reached by integrating technological novelties like arrays of sensors, modulated scattering, pulsed signal techniques, advanced data processing, biometric measurements. The technologies will be validated by the tests in realistic environment of three demonstrators. Conclusions will be drawn about the performance of the assessed techniques and future opportunities for further research and industrialization.

The team guarantees an optimum match between user requirements and technological excellence, being composed of an innovative French industrial company, a European Research Centre, a Dutch University and two national police agencies for specialist criminal investigations.

This project gathers a comprehensive consortium merging latest innovative techniques aimed at the realization of a breakthrough in security technology. It is lead by an industrial SME and brings together academic / industrial researchers with users (police forces) from 3 Member States.

Project leader: Société d'Applications Technologiques de l'Imagerie Micro-Onde, France

The consortium is composed of 5 partners from 3 countries.

### **9. Network for the promotion, enhancement and take-up of security research**

This proposed supporting activity (PETRA.NET) will establish a **network linking the security research community with public authority users** such as the police, fire brigade, ambulance service and civil defence. It will develop **secured systems for information exchange** between researchers and end users. This network will promote the transfer of research results into the operational environment using trusted and secure dissemination mechanisms. It will also support the cross-fertilisation of emerging research results between PASR activities and the public authority user community.

PETRA.NET will meet these objectives through three thematic sub-actions:

- Establishing an **interface between the PASR research community and the public authority user community** in the form of an observatory
- **Brokering information exchange relationships** between members of the research and the user community
- Analysing, disseminating and exchanging information on how **PASR research can have an impact** in the operational environment.

PETRA.NET is led by members of the public authority user community with a wealth of experience in EU-funded research. They are therefore ideally placed to establish this network and to broker the necessary cross-fertilisation relationships.

Project leader: Sussex Police Authority, UK

The consortium is composed of 8 partners from 6 countries.

#### **10. Standardisation of the technical interface between a secure container and a data reader at a port or border crossing**

This proposed project (SECCOND) is a network intended to initiate the international standardisation of the **technical interface between a secure container or vehicle and a data reader at a port or border crossing**.

The primary purpose of the interface is to enable law enforcement officials to determine where the container or vehicle has been, whether items (e.g. weapons of mass destructions) or people may have been inserted en route, and whether there may be hazardous items within it. Secondary purposes are to interface to a cargo tracking system and to provide data for automated cargo handling systems. The interface will be specified in such a way that it:

- employs **radio frequencies which can be used worldwide**
- can be **read rapidly** and at a range consistent with port operations
- has **authentication and data protection features**
- has **optional data fields** to support new sensors
- can be implemented in a **device with low cost**, small size and low power consumption.

The consortium is composed of a research organisation, users and a standardization body.

Project leader: Thales Research and Technology (UK) Ltd, UK

The consortium is composed of 5 partners from 3 countries

#### **11. Unmanned aerial vehicles to peacetime security**

The purpose of this supporting activity (BSUAV) is to present a structured analysis of the potential contribution of **unmanned aerial vehicles (UAV) to peacetime security on European borders**. The study intends to understand the problems posed by various types of borders and to **define realistic UAV based systems** that would answer to those problems. The study results will be presented to end users, coupled with a live demo of a small UAV conducting a typical surveillance mission.

The expected **outcome** of the study will be:

- a global synthesis of border control problems. Similarities and differences between regions, national specificities and local analysis of threats,

- development of original and innovative concepts of use for UAV based surveillance systems,
- assessment of required technologies
- all available in less than ten years
- to support the proposed systems,
- conclusion including End-Users feedback on proposed solutions, and on UAV use itself.

The study will be conducted in **five steps**:

- the understanding of problems posed to people in charge of security on the continent's various types of borders,
- the synthesis of these expressions of need under the form of generic situations,
- the requirements on UAV systems able to handle these situations,
- as a conclusion the definition of realistic UAV based systems that would fulfil most of those requirements.
- presentation of those results to end-users.

The consortium is a well balanced partnership between industry, laboratories and universities covering the whole spectrum of technical requirements on one side and end users on the other side.

Project leader: Dassault aviation, France

The consortium is composed of 10 partners from 8 countries.

## **12. Innovative security technologies and policies in line with privacy protection and human rights in general**

Addressing the critical area of public acceptance of security technology, the results of this supporting activity (PRISE) could have a significant impact on European security research. PRISE will promote a secure future for European citizens based on innovative security technologies and policies in line with privacy protection and human rights in general by:

- developing and testing a set of **criteria and guidelines for privacy** enhancing security research and technology development
- elaborating these criteria and guidelines with **direct involvement of providers** of security technologies, private and public users and implementers, institutions and bodies shaping policies as well as organisations representing potentially conflicting interests
- **transforming the results into privacy** enhancing development and implementation scenarios of security technologies and measures
- **testing these scenarios** in a set of participatory technology assessment procedures in different European states allowing for a substantiated indication of public perception and citizens' preferences
- **disseminating the results to actors** relevant for the shaping of technologies and policies
- **increasing competitiveness** of European security industries by providing guidance for the provision of widely acceptable security technologies.

The consortium is composed of 4 complementary partners, one of which is Norwegian.

Project leader: Austrian Academy of Sciences, AT

The consortium is composed of 4 partners from 3 countries.

## **13. Exchange of sensitive information: User/supplier network for information technology security**

USE IT proposes to define a cooperation approach on the **exchange of sensitive information** between European organizations (private/public companies, universities/research labs, certification bodies...) to address user needs and user communities working in the security technologies. The main objective is to structure the European research and development community in the information technology security (ITS) domain by setting up an organized network with an adequate legal frame and dedicated communication means.

USE IT is built around experts coming from legal, technology and security fields. Based on consortium experience in security evaluation, IP management, legal aspects and sensitive data exchange the project corresponds to three priorities (building co-operation, classified information exchange, heavy analysis means joint use) of the PASR-2005 call.

A well balanced and knowledgeable consortium is established, creating a useful link between the technical and the legal communities in the security area.

Project leader: Centre national d'études spatiales, France

The consortium is composed of 7 partners from 4 countries.

**The way ahead**

Commission services are now preparing the third and last call for proposals of the Preparatory Action for Security Research, planned for publication in early February 2006.