SEVENTH FRAMEWORK PROGRAMME
Theme 10: Security
Sec-2007-1

Grant agreement for: Collaborative project

Annex I – "Description of Work"

Project acronym**: CAST**
Project full title: **COMPARATIVE ASSESSMENT OF SECURITY-CENTERED TRAINING CURRICULA FOR FIRST RESPONDERS ON DISASTER MANAGEMENT IN THE EU**

Grant agreement no**.: 218070**

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4: HAMBURG FIRE SERVICE COLLEGE – HFSC 70

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PART A

A1. Budget breakdown and project summary

A.1 Overall budget breakdown for the project

Participant number in this project	Participant short name	Estimated eligible costs (whole duration of the project)					Total receipts	Requested EC
		RTD/Innovation (A)	Demonstration (B)	Management (C)	Other (D)	Total A+B+C+D		
1	PLUS	331,200.00	0.00	76,800.00	0.00	408,000.00	0.00	325,200.00
2	AT	24,000.00	0.00	19,200.00	0.00	43,200.00	0.00	37,200.00
3	DSTS	163,200.00	0.00	4,800.00	0.00	168,000.00	0.00	127,200.00
4	HFSC	246,400.00	0.00	4,400.00	0.00	250,800.00	0.00	189,200.00
5	FRK	206,800.00	0.00	4,400.00	0.00	211,200.00	0.00	159,500.00
6	Fraunhofer	120,200.00	0.00	4,548.00	0.00	124,748.00	0.00	94,698.00
7	HVS	88,000.00	0.00	4,000.00	0.00	92,000.00	0.00	70,000.00
8	ISCC	331,200.00	0.00	4,800.00	0.00	336,000.00	0.00	253,200.00
9	UDB	211,200.00	0.00	4,800.00	0.00	216,000.00	0.00	163,200.00
10	VGT	67,200.00	0.00	4,800.00	0.00	72,000.00	0.00	55,200.00
11	SAAB	434,625.00	0.00	7,125.00	0.00	441,750.00	0.00	224,437.00
12	SCTU	79,200.00	0.00	4,350.00	0.00	83,550.00	0.00	63,750.00
13	DAI	158,400.00	0.00	6,600.00	0.00	165,000.00	0.00	85,800.00
14	TEC	240,070.00	0.00	6,000.00	0.00	246,070.00	0.00	126,035.00
TOTAL		2,701,695.00	0.00	156,623.00	0.00	2,858,318.00	0.00	1,974,620.00

A.2 Project summary

Project Number 1	218070	Project Acronym 2	CAST

ONE FORM PER PROJECT			
GENERAL INFORMATION			
Project title 3	COMPARATIVE ASSESSMENT OF SECURITY-CENTERED TRAINING CURRICULA FOR FIRST RESPONDERS ON DISASTER MANAGEMENT IN THE EU		
Starting date 4	The first day of the month after the signature by the Commission		
Duration in months 5	24		
Call (part) identifier 6	FP7-SEC-2007-1		
Activity code(s) most relevant to your topic 7	SEC-2007-6.2-01: Behavioural, organisational and cultural issues to understand public user needs including those for joint European action		
Free keywords 8		first responders / standardized security centered training curriculum / disaster management / biofeedback	

Abstract 9 (max. 2000 char.)

Security-centered training course curricula on disaster management for first responders (FR)* in EU member states will be comparatively assessed with a specially developed matrix-based software: (1) for all EU member states (2) as derived from international best practices in the US, Russia, and Israel as countries with extensive experience in this field. The comparative assessment will cover: (a) Didactic areas (electronic and hardcopy teaching materials used, computer modelling, field exercises); (b) Subject areas (terror threats to FR; risk assessment and -management; catastrophic terrorism; weapons of mass destruction, -mass killing, -mass disturbance; synchronization of response staff; (c) comparative evaluation of training course curricula by virtual reality safety training with biofeedback. Representatives of FR organisations and SME's in security technology will be involved throughout the assessment. This new integrative approach reflects the necessity of the integretive operation of end-users and representatives of the research and development community to enhance European joint security capabilities.The results of the assessment will be used to: (1) Establish an EU- security curricula database; (2) Identify potentially existing gaps in the EU training curricula; (3) Recommend an Action Plan for eliminating training deficiencies; (4) Develop a standardized security-centered training curriculum for first responders on disaster management; (5) Enhance the implementation of technology-based security programs into FR organisations

A.3 List of beneficiaries*)

Beneficiary Number	Beneficiary name	BeneficiaryShort name	Country	Date enter project	Date exit project
1 (Coordinator)	Paris-Lodron Universität Salzburg	PLUS	AT	Month 1	Month 24
2	Austrian Technologies	AT	AT	Month 1	Month 24
3	DSTS-Advisers to Executives	DSTS	AT	Month 3	Month 24
4	Hamburg Fire Service College	HFSC	DE	Month 1	Month 24
5	Forschungsinstitut des Wiener Roten Kreuzes	FRK	AT	Month 1	Month 24
6	Fraunhofer Gesellschaft für angewandte Forschung e.V.	Fraun-hofer	DE	Month 1	Month 24
7	BMLV / HVS	HVS	AT	Month 1	Month 24
8	International Security Competence Centre	ISCC	AT	Month 1	Month 24
9	University of Defense Brno	UDB	CZ	Month 1	Month 24
10	Corvinus University of Budapest	VGT	HU	Month 1	Month 24
11	SAAB Training Systems	SAAB	SE	Month 3	Month 24
12	Swedish Counter Terrorist Unit	SCTU	SE	Month 1	Month 24
13	DIAMOND AIRCRAFT INDUSTRIES	DAI	AT	Month 3	Month 24
14	TECNATOM S.A.	TEC	ES	Month 1	Month 24

*) JRC ISPRA (Italy) - Institute for the Protection and Security of the Citizen (IPSC), I- 21020 Ispra (VA), will be invited to join the CAST Advisory Board (see Part B2, section, “2.1 Management structures and procedures”, sub-section “2: Project control)”

PART B

B1. Concept and objectives, progress beyond state-of-the-art, S/T methodology and workplan

B1.1 Concept and objectives

1.The changing risks for the EU and its first responder community

Since the end of the Cold War the primary threat to Europe – previously resulting from the controversy between East and West – has been replaced by a rather diffuse threat situation. This situation is characterised by a general vulnerability of the EU as a modern industrial society, reflecting its high international interdependence and the related risks. This results in a close link between a national and a European security policy aimed at an overall threat reduction. Simultaneously the "classical" risks from the times of the Cold War, such as uncontrolled proliferation of weapons of mass destruction (WMD), have not only resurfaced but actually have been enlarged due to the following *additional* risks:

- Increased importance of non-governmental actors willing to use violence
- Weakening of the previously exclusive governmental privilege to deploy force in several countries of the world
- Eruption of violent conflicts in regions, which are of importance to the security of the EU
- The emergence of strategic terrorism, whose objectives and operational tactics cannot be compared with any terror organization known hitherto.
- Increasing dependence of society on vulnerable infrastructure.

Currently the EU is faced with an increased vulnerability due to threats resulting from international terrorism, as well as security risks resulting from the increased international involvement of EU Member States in regions outside the EU. Consequently, the **societies in the EU are in need of first responder (FR) capabilities, which reflect the changed threat situation.** These threats include, for the first time, scenarios which can result in damages, health- and environmental risks of a hitherto unprecedented magnitude. For example, the FR community in the EU may have to conduct search and rescue operations, as well as policing and fire fighting after the deployment of a WMD by terrorists in an environment contaminated by potentially lethal radioactive, biological or chemical contaminants. **Therefore disaster management skills of the EU FR community need to be adapted to meet these new challenges.**

2. Contributions of this Proposal to Priority Missions of FP 7 Security Research Programme

The causal relationship between a realistic analysis of the vulnerability of the EU member states and their willingness to strengthen security is of strategic importance. This includes implicitly the **strengthening of the first line of defence of any nation state in its fight against terrorism**, i.e. ensure that the training of its FR reflects the current threat situation in order to ensure they will be able to protect the public.

The project contributes to the priorities of FP 7 Research Programme on Security and the specific scope of Activity area 6.2-01 in the following manner:

- *Enhancing crisis management*: A major output of the analysis will be the manifestation of the state-of-art and the demands in operational tools and technical equipment needed by FR for efficient management of the new emergencies they will be facing; for example, standardized tools for risk-assessment (useful in crisis prevention); innovative approaches in equipment; improvement of organisational structures and communication, thereby enhancing operational preparedness and improved operative strategies leading to enhanced crisis management. Thereby CAST will provide essential information on how to strengthen the efficient use of the resources dedicated to security-related research and development within the EU.
  - ***These results will contribute to activity area 6.2-01, scope (a) "to assess the specific needs of private and public end users".***

- *Strengthening the protection of networked systems:* The results of this project will provide a "net assessment" of the current strengths and weaknesses in the system of FR training on disaster management in the EU, which will be used to optimise EU capabilities of different FR organisations in providing mutual cross-border assistance in case of a transboundary security threat. CAST will establish a standardised network of information on demands and on security-related technologies representing the state-of-art with the feature of continuous updating.
  - ***These results will contribute to activity area 6.2-01, scope (a), as the standardised network of information on demands and on security-related technologies will be an important tool to assess the "applicability, user friendliness and affordability of the results of the security research results of the 7th Framework Programme".***

- *Strengthening the protection against terrorism:* The services provided by the FR members present the first line of defence against the consequences of a terror attack, i.e. the development of a standardized training curriculum in disaster management for FR in all EU member states reflecting the current threat situation is one of the most cost-effective ways of protecting the EU society against terrorism. CAST will assist in EU efforts to standardize equipment (protective gear, sensitive detection and

identification technologies). A standardized curriculum will provide an integrative and efficient approach to research and development of security technologies.

These topics assess the specific needs of the FRs community, addressed as private and public end users, and will result in applications such as standardised tools for risk-assessment and measures for enhanced crisis management. This will be achieved by the development of a standardised training curriculum of FRs, which can be seen as a cost-efficient tool in protecting EU-society from threats of terrorism.

- *Understanding organisatorial structures*: The project will achieve a deeper insight into organisational structures of various representatives of the FR-community. The distinct cultures of numerous, complex and diverse public user organisations will be analysed. Finally, they will be merged into a standardised system of FR-strategies which will help to be prepared properly for new threats.

- *Improving interoperability and integrated systems for information and communication:* The results of this project will deliver a standardized training curriculum on disaster management, thereby ensuring that in the future members of the FR community from different EU member states will have the capability to provide seemless mutual transboundary assistance in managing the consequences of a major terror attack or a major technical or natural disaster. The database created will emphasize latest software-technology of management of knowledge, thereby setting a new standard for information exchange among the FR community.

  - ***The activity area 6.2 aims at the interoperability, scaleability and mobility of distinct national systems. The standardization of training curricula for disaster management, which is based also on assessment of the needs escaping from organisational, institutional and human differences of the variety of FRs, is therefore believed to be an important tool for achieving that goal.***

The Program will provide tools for enhancing joint European action on terms of FR capabilities:

- *Improving situational awareness:* The results of this project will identify the hardware and software requirements for training members of the FR community in the EU Member States in order to strengthen their current capabilities to assess the situation on the ground in the aftermath of a major terror attack.
  There are two main software goals, which will contribute to this topic:
  1. Management of knowledge and data, based on latest software-technology, which will improve awareness in the stage of planning, prevention, and post-event management;
  2. Training with the help of virtual-reality and biofeedback will enhance situational awareness of FR in the aftermath of a terror attack.

  One main feature of the project is the close cooperation of end-users and technologically oriented institutes and companies. This cooperation is meant

to be the link between demands of the end-users, which are raised by the combination of organisational, structural and legal aspects as well as technological needs and the point of view of representatives of the research and development community. The project will create feedback between these groups, to optimise programs for technologic developments and to prepare the community for the implementation of emerging technologies.

- ***So this project will establish a new integrative approach of enhancement of mutual understanding of end-users and institutes or companies engaged in the research and development of security technologies, by joint work, as it is the scope, defined in activity area 6.2-01, (b) "to carry out research into the organisational structures and distinct cultures of the numerous, complex and diverse public user organisations in order to successfully integrate them into research and development of security technologies".***
- ***It is also adressing activity area 6.2-01, (c) by assessing political, institutional, organisational and human elements of the FR-community as basic elements for the development of a standardised training-curriculum.***
- ***The spread of technology based security policies and programs is underpinned by the development of standardized curricula, which contain standardized operating procedures and are running on a high level of technical education, thus preparing the ground for implementation of new technologies emerging the 7th framework programms.***

3. Objectives of this proposal

S&T Objectives:

The S&T objectives of this project are threefold:

1. To provide all parties involved in FR training with fully comprehensive and trustworthy information on state-of-the-art methodologies and equipment concerning security threats to the FR community, protection of members of the FR community, and disaster management by the FR community;
2. To assist in exploiting Europe's scientific and industrial strength by developing a standardised training curriculum on disaster management for FR, meeting highest quality standards and enabling the FR community in the EU to perform their challenging tasks also in the new security environment of catastrophic terrorism, in addition to threats resulting from major technical and natural disasters;
3. To overcome the current differences in training of first responders on disaster management in different EU member states by strengthening the first line of defence in a cost efficient manner due to avoiding duplication and optimising interoperability between FR groups.

The creation of a standardised training curriculum on disaster management for the various categories of FR will provide European emergency services and crisis management with a strategic advantage in the international efforts to provide an optimum level of security to citizens.

This project proposal has the following aims:

- To assess the demands for disaster management for FR in the EU Member States, addressing scenarios of incidents and defining the threats to FRs.
- To assess organisational and institutional background of the various first responders communities in the EU and the consequences for the needs for disaster management
- To assess the current status and training curricula of disaster management in EU FR and compare with *best practices* in Israel, Russia and the United States
- To establish virtual reality training systems as a part of FR training programms and as a tool for comparative assessment of first responders training and awareness.
- To identify potential gaps between the current standard in disaster management by FR in EU member states and international *best pratices*
- To develop a curriculum for a standardized security-centered training course or FR [1] on disaster management in the Member States of the European Union,ensuring a high level of technical education to enhance the implementation of the results of technology based security policies and programs.
- To enable FR to manage the aftermath of a catastrophic terror attack (e.g. after the deployment of a WMD) in a safe and efficient manner
- To strengthen the current response capability of FR to provide their full service also after a very severe industrial accident (e.g., a major uncontrolled radioactive release from a nuclear power plant) or a large scale natural or technical disaster (e.g., large scale flooding after a dam break).
- To provide a tool for resource planning (network of information on demands and on security-related technologies representing the state-of-art with the feature of continuous updating).
- To provide a tool of interface between the demands of the FR-community and the resources of research and development.

B1.2 Progress beyond the state-of-the-art

Current deficiencies in disaster management training of FR in the EU

Currently training courses of FR in disaster management in NATO Member States, even those with high expenditures and political support, have been found to be in need of partially significant improvement. [2] [3]

[1] Security forces, fire fighters, paramedics, emergency management, public works (non-operational employees, such as maintenance crews, waste water treatment, water operations)

[2] NATO AND TERRORISM *Catastrophic Terrorism and First Responders: Threats and Mitigation* (Eds: F. STEINHÄUSLER, F. EDWARDS), NATO Security through Science Series (Publ.: SPRINGER, The Netherlands, 2005)

[3] NATO AND TERRORISM *On Scene: Emergency Management After A Major Terror Attack: The New Challenges for First Responders and Civil Protection,* (Eds: F. EDWARDS, F. STEINHÄUSLER), NATO Security through Science Series (Publ.: SPRINGER, The Netherlands, 2007)

The proposed project foresees to assess the current training curricula in disaster management of first responders:

(1) In all EU Member States with regard to disaster management;
(2) As compared to the experience gained in countries with extensive practical know-how in countering terrorism and general disaster management, such as Israel, Russia, and the United States of America.

The resulting data will be used to determine:

(a) the first responder-training curricula used in the member states in terms of their capabilities to manage the aftermath of catastrophic terrorism;
(b) the quality of first responder training in disaster management in the member states as compared to those in Israel, Russia and the United States in order to identify *best practices;*
(c) the interoperability of the first responders in the EU
(d) the potential deficits in the current EU first responder training curricula as compared to *best practices* and how to compensate them in a cost-efficient manner by developing a standardized security-centered training curriculum in disaster management for first responders.

Thereby first responders will be assisted in the future to strengthen their capabilities to perform their difficult tasks in an optimal and standardized manner after major terror attacks, but also after large scale technical or natural disasters.

This standardized approach will ensure that the inter-operability of FR and their equipment between EU member states in acts of mutual assistance will be facilitated in the future.
Standardisation is also a very important tool, providing an efficient interface between the demands of the FR-community and efforts, strategies and capacities in research and development, which will help to the cost-effective and timely development of security-related industry and economics, avoiding costly duplication.

Even in the US, a country which has taken major steps after the terror attacks on September 11, 2001, it is admitted that …*At present a chemical, biological, radiological/nuclear, or explosive/incendiary attack would pose unprecedented challenges for police, fire, emergency medical service, and emergency management personnel* (US Office for Domestic Preparedness, ODP Report, Emergency Responder Guidelines, August 1, 2002).

The project will provide a generalized and comprehensive view on emerging new threats.
It will line out the deficiencies in EU FR-community in relation to the threat-szenarios as well as to current best practice.
The project will also identify the diversity in organisational structures and national variation in mandates of different FR-organisations.

This will be the base for strategies of merging the systems and enhancing interoperability to manage disasters and situations which cannot be handled by local or even national resources of response.
The knowledge will be implemented into a standardised curriculum for FR-education.
The curriculum will implement latest technologies available concerning didactics and will provide an integrative approach not only limited to technological skills but human factors as well.

The progress beyond the state-of-the –art will cover:

- A new comprehensive and integrative approach to identification of new threats leading to enhanced awareness and preparedness
- A standardised european curriculum providing enhanced interoperability
- Introduction of the most advanced software-technologies for interactive education such as VR and biofeedback, which will also be used as a tool for comparative assessment of first responder training programms in different EU-meber states and different organisations.
- Integration of tools for enhanced interoperability based on a new approach of network-software
- A standardised network of information on demands and on security-related technologies representing the state-of-art with the feature of continuous updating.

Additional Value

The programm NATO&Terrorism:
New challenges for FR in civil protection (NATO 2007, Chair: F. Steinhäusler)

B1.3 S&T methodology and associated work plan

B1.3.1 Overall strategy and general description

1. Goals

This project has three goals:

1. Net-assessment of the strengths and weaknesses of the currently used training programmes on disaster management for the different members of the FR community in the EU member states
2. Development of a new standardized training curriculum for the FR community, based on international *best practices* with emphasis on practical applicability
3. Identification of the hardware- and software needs as a basis for future R&D programmes and product developments in the area of threat assessment, situation awareness, disaster management and emergency preparedness, focusing particularly on the requirements of the FR community in the EU member states.

2. Methodology

The project will be implemented in ***close cooperation between dedicated specialised organisations representing the FR community (i.e. paramedics, fire fighters, military), members of the security research community (universities, research centers), and representatives of the security industry and software-technology companies.*** This will ensure that the product of this project will not only be tailor-made to meet the current needs of the FR community in disaster management, but also ensure that it will represent state-of-the-art in terms of didactics and technology used in the field exercises and computer simulation of threat scenarios.

- **Innovative integrated training methods**

Traditional training methods have only limited application in training first responders in managing the new threats due to their complexity. In some cases it simply impossible to practise the response in a realistic manner threats, such as WMD deployment by terrorists.

Therefore the proposed standardized security training curriculum will develop training material and practical exercises for the following **five complimentary methodical approaches**, integrating theoretical methodology with gaining practical experience in the field:

1. Modern, didactically refined lectures and seminars, emphasising interactive learning and including self-tutoring possibilities during off-campus periods based on very comprehensive experience.
2. This comprehensive experience will be documented in a readily available and detailed, open-structured, user-friendly data-base, based on state-of-the-art software-tools in data management and knowledge management.

3. Computer-based interactive models and virtual reality with biofeedback, simulating threat scenarios and the resulting consequences without and with appropriate countermeasures.
4. Realistic field exercises on consequence management, using a variety of simulated threat scenarios, such as managing the aftermath of coordinated bio- and radiological terror attacks, mass killings, and simultaneous cyber attacks on the FR communication- and situation awareness system.
5. Evaluation of 3 D-computer-models during the practical field exercises.

3. Main project components

The project proposal foresees the creation, respectively practical application of altogether ***four innovative major components***:

1. **Database on Threats, Accidents and Catastrophes (DTIC)** for "Lessons Learned by First Responders" from characteristic incidents (terrorism, technical disasters, natural catastrophes), to be used for a real-world first responder training curriculum on disaster management
2. **A standardised network of information** on demands of FRs on disaster management and on security-related technologies representing the state-of-art with the feature of continuous updating
3. **Virtual Reality Security Training System (VRST),** with biofeedback, permitting the simulation of even extreme threat situations, such as catastrophic terrorism with WMD deployment
4. **A standardised curriculum for training of first responders for disaster management**, reflecting the assessment of organisational and institutional framework as well as the demands resulting from the assessment of threats, and implementing best-practice strategies and technologies.

3.1. Database on Threats, Accidents and Catastrophes (DTIC) for first responder training

An essential element of the basic information used for the development of the content of the training curriculum will be the establishment of a dedicated database on international terror threats, large scale industrial accidents and natural catastrophes. These incidents will be selected with regard to their suitability for "lessons learned" concerning first responders and management of a large crises. This **Database on Threats, Accidents and Catastrophes** (DTIC) for first responder training will have the following characteristics:

Data input for the database DTIC

In order to ensure a high quality standard for the database DTIC it is essential to assign a Quality Factor (QF) to each data entry. The QF value will be determined by:

- Determining whether the information originates from a primary or a secondary source of information

- Assessing the reliability of the source of information;
- Corroborating the validity of the information from different sources;
- Determining the level of completeness of the information;
- Assessing the relevance of the information to security.

Design of the database DTIC

DTIC will be designed to create as a user-friendly database on threats to first responders, i.e. the design of DTIC will take account of the fact that the first responders represent a wide spectrum, ranging from police and law enforcement to paramedic and fire fighters, as well as as public utility workers. Furthermore, the design of the DTIC will reflect state-of-the art design in terms of:

- alpha-numeric and graphical data input
- extensive search- and sorting capabilities in accordance with categorized, pre-defined key words
- statistical analysis of numerical data
- tools for analysis and structuring of data and knowledge (artificial intelligence)
- graphic plotting of raw data as well as processed results.

Data collection for the DTIC

International threat data will be assembled through two main sources:

- data mining in the open literature
- data collection using the professional contacts in the existing international first responder community-network of the project consortium members.

3.2 Standardised network of information on demands and on security-related technologies representing the state-of-art with the feature of continuous updating

The project will provide a “net assessment” of the current strengths and weaknesses in the system of FR training on disaster management in the EU. This will be used to optimise EU capabilities of different FR organisations in providing mutual cross-border assistance in case of a transboundary security threat. CAST will establish a standardised network of information on demands and on security-related technologies representing the state-of-art with the feature of continuous updating.
This will be achieved by a webbased standardized catalogue of security related technologies providing information on:

- Users
- Relevance according to defined threats and requirement matrix (demands)
- Status and preliminary results of certification
- Experiences

3.3. Virtual Reality Security Training System (VRST) and Biofeedback

The FR-training often faces the problem that training is hazardous and expensive. Big installations must be shut down or old ones have to be used to provide an exercise area for the trainer and trainees. Different installations for different training scenarios must be used. This is not possible in most cases, since it would

stall production. Building models of these installations would be an alternative, but it's not cost effective.
Virtual environment technologies provide a valuable medium for operation of training systems. This approach offers a training environment that immerses the user into a computer-generated reality. The trainer can easily control and observe scenarios which are too dangerous, difficult, or expensive to play in real life. Thereby this approach simplifies simulations of threats and 'what-if' experiments at low cost and without risk.
Biofeedback enables a person to control a variety of body symptoms, like heart rate, blood pressure, respiratory volume, sweating of skin etc. by using the combined technical support of computers and medical instruments. The computer screen is the main feedback source as it shows to the test person – with the help of changing colours of the pictures and by producing a musical signal – the change of bodily functions. Recognizing the change, the test person can carry on changing his positive thoughts or changing his behaviour to maintain a lower heart rate etc. After a training of about 10 hours the trainee gains an automatic reaction of the autonomical nerval system (*nervus sympaticus*).

This project foresees the following **innovative improvements in the training of first responders** by combining the Virtual Reality Security Training System with biofeedback:

- Improvement of biofeedback training by using virtual reality methods
- Improvement of a person's reactions facing threatening situations by imagining the reality and training the body functions to a lower state, keeping that to an autonomical nerval reaction
- Improvement of the awareness to the functions of psychic stress disorders caused by threatening situations
- Development of the best predicting parameters of body functions.

Thereby the following **benefits** will be achieved:

a) Avoiding posttraumatic stress disorders;
b) Prevention of false reactions caused by sensing body reactions;
c) Universal applicability of the system for the training of first responders in the aviation industries, paramedics, fire fighters, law enforcement units, and public utility workers.

The program will be used in comparative assessment of the training curricula for disaster management of a selection of first responders of the consortium.

3. 4. A new standardized training curriculum for the FR community

In order to ensure that in the EU its FR will continue to provide optimum services, even under the severe conditions likely to prevail after a catastrophic terror attack or a major natural or technical catastrophe, the curriculum to be developed foresees that FR should receive training at the following levels:

- Awareness level:

This training component will address the training needs for FR who are:

(a) likely to discover a catastrophic terror attack, involving e.g, the use of WMD, WMK, or WMDi;

(b) sent out to initially to investigate the report of such an event.

- Performance level:

This training component will address the training needs of FR who will:

(a) conduct on-scene operations within the warm zone and/or hot zone set up on the scene of a potential WMD or WMK or WMDi event
(b) control and close out the incident.

- Planning and management level:

This training component will address the training needs of FR who will be involved:

(a) In the response as part of the leadership team after an act of catastrophic terrorism
(b) In onsite planning for and managing scene security services
(c) In assisting the incident command in bringing the event to a successful conclusion.

4. Workplan

The project will be divided into work packages, reflecting the modular concept of the curriculum and the four main project components outlined before, which are also identified in the workplan:

The workpackages will be as follows:

***Phase 1:* Database on Threats, Accidents and Catastrophes (DTIC) for "Lessons Learned by First Responders" from characteristic incidents (terrorism, technical disasters, natural catastrophes), to be used for a real-world first responder training curriculum on disaster management**

Work package No. 1: *Disaster management (Leader: ISCC)*

, This work package will contain the training modules:

- threat assessment
- data-base of catastrophic events (DTIC)
- operational countermeasures
- technical countermeasures

Work package No. 2: *Terror Threats to and principles of protection of First Responders (Leader: University of Brno)*

This work package will contain the training modules:

- Awareness Level
- Performance Level
- Planning and Management Level

Work package No. 3: *Catastrophic Terrorism (CT) (Leader: Paris-Lodron Universität Salzburg)*
This work package will contain the training modules:

- Logistics of CT
- Weapons of CT
    - Mass destruction
    - Mass killing
    - Mass disturbance
- Threats of CT

Work package No. 4: *catastrophic accidental releases (Leader: ICT-Fraunhofer Institute)*
This work package will contain the training modules:

- standardization of models for dissipation of releases of chemicals
- standardization of models for evaluation of gas-explosions or BLEVE
- risk assessment of domino-effects
- new techniques of explosion supression and fire fighting methods
- sensor-technology to detect and identify fires and release or distribution of hazardous chemicals

***Phase 2:* A standardised network of information on demands of FRs on disaster management and on security-related technologies representing the state-of-art with the feature of continuous updating**

Work package No. 5: *Organisation and training of response staff – comparative assessment of current status (Leader: Forschungsinstitut des Wiener Roten Kreuzes)*
As a vital base for further research and evolution of security-centered trainings of FR, a reliable and complete database on the different structures and status of the currently practiced curricula among European countries will be established. Paramedics, fire departments, police units and special emergency public services will be interviewed and the results will be implemented in a standardised database for the further use of the ongoing project.

Work package No.6: Current best practices (Hamburg Fire Service College)
A standardized curriculum has to be based on the current best practices, to minimise the efforts on introduction with respect to econony and practicability. The acceptance among the community will be the better, the more it implements also well proven contents.
So the existing systems have to be analysed and evaluated as careful as possible and implemented if possible.
There will be an assessment of current best practice with respect to

- Tactics
- Communication and networking
- Protection

<u>Phase 3:</u> Virtual Reality Security Training System (VRST), with biofeedback, permitting the simulation of even extreme threat situations, such as catastrophic terrorism with WMD deployment

Work package No 7: *Virtual reality safety training and stress-management with biofeedback (DSTS)*

- development of a software system for a variety of training scenarios
- development of the hardware for the visual and motion simulator
- link between the virtual reality system and the biofeedback system
- blind dates on body-functions and transformation to standardized data sets
- effect of stress on body-functions and transformation to standardized data-sets
- effect of threatening situations and influence on the disposing capacity and transformation to standardized data sets

Work package No. 8: *Organisation and institutional structures of FR and implementation of technologies, emphazising synchronization - assessment of response staff (Leader: SAAB Training Systems)*

This work package will contain the training modules:

- networked operations
- networked capabilities
- expert support systems in decision making

It will address the following topics:

- To provide first responders with the training of effective collaboration of different agencies (fire fighters, police, ambulances) in daily business and stress situations (emergency cases) using existing distributed Computer Aided Dispatch (CAD) and Collaborate/Command/Control (C3) software systems.
- To optimise collaboration and processes of different forces exposing bottlenecks, mistakes and misunderstandings during networked operations.
- To provide first responders with a technology to interconnect their own crisis management system to other nations system to rely on all available resources in a cross-border crisis.
- To assess organisational and institutional peculiarities and the emerging demands and needs for the development of technological platforms, emphasising communication capabilities and virtual reality training systems.

<u>Phase 4:</u> A standardised curriculum for training of first responders for disaster management, reflecting the assessment of organisational and institutional framework as well as the demands resulting from the assessment of threats, and implementing best-practice strategies and technologies

Work package No. 9: standardized curriculum (ISCC)
The standardized curriculum will be a modular concept, containing the following moduls:
The proposed **Standardised EU-First Responder Disaster Management Training Curriculum** will address the following topic areas (training course duration: 9 months; 25 hours of training per week), containing the following moduls:

- Risk management
- Terror Threats to and Principles of Protection of First Responders
- Catastrophic Terrorism (CT)
- Weapons of mass destruction (WMD)
- Weapons of mass killings (WMK)
- Weapons of mass disturbance (WMDi)
- Release of large amounts of hazardous chemicals
- Virtual reality safety training and stress-management with biofeedback
- Synchronization of response staff

Work package No. 10: *Coordination and Qualitymanagement (Leader: PLUS)*
The project management work package will support all administrative and financial tasks of the other workpackages, which will be implemented independently under supervision of the designated task group leaders
It will ensure coordination of work between and within the work packages, by the following activities:

- Evaluation of the *3 months progress reports*
- Preparation of the *project progress reports* (one per year)
- Organisation and *coordination meetings*
- Organisation *plenary meetings*
- Preparation of *final report*

B1.3.2 Timing of work packages and their components

Graphic description of workplan: 1st year

	Month	1	2	3	4	5	6	7	8	9	10	11	12
M1	Database current status of FR training												
M2	Database DTIC												
M3	Software for assessment of FR behaviour												
M4	Strategies to enhance implementation of technologies												
WP1	Disaster management												
D1.1	Database DTIC												
D1.2	Report on current training curricula												
D1.3	Catalogue on tactical procedures												
WP2	Terror Threats and Protection												
D2.1	Enhancing awareness of FR												
D2.2	Virtual reality scenarios												
WP3	Catastrophic Terrorism												
D3.1	Overview: weapons for WMDi attacks												
D3.2	Review: software for WMK-effects												
D3.3	Review software for WMDi effects												
D3.4	Overview: weapons for WMK attacs												
D3.5	Assessment of resources of catastrophic terrorism												
D3.6	Assessment of threats of WMD-attacs												
D3.7	Overview: types of injuries												
WP4	Catastrophic Releases												
D4.1	Software for analysis												
D4.2	Strategies to prevent domino effects												
D4.3	Database on terror targets in industry												
WP5	Organisation of FR												
D5.1	Database: basic infrastructure of FRs												
D5.2	Database: organisations												
D5.3	Database: european experts												
D5.4	Communication network of competence												
D5.5	Protective gear assessment												
WP6	Best practices of FR												
D6.1	Best practice: tactical procedures												
D6.2	Search&rescue operations												
D6.3	New technical equipment												
D6.4	Catalogue on new tactical procedurs												
D6.5	Optimization of protective gear												
WP7	Human factor-virtual reality training system												
D7.1	Virtual reality training system												
D7.2	VRST linked with biofeedback												
D7.3	Assessment of FR with VRST												
WP8	Organisational structures, implementation of technologies												
D8.1	CAD/C3 situation simulator												
D8.2	Supervision desk software												
D8.3	Assessmen tof FR groups in a simulated emergency control room												
D8.4	Recommendations												
WP9	Training curriculum												
D9.1	Training curriculum												
WP10	Coordination												
D10.1	1st Progress report												
D10.2	2nd Progress report												
D10.5	Final report												

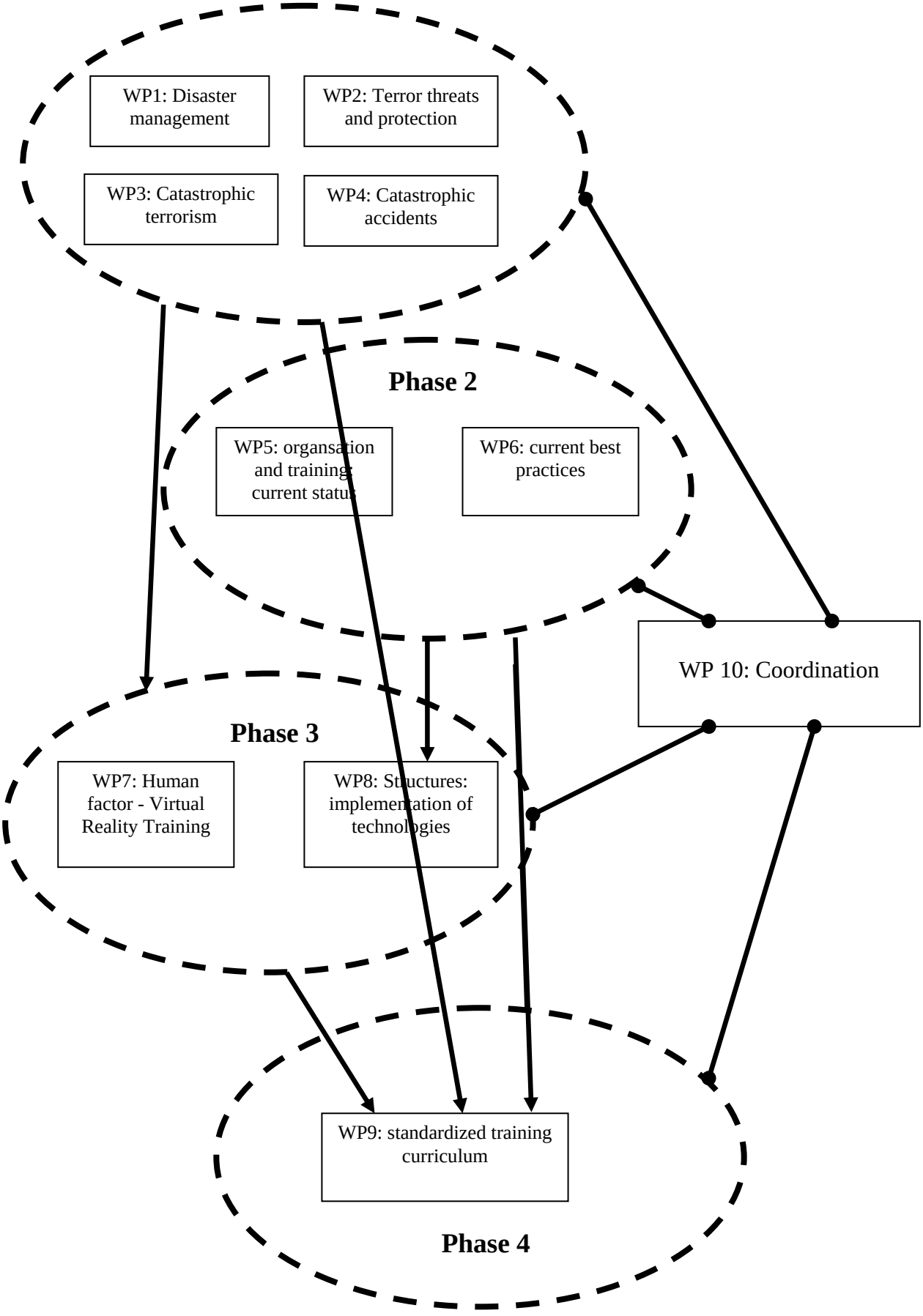
M……..Milestones WP….Workpackages D……Deliverables

Graphic description of workplan: 2nd year

	Month	13	14	15	16	17	18	19	20	21	22	23	24
M1	Database current status of FR training												
M2	Database DTIC												
M3	Software for assessment of FR behaviour												
M4	Strategies to enhance implementation of technologies												
WP1	Disaster management												
D1.1	Database DTIC												
D1.2	Report on current training curricula												
D1.3	Catalogue on tactical procedures												
WP2	Terror Threats and Protection												
D2.1	Enhancing awareness of FR												
D2.2	Virtual reality scenarios												
WP3	Catastrophic Terrorism												
D3.1	Overview: weapons for WMDi attacks												
D3.2	Review: software for WMK-effects												
D3.3	Review software for WMDi effects												
D3.4	Overview: weapons for WMK attacs												
D3.5	Assessment of resources of catastrophic terrorism												
D3.6	Assessment of threats of WMD-attacs												
D3.7	Overview: types of injuries												
WP4	Catastrophic Releases												
D4.1	Software for analysis												
D4.2	Strategies to prevent domino effects												
D4.3	Database on terror targets in industry												
WP5	Organisation of FR												
D5.1	Database: basic infrastructure of FRs												
D5.2	Database: organisations												
D5.3	Database: european experts												
D5.4	Communication network of competence												
D5.5	Protective gear assessment												
WP6	Best practices of FR												
D6.1	Best practice: tactical procedures												
D6.2	Search&rescue operations												
D6.3	New technical equipment												
D6.4	Catalogue on new tactical procedurs												
D6.5	Optimization of protective gear												
WP7	Human factor-virtual reality training system												
D7.1	Virtual reality training system												
D7.2	VRST linked with biofeedback												
D7.3	Assessment of FR with VRST												
WP8	Organisational structures, impact on technologies												
D8.1	CAD/C3 situation simulator												
D8.2	Supervision desk software												
D8.3	Assessmen tof FR groups in a simulated emergency control room												
D8.4	Recommendations												
WP9	Training curriculum												
D9.1	Training curriculum												
WP10	Coordination												
D10.1	1st Progress report												
D10.2	2nd Prpgress report												
D10.5	Final report												

M……Milestones WP….Workpackages D……Deliverables

Graphical presentation of the components showing their interdependencies:



B1.3.3. Work package list / overview

Work package no.	Work package title	Type of activity	Lead beneficiary no.	Person-months	Start month	End month
1	Disaster management	RTD	8	23,0	1	18
2	Terror Threats to and principles of protection of First Responders	RTD	9	16,0	1	12
3	Catastrophic Terrorism (CT)	RTD	1	42,0	1	12
4	Catastrophic accidental releases	RTD	6	15,5	1	12
5	Organisation and training of response staff –comparative assessment of current status	RTD	5	34,5	1	16
6	Current best practices	RTD	4	20	6	16
7	Human factor - Virtual reality safety training and stress-management with biofeedback	RTD	3	34,0	3	22
8	Organisation and institutional structures of FR and impact on technologies, emphazising synchronization	RTD	11	44,0	7	24
9	Standardised curriculum	RTD	8	33,5	12	23
10	Coordination and Qualitymanagement	MGT	1	15,9	1	24
	TOTAL			278,4	1	24

RTD = Research and technological development
MGT = Management of the consortium

B 1.3.4 Deliverables list

Delive-rable Number	DeliverableTitle	WP number.	Lead benefi-ciary number	Estimated indicative person-months	Nature	Dissemi-nation level	De-livery date
3.1:	Comprehensive overview of used weapons and explosives suitable for WMDi terror attacks	3	1	6,3	R	PU	5
2.1:	Methods for enhancing the level of awareness, performance, planning and management of first responders	2	9	6,4	R	PU	6
3.2:	Critical review of available software for analysis of effects of WMK on structures	3	1	6,3	R	PU	6
4.1:	Standardized software-system for analysis of effects and dissipation due to uncontrolled releases of large amounts of hazardous gases	4	6	7,75	P	PU	6
5.1:	Database on the basic infrastructure of the European FR-Community	5	5	6,9	P	PU	6
3.3:	Critical review of available software for analysis of effects of WMDi on man and the environment	3	1	6,3	R	PP	7
3.4:	Comprehensive overview of used weapons and explosives suitable for WMK terror attacks	3	1	4,2	R	PU	8
4.2:	Comprehensive overview on strategies to prevent domino effects	4	6	3,1	R	PU	8
5.2:	Database on organisational and institutional characteristics of the European FR-Community	5	5	6,9	P	PU	10
7.1:	Virtual Reality Security Training System (VRST)	7	3	10,2	P	PP	10
1.1:	Database on **t**errorist threats, large scale **i**ndustrial accidents and natural **c**atastrophes (DTIC) for training purposes of first responders	1	8	9,2	P	PP	12
1.2:	Report on current training--programmes on disaster management	1	8	8,05	R	PU	12

Deliverables list (continued)

Delive-rable Number	DeliverableTitle	WP number.	Lead benefi-ciary number	Estimated indicative person-months	Nature	Dissemi-nation level	De-livery date
2.2:	Development of virtual reality threat scenarios	2	9	9,6	R	PP	12
3.5:	Assessment of the logistical characteristics, the weapons deployed, and of the threats posed by events of catastrophic terrorism	3	1	6,3	R	CO	12
3.6:	Assessment of the threats and countermeasures for first responders in the case of a terror attack with WMD	3	1	6,3	R	CO	12
3.7:	Comprehensive Overview of types of injuries and consequences for the wound-ballistic theory, and protective measures	3	1	6,3	R	PU	12
4.3:	Standardized database of potential terror-targets in industry involving hazardous chemicals	4	6	4,65	P	CO	12
6.1:	Status report of current best pratice on tactical procedures; networking and communication; protection	6	4	3	R	PP	12
6.2:	Optimization of strategies of search & rescue operations, including software-tools	6	4	5	R	PU	12
6.3:	Assessment of new technical equipment and emerging technologies for optimized countermeasures and disaster management by first responders	6	4	5	R	PU	12
7.2:	VRST linked with biofeedback system	7	3	15,3	P	PP	12
10.1:	Progress report	10	3	6,36	R	PU	12
5.3:	Database of European Experts on first responder issues	5	5	3,45	P	PU	13
5.4:	Establishment of communication-network of competence	5	5	8,625	D	PP	14

Deliverables list (continued)

Delive-rable Number	DeliverableTitle	WP number.	Lead benefi-ciary number	Estimated indicative person-months	Nature	Dissemi-nation level	De-livery date
6.4:	Catalogue of new tactical procedures for first responders, based on standardized threat- and risk analysis methodology	6	4	4	R	PP	14
5.5:	Assessment of the international "state of art" of protective gear, recognition of deficiencies compared to the results of practical tests, and recommendations for improvement	5	5	8,625	R	PU	16
6.5:	Optimization of personal protection equipment for first responders	6	4	3	R	PU	16
1.3:	Catalogue on tactical procedures for first responders	1	8	5,75	P	PP	18
8.1:	CAD/C3 driving situation simulator	8	11	11	D	PP	18
8.2:	Instructor Supervision Desk Software	8	11	11	D	PP	18
7.3.	Report on results of comparative assessment ofFR-staff in view of training efficiency with respect to disaster management	7	3	8,5	R	PU	22
8.3:	Report of assessment of FRgroups on VRTS and training in an simulated emergency control room	8	11	13,2	R	PP	22
9.1:	Standardized, modular curriculum of training of first responders	9	8	33,5	D	PP	23
10.2:	Progress report	10	1	6,36	R	PU	23
8.4.	Recommendation for closing gaps or tailoring technology based security programs	8	11	8,8	R	PU	24
10.3:	Final report	10	1	3,18	R	PU	24
			Total	**278,4**			

B 1.3.5 Work package description

Work package number	**1**	**Start date or starting event:**			Month 1	
Work package title	**Disaster management**					
Activity Type	RTD					
Participant id	1	4	5	**8*)**	10	14	
Person-months / participant:	8,5	3	2	**6**	3	0,5	

*) 8-ISCC : Leader of workpackage

Objectives

1. To provide the first responders with the necessary tools enabling them to perform disaster management (assessment of the threat and risk, selection of the optimal countermeasures);
2. Assessment of current training-programmes on disaster management

Description of work

- Establishing a representative database of world-wide terrorist threats, disastrous industrial accidents and large natural catastrophes, suitable for first responder training purposes. The input information will be derived international data mining of open sources and technical reports obtained through collaborating international first responder communities

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks, WMD, WMK*
- *4-HFSC: threats*
- *5-FRK: threats,*
- *8-ISCC: risk assessment*
- *14-TEC: safety*

- Development of standardized methods of threat- and risk assessment on the basis of selection of existing and approved strategies

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks*
- *4-HFSC operations*
- *5-FRK: operations*
- *8-ISCC: risk assessment*

- Analysis of selected cases, focusing on tactics of terror attack or reasons for the technical accident or underlying causes for a natural disaster

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks, WMD, WMK*
- *4-HFSC: threats, equipment, operations*
- *5-FRK: threats, equipment, operations*
- *8-ISCC: risk assessment, didactics*
- *10-VGT:crisis management*
- *14-TEC: didactics*

Deliverables

1.1: Database on **t**errorist threats, large scale **i**ndustrial accidents and natural **c**atastrophes (DTIC) for training purposes of first responders (after 12 months)
1.2: Report on current training--programmes on disaster management (after 12 months)
1.3: Catalogue on tactical procedures for first responders (after 18 months)

Work package description (continued)

Work package number	2	Start date or starting event:			Month 1		
Work package title	**Terror Threats to and principles of protection of First Responders**						
Activity Type	RTD						
Participant id	4	5	6	7	8	**9*)**	10	12
Person-months / participant:	2	0,5	2,5	1	3	**4**	1	2

*) 9-UDB : Leader of workpackage

Objectives

1. to provide the first responders with the tools to apply a threat-based optimum protection for themselves

Description of work

- Analysis of the information contained in the database WP No.1 (DTIC) leading to methods for enhancing the level of awareness, performance, planning and management of first responders *(=exploitation of WP 1 by the representants of the FR-community)*

Expertise of the involved partners contributing to this part of work:

- *4-HFSC: equipment, operations*
- *5-FRK: equipment, operations*
- *6-Fraunhofer: modeling, equipment*
- *7-HVS: didactics, training, operations*
- *8-ISCC: didactics, management*
- *9-UDB: WMD, WMK;WMDi,training*
- *10-VGT: training, crisis management*
- *12-SCTU: terrorism, WMK, WMD*

- The combination of the DTIC with WP 8 will permit the development of threat scenarios for virtual reality training. In combination with the results of the biofeedback-programme there will be enhancement of awareness and performance levels *(=assembling of the feedback by the FR, main work by participant 1)* .

Expertise of the involved partners contributing to this part of work:

- *4-HFSC threats, operations*
- *5-FRK: threats, operations*
- *6-Fraunhofer: threats, modeling, equipment*
- *7-HVS: didactics, training, operations, WMK*
- *8-ISCC: management*
- *9-UDB: risk, WMD, WMK;WMDi*
- *10-VGT: training, crisis management*
- *12-SCTU: terrorism, WMK, WMD*

Deliverables

2.1: Methods for enhancing the level of awareness, performance, planning and management of first responders (after 6 months)

2.2: Development of virtual reality threat scenarios (after 12 months)

Work package description (continued)

Work package number	3	Start date or starting event:			Month 1		
Work package title	**Catastrophic Terrorism (CT)**						
Activity Type	RTD						
Participant id	**1*)**	4	7	8	9		
Person-months / participant:	**21**	2	5	7	7		

*1-PLUS: Leader of workpackage

Objectives

1. To provide first responders with the characteristic differences between "traditional" and "catastrophic" terrorism in terms of impact on society and environment (e.g., deployment of weapons mass destruction, large number of casualties, environmental contamination, etc.)
2. To provide first responders with the basic, practically applicable knowledge on how to assess the threats and potential methods of protection on the case of deployment of
   - Weapons of mass destruction (WMD)
   - Weapons of mass killings (WMK)
   - Weapons of mass disturbance (WMDi)
3. Search & rescue operations after deployment of
   - Weapons of mass destruction (WMD)
   - Weapons of mass killings (WMK)
   - Weapons of mass disturbance (WMDi)

Description of work

- Using the information contained in the database (DTIC), the experience gained by terrorism-exposed countries (United Kingdom, Ireland, Italy, Germany, Israel, Russia, USA), together with the analytical results derived from recently conducted NATO studies (under the guidance of Prof. Steinhäusler, Project Coordinator for this proposal), the characteristics of the new phenomenon "Catastrophic terrorism" will be described in terms useful for the *practical* work of first responders.

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks, WMD, WMK*
- *4-HFSC:- threats, equipment, operations*
- *7-HVS: didactics, training, operations, WMK*
- *8-ISCC: risk assessment, didactics, management*
- *9-UDB: risk, WMD, WMK;WMDi*

- Research of the woundballistic effects from the new spectrum of WMK

Expertise of the involved partners contributing to this part of work:

- *7-HVS: WMK*
- *8-ISCC: WMK*

- Analysis of known cases and development and evaluation of experimental models. And conclusions for FR operations.

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks*
- *4-HFSC:- threats, equipment, operations*
- *7-HVS: didactics, training, operations*
- *8-ISCC: risk assessment, didactics, management*
- *9-UDB: risk, training*

- Experimental set-ups of WMK and analysis of results *(Cooperation of participants 1 and 7)* and conclusions for FR operations *(participants 4,5,7)*

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks, WMK*
- *4-HFSC: equipment, operations*
- *7-HVS: didactics, training, operations, WMK*
- *8-ISCC: WMK, risk assessment*
- *9-UDB: risk, WMK;training*

- Analytical review of models predicting and analyzing effects of WMD, WMK, WMDi and development of software-tools for FR and Virtual Reality Training (see also Workpackage 8),

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks, WMD, WMK*
- *4-HFSC threats, equipment, operations*
- *7-HVS: didactics, training, operations, WMK*
- *8-ISCC: didactics, management*
- *9-UDB: risk, WMD, WMK;WMDi, software-tools*

Work package description (continued)

Deliverables

3.1: Comprehensive overview of used weapons and explosives suitable for WMDi terror attacks *(after 5 months)*

3.2: Critical review of available software for analysis of effects of WMK on structures *(after 6 months)*

3.3: Critical review of available software for analysis of effects of WMDi on man and the environment *(after 7 months)*

3.4: Comprehensive overview of used weapons and explosives suitable for WMK terror attacks *(after 8 months)*

3.5: Assessment of the logistical characteristics, the weapons deployed, and of the threats posed by events of catastrophic terrorism *(after 12 months)*

3.6: Assessment of the threats and countermeasures for first responders in the case of a terror attack with WMD *(after 12 months)*

3.7: Comprehensive Overview of types of injuries and consequences for the wound-ballistic theory, and protective measures *(after 12 months)*

Work package description (continued)

Workpackage number	4	**Start date or starting event:**		Month 1		
Work package title	Catastrophic accidental releases					
Activity Type	RTD					
Participant id	1	4	5	**6*)**	14		
Person-months / participant:	1	3	2	**7,5**	2		

*)6- Fraunhofer : Leader of workpackage

Objectives

1. To provide first responders with the basic, practically applicable knowledge on how to assess the threats from large releases of hazardous chemicals

Description of work *(main contribution by participant 6 with support by participant 4)*

- Analysis of fires and explosions caused by disposed explosives, gaseous and liquid fuels

Expertise of the involved partners contributing to this part of work:

- *4-HFSC:- threats*
- *6-Fraunhofer: threats, modeling, equipment*

- Evaluation of state-of-the-art of methods of analysis of the effects gas-explosions and BLEVE and of dissipation of chemicals in air and water

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks*
- *4-HFSC: threats, equipment, operations*
- *5-FRK: threats, equipment, operations*
- *6-Fraunhofer: threats, modeling, equipment*
- *14-TEC: safety*

- Standardization of the evaluation of the disastrous potential of domino-effects in chemical industry

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks*
- *6-Fraunhofer: threats, modeling, equipment*
- *14-TEC: safety*

- Analysis of adequate fire fighting methods and development of standardized tactics (main contribution participant 4)

Expertise of the involved partners contributing to this part of work:

- *4-HFSC:- threats, equipment, operations*
- *5-FRK: threats, equipment, operations*
- *14-TEC: training, didactics, safety*

- Development of a standardized database for FR concerning protection of population (eg. software-tools for evacuation) in case of such an uncontrolled release *(strong support by participants 4 and 5)*

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks*
- *4-HFSC threats, equipment, operations*

- *5-FRK: threats, equipment, operations*
- *6-Fraunhofer: threats, modeling, equipment*

- Evaluation of consequences and mitigation and control measures in radiological emergencies *(support by participant 8 and 14)*

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks, WMD, WMK*
- *4-HFSC:threats, equipment, operations*
- *14-TEC: safety*

Deliverables

4.1: Standardized software-system for analysis of effects and dissipation due to uncontrolled releases of large amounts of hazardous gases *(after 6 months)*

4.2: Comprehensive overview on strategies to prevent domino effects *(after 8 months)*

4.3: Standardized database of potential terror-targets in industry involving hazardous chemicals *(after 12 months)*

Work package description (continued)

Workpackage number	5	Start date or starting event:			Month 1		
Work package title	**Organisation and training of response staff – comparative assessment of current status**						
Activity Type	RTD						
Participant id	4	**5*)**	7	8	9	10	12	14
Person-months / participant:	4	**12**	1	6,5	1	2	3	5

*)5-FRK : Leader of workpackage

Objectives

1. Assessment of current status of training programms and training facilities of the EU first responders community
2. Analysis and consequences of the follow-up measurements and overall disaster management in EU member states, as compared to Israel, Russia and the United States
3. Assessment of protective equipment for search&rescue operations within the EU first responders community
4. Assessment of organisation of first responder communities and status of networking capabilities

Description of work

- Creation of a database on the basic infrastructure of the European FR-Community

Expertise of the involved partners contributing to this part of work:

- *4-HFSC: equipment, operations*
- *5-FRK equipment, operations*
- *7-HVS: training, operations*
- *8-ISCC: didactics, management*
- *12-SCTU: terrorism, equipment*

- Determination and development of capabilities of networking and interoperability of the European FR-Community

Expertise of the involved partners contributing to this part of work:

- *4-HFSC: threats, equipment, operations*
- *5-FRK: threats, equipment, operations*
- *7-HVS: operations*
- *9-UDB: software-tools*
- *14-TEC: training,communication*

- Analysis of the network of competences within EU FR community

Expertise of the involved partners contributing to this part of work:

- *4-HFSCequipment, operations*
- *5-FRK: equipment, operations*
- *8-ISCC: management*
- *10-VGT: training, crisis management*

- Evaluation of state-of-the-art and development of a standardized system of communication for the different groups of first responders

Expertise of the involved partners contributing to this part of work:

- *9-UDB: software-tools*
- *14-TEC: communication*

- Analytical review of the currently available protective gear for search & rescue operations by first responders operating at such scenes and identification of R&D requirements

Expertise of the involved partners contributing to this part of work:

- *4-HFSC: equipment, operations*
- *5-FRK: equipment, operations*
- *8-ISCC: risk assessment, management*
- *14-TEC: safety*

- Practical testing of protective gear in connection with the different fields of tactical measurements of the various FR organisations. *(participants 1,4,5, and 7)*

Expertise of the involved partners contributing to this part of work:

- *4-HFSC:- threats, equipment, operations*
- *5-FRK: threats, equipment, operations*
- *7-HVS: equipment, training, operations*
- *8-ISCC:WMK, risk assessment, didactics, management*
- *10-VGT: training, crisis management*

Deliverables

5.1: Database on the basic infrastructure of the European FR-Community *(after 6 months)*

5.2: Database on organisational and institutional characteristics of the European FR-Community *(after 10 months)*

5.3:Database of European Experts on first responder issues *(after 13 months)*

5.4: Establishment of communication-network of competence *(after 14 months)*

5.5: Assessment of the international "state of art" of protective gear, recognition of deficiencies compared to the results of practical tests, and recommendations for improvement *(after 16 months).*

Work package description (continued)

Workpackage number	6	**Start date or starting event:**				Month 6		
Work package title	**Organisation and Training of first responders Current best practices**							
Activity Type	RTD							
Participant id	**4**	5	8	9	10	11	13	14
Person-months / participant:	**3**	1	3	3	1	3	3	3

Objectives

1. The Workpackage will give an assessment on current best pratice concerning
    - Tactical procedures
    - Networking and communcation
    - Protection
2. Identification of the necessary technical equipment
3. Practical testing of new emerging technologies (e.g., rapid deployable barriers, non-lethal response methods, sensor technology to detect and identify fires, radiation, explosion and distributed hazardous chemicals, new techniques of explosion suppression and fire fighting, protection against blast)
4. Identification of new tactical procedures for FR (operational countermeasures)
5. To collect information for best practice in the area of EU-wide CMS interconnection for networked operations.
6. Developing recommendations on how and where to network the existing competences within EU FR community
7. Identifying new concepts, technologies and software tools for efficient and effective action
8. To provide the first responder community with a recommendation for a practically applicable technology basis and relevant knowledge through a collaboration suite for fast and effective networked First Responders

Description of work

- During practical exercise there will be the possibility to optimize the personal equipment of protection for the FR

Expertise of the involved partners contributing to this part of work:

- *4-HFSC: equipment, operations*
- *5-FRK: equipment, operations*
- *8-ISCC: management*

- Developing recommendations on standards, principles and procedures, identifying roles, effects, objectives and tasks within EU FR

Expertise of the involved partners contributing to this part of work:

- *4-HFSC:- threats, equipment, operations*
- *5-FRK: threats, equipment, operations*
- *8-ISCC:WMK, didactics, management*
- *10-VGT: training, crisis management*

- Evaluation of existing options and development of an architecture with view to building a role based common operational picture in order to significantly improved access to timely and relevant information to all crisis managers and First Responders

Expertise of the involved partners contributing to this part of work:

- *9-UDB: training, software-tools*
- *11-SAAB: training, simulation, operations*
- *13-DAI: operations, logistics, simulation*
- *14-TEC: training, didactics, safety*

- Examining broadband communications for mobile First Responders and linking sensors, decision makers and First Responders *(participant 13)*

Expertise of the involved partners contributing to this part of work:

- *13-DAI: communication technology*
- *14-TEC: training*

- Evaluation of existing options for personal digital support systems as part of an integral, secure emergency management system to support first responders

Expertise of the involved partners contributing to this part of work:

- *11-SAAB: training, simulation*

- Specification for development of a Emergency Control Room

Expertise of the involved partners contributing to this part of work:

- *14-TEC: training, didactics*

Deliverables

6.1: Status report of current best pratice on *(after 12 months)*

- tactical procedures
- networking and communication
- protection

6.2: Optimization of strategies of search & rescue operations, including software-tools *(after 12 months)*

6.3: Assessment of new technical equipment and emerging technologies for optimized countermeasures and disaster management by first responders *(after 12 months)*

6.4: Catalogue of new tactical procedures for first responders, based on standardized threat- and risk analysis methodology and the information contained in the database *(after 14 months)*

6.5: Optimization of personal protection equipment for first responders *(after 16 months)*

Work package description (continued)

Workpackage number	7	Start date or starting event:		Month 3			
Work package title	**Human factor - Virtual reality safety training and stress-management with biofeedback**						
Activity Type	RTD						
Participant id	**3*)**	11	13	14			
Person-months / participant:	**13**	15	3	3			

*) 3-DSTS : leader of the workpackage

Objectives

1. To provide first responders with the training of managing extreme threat situations and train skills in stress management

2.To implement Workpackage No. 7 (*Virtual reality safety training and stress-management with biofeedback),* addressing the training modules:

- development of a software system for a variety of training scenarios
- development of the hardware for the visual and motion simulator
- link between the virtual reality system and the biofeedback system
- blind dates on body-functions and transformation to standardized data sets
- effect of stress on body-functions and transformation to standardized data-sets
- effect of threatening situations and influence on the disposing capacity and transformation to standardized data sets

Description of Work

1. Creation of the Virtual Reality Security Training System (VRST) comprised four major parts:
   - The Visual Simulator
   - The Instructor Control and Supervision Desk
   - The Motion Simulator
   - The Scenario Builder

Expertise of the involved partners contributing to this part of work:

- *3-DSTS: biofeedback*
- *11-SAAB: simulation*
- *13-DAI: simulation*
- *14-TEC: training*

2. Linking the VRST with a biofeedback system for optimizing individual stress control capabilities of first responders managing extreme threat conditions

Expertise of the involved partners contributing to this part of work:

- *3-DSTS: biofeedback*
- *11-SAAB: training, simulation*
- *13-DAI: simulation*

3. Using the VRST and the biofeedback system for designing a training module on *Virtual reality safety training and stress-management with biofeedback*

Expertise of the involved partners contributing to this part of work:

- *3-DSTS: biofeedback*
- *11-SAAB: training, simulation, operations*
- *13-DAI: simulation*
- *14-TEC: training, didactics*

4. Comparative assessment of training curricula by testing of FR-staff with the VRST and biofeedback system

Expertise of the involved partners contributing to this part of work:

- *3-DSTS: biofeedback*

Deliverables

7.1: Virtual Reality Security Training System (VRST) *(after 10 months)*

7.2: VRST linked with biofeedback system *(after 12 months)*

7.3. Report on results of comparative assessment of FR-staff in view of training efficiency with respect to disaster management(after 22 months)

Work package description (continued)

Workpackage number	8	Start date or starting event:			Month 7		
Work package title	**Organisation and institutional structures of FR and implementation of technologies, emphazising synchronization**						
Activity Type	RTD						
Participant id	2	3	4	5	9	**11*)**	13	14
Person-months / participant:	2,5	4	5	1	7	**12,5**	6	6

*) 11-SAAB: Leader of the workpackage

Objectives

1. To provide first responders with the training of effective collaboration of different agencies (fire fighters, police, ambulances) in daily business and stress situations (emergency cases) using existing distributed Computer Aided Dispatch (CAD) and Collaborate/Command/Control (C3) software systems.
2. To optimise collaboration and processes of different forces exposing bottlenecks, mistakes and misunderstandings during networked operations.
3. To provide first responders with a technology to interconnect their own crisis management system to other nations system to rely on all available resources in a cross-border crisis.
4. To assess organisational and institutional peculiarities and the emerging demands and needs for the development of technological platforms, emphasising communication capabilities and virtual reality training systems..

Description of Work

- Creation of a CAD/C3 driving simulation including the following main*:*
  - Situation (emergency case) simulator
  - "Virtual cameras" camera image simulation
  - crowd behaviour simulation
  - event & call generation
  - Instructor Supervision Desk

Expertise of the involved partners contributing to this part of work:

- *3-DSTS: biofeedback*
- *9-UDB: software-tools*
- *11-SAAB: training, simulation*

- A simulated Emergency Control Room *(participant 14,main support by participants 4 and 5)*

Expertise of the involved partners contributing to this part of work:

- *4-HFSC:- threats, equipment, operations*
- *5-FRK: threats, equipment, operations*
- *11-SAAB: training, simulation, operations*
- *14-TEC: training, didactics*

- Creating accurate real life simulation of scenarios *(participant 11)*

Expertise of the involved partners contributing to this part of work:

- *9-UDB: risk, software-tools*
- *11-SAAB: training, simulation, operations*

- Providing realistic outcomes for decision making *(participant 11 and 13, main support by participants 4 and 5)*

Expertise of the involved partners contributing to this part of work:

- *4-HFSC: operations*
- *5-FRK: operations*
- *11-SAAB: training, simulation, operations*
- *13-DAI: operations, logistics, simulation*

- Evaluation of existing options and development of a standardized, interoperable Modelling & Simulation based Decision Support and Training system for the different groups of first responders across organisational boundaries.

Expertise of the involved partners contributing to this part of work:

- *9-UDB: training, software-tools*
- *11-SAAB: training, simulation*
- *13-DAI: operations, logistics, simulation*
- *14-TEC: communication, training*

- Attention will also be paid to data strategies, including cross-domain communications and data sharing and the security solutions necessary for the multi-level environment *(participant 13). The training system is a tool for identification of the consequences of the various organisational features on implementation of* technology based security policies and programs.

Expertise of the involved partners contributing to this part of work:

- *2-AT: security policies*
- *11-SAAB: training, simulation, operations*
- *13-DAI:communications, logistics, simulation*
- *14-TEC:communications, training, didactics, safety*

- multinational training, a closing of interoperability gaps, an awareness of cultural sensitivities, and a standardised terminology.

Expertise of the involved partners contributing to this part of work:

- *2-AT:security policies (cultural sensitivity)*
- *9-UDB: training, software-tools*
- *11-SAAB: training, simulation, operations*
- *13-DAI: operations, logistics, simulation*
- *14-TEC: training, didactics*

Deliverables

8.1: CAD/C3 driving situation simulator *(after 18 months)*

8.2: Instructor Supervision Desk Software *(after 18 months)*

8.3: Report of assessemt of FR-groups on VRTS and training in an simulated emergency control room (after 22 months)

8.4. Recommendation for closing gaps or tailoring technology based security programs (after 24 months)

Work package description (continued)

Workpackage number	9	**Start date or starting event:**		Month 12		
Work package title	**Standardised curriculum**					
Activity Type	RTD					
Participant id	1	4	5	7	**8*)**	12	14
Person-months / participant:	4	6	5	4	**9**	4	1,5

*) 8- ISCC : Leader of workpackage

Objectives

Development of a standardized, modular curriculum of training of first responders

(Training course: 9 months, 25 hours of training per week)

Description of work

Implementation of Workpackage No. 1 (*Disaster management),* addressing the content of the training modules:

- Threat and risk assessment
- Operational countermeasures
- Technical countermeasures

Implementation of Work package No. 2 **(***Terror Threats to and Principles of Protection of First Responders),* addressing the training modules:

- Awareness Level
- Performance Level
- Planning and Management Level

Implementation of Work package No. 3: *Catastrophic Terrorism (CT),* addressing the training modules:

- Logistics of CT
- Weapons of CT (Mass destruction, Mass killing, Mass disturbance)
- Threats of CT

Implementation of Workpackage No. 4 (Catastrophic accidential releases*),* addressing the training modules:

- standardization of models for dissipation of releases of chemicals
- standardization of models for evaluation of gas-explosions or BLEVE
- risk assessment of domino-effects
- new techniques of explosion supression and fire fighting methods
- sensor-technology to detect and identify fires and release or distribution of hazardous chemicals

Implementation of Workpackage No 7: (stress management with biofeedback)

- Stress-management

Implementation of Workpackage No. 8 (Synchronization of response staff) addressing the training modules: Networked operations, Networked capabilities, Expert support systems in decision making

Expertise of the involved partners contributing to this part of work:

- *1-PLUS: risks, WMD, WMK*
- *4-HFSC:threats, equipment, operations*
- *5-FRK: threats, equipment, operations*
- *7-HVS: didactics, training, operations*
- *8-ISCC: didactics, management*
- *12-SCTU: operations, terrorism*
- *14-TEC: training, didactics*

Deliverables

9.1: standardized, modular curriculum of training of first responders *(after 23 months)*

Work package description (continued)

Workpackage number	10		Start date or starting event:		Month 1								
Work package title	**Coordination and Qualitymanagement**												
Activity Type	MGT												
Participant id	**1**	2	3	4	5	6	7	8	9	10	11	12	13	14
Person-months per partici	**8**	2	0,5	0,5	0,5	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5

Objectives

The project management work package will support all administrative and financial tasks of the other workpackages, which will be implemented independently under supervision of the designated task group leaders

Description of Work

It will ensure coordination of work between and within the work packages, by the following activities:

- Preparation of the project progress reports (after 12 nad 23 months)
- Organisation and coordination meetings
- Organisation plenary meetings
- Preparation of final report

Deliverables

10.1: 1st Progress report (after 12 months)

10.2: 2nd Progress report (after 23 months)

10.3: Final report (after 24 months)

B1.3.6 Efforts for the full duration of the project

Project Effort Form I – Indicative efforts per beneficiary per WP

Beneficiary number	WP 1	WP 2	WP 3	WP 4	WP 5	WP 6	WP 7	WP 8	WP 9	WP 10	Total per Beneficiary
1-PLUS	8,5	0	21	1	0	0	0	0	4	8	42,5
2-AT	0	0	0	0	0	0	0	2,5	0	2	4,5
3-DSTS	0	0	0	0	0	0	13	4	0	0,5	17,5
4-HFSC	3	2	2	3	4	3	0	5	6	0,5	28,5
5-FRK	2	0,5	0	2	12	1	0	1	5	0,5	24
6-Fraunhofer	0	2,5	0	7,5	0	0	0	0	0	0,4	10,4
7-HVS	0	1	5	0	1	0	0	0	4	0,5	11,5
8-ISCC	6	3	7	0	6,5	3	0	0	9	0,5	35
9-UDB	0	4	7	0	1	3	0	7	0	0,5	22,5
10-VGT	3	1	0	0	2	1	0	0	0	0,5	7,5
11-SAAB	0	0	0	0	0	3	15	12,5	0	0,5	31
12-SCTU	0	2	0	0	3	0	0	0	4	0,5	9,5
13-DAI	0	0	0	0	0	3	3	6	0	0,5	12,5
14-TEC	0,5	0	0	2	5	3	3	6	1,5	0,5	21,5
Total	23	16	42	15,5	34,5	20	34	44	33,5	15,9	278,4

Project Effort Form 2 – Indicative efforts per activity type per beneficiary

Activity type	Part.1	Part.2	Part.3	Part.4	Part.5	Part.6	Part.7	Part.8	Part.9	Part.10	Part.11	Part.12	Part.13	Part.14	Total
RTD/Innovation activities															
WP 1 Disaster management	8,5	0,0	0,0	3,0	2,0	0,0	0,0	6,0	0,0	3,0	0,0	0,0	0,0	0,5	23,0
WP 2 Terror Threats to and principles of protection of First Responders	0,0	0,0	0,0	2,0	0,5	2,5	1,0	3,0	4,0	1,0	0,0	2,0	0,0	0,0	16,0
WP 3 Catastrophic Terrorism (CT)	21,0	0,0	0,0	2,0	0,0	0,0	5,0	7,0	7,0	0,0	0,0	0,0	0,0	0,0	42,0
WP 4 Catastrophic accidental releases	1,0	0,0	0,0	3,0	2,0	7,5	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,0	15,5
WP 5 Organisation and training of response staff – comparative assessment of current status	0,0	0,0	0,0	4,0	12,0	0,0	1,0	6,5	1,0	2,0	0,0	3,0	0,0	5,0	34,5
WP 6 Current best practices	0,0	0,0	0,0	3,0	1,0	0,0	0,0	3,0	3,0	1,0	3,0	0,0	3,0	3,0	20,0
WP 7 Human factor - Virtual reality safety training and stress-management with biofeedback	0,0	0,0	13,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	15,0	0,0	3,0	3,0	34,0
WP 8 Organisation and institutional structures of FR and impact on technologies, emphazising synchronization	0,0	2,5	4,0	5,0	1,0	0,0	0,0	0,0	7,0	0,0	12,5	0,0	6,0	6,0	44,0
WP 9 Standardised curiculum	4,0	0,0	0,0	6,0	5,0	0,0	4,0	9,0	0,0	0,0	0,0	4,0	0,0	1,5	33,5
WP 10 Coordination and Qualitymanagement	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Total Research	**34,5**	**2,5**	**17,0**	**28,0**	**23,5**	**10,0**	**11,0**	**34,5**	**22,0**	**7,0**	**30,5**	**9,0**	**12,0**	**21,0**	**262,5**
Work packages for Demonstration activities															
Total Demo	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Project Effort Form 2 – Indicative efforts per activity type per beneficiary (continued)

Consortium Management activities															
WP 1 Disaster management	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
WP 2 Terror Threats to and principles of protection of First Responders	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
WP 3 Catastrophic Terrorism (CT)	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
WP 4 Catastrophic accidental releases	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
WP 5 Organisation and training of response staff – comparative assessment of current status	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
WP 6 Current best practices	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
WP 7 Human factor - Virtual reality safety training and stress-management with biofeedback	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
WP 8 Organisation and institutional structures of FR and impact on technologies, emphazising synchronization	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
WP 9 Standardised curiculum	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
WP 10 Coordination and Qualitymanagement	8,0	2,0	0,5	0,5	0,5	0,4	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	15,9
Total Management	**8,0**	**2,0**	**0,5**	**0,5**	**0,5**	**0,4**	**0,5**	**0,5**	**0,5**	**0,5**	**0,5**	**0,5**	**0,5**	**0,5**	**15,9**

Other activities															
Total other	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Total	**42,5**	**4,5**	**17,5**	**28,5**	**24,0**	**10,4**	**11,5**	**35,0**	**22,5**	**7,5**	**31,0**	**9,5**	**12,5**	**21,5**	**278,4**

B1.3.7 List of milestones and planning of reviews

List and schedule of milestones

Milestone no.	Milestone name	WPs no´s	Lead beneficiary	Delivery date	Comments
M1	Database current status of FR training	1,2,3,5	5	Month 6	Dissemination of deliverables 3.1, 2.1, 5.1
M2	Database DTIC	1,2,3,4	1	Month 12	Dissemination of deliverables 1.1, 3.4, 3.6, 3.7, 4.3
M3	Software for assessment of FR behaviour	2,5,6,7,8	4	Month 18	Dissemination of deliverables 2.2,5.5,5.5, 6.4,6.5,8.1,8.2
M4	Strategies to enhance implementation of technologies	7,8,9	11	Month 24	Dissemination of deliverables 7.3, 8.3, 9.1, 8.4

Tentative schedule of project reviews

Review No.	Tentative timing	Planned venue of review	Comments, if any
1	Month 12 = end of 1st reporting period	Spain (at TEC)	Meeting in month 11
2	Month 23 = end of 2nd reporting period	Salzburg	Meeting in month 21

B2. Implementation

B2.1 Management structures and procedures

1. Project Coordination:

The **project implementation** will be managed by the *Project Coordinator*, Prof. F. Steinhäusler (PLUS), who will oversee the implementation of all workpackages.

Each work package will be under the oversight of a *Task Group Leader*, reporting to the Project Coordinator in the form of a *Task Group Progress Report* at 3-monthly intervals.

Every six months Prof. Steinhäusler will organise a *Coordination Meeting,* where each Task Group Leader will report on the achievements and any potential problems during the past working period. The result of each such meeting will be submitted to the Commission as the annual *Project Progress Report*.

After the first year Prof. Steinhäusler will organise the *First Plenary Meeting,* to which all project participants will discuss the overall implementation of the project, resulting in a report.

Three months before the completion of the project Prof. Steinhäusler will organise the *Second Plenary Meeting,* where all project participants will meet to prepare the *Draft Final Project Report* to the Commission. Subsequently, all Task Group Leaders and Prof. Steinhäusler will jointly prepare the *Final Project Report,* to be submitted to the Commission.

The **CAST Project Coordinator is Prof. Friedrich Steinhäusler**. He has international experience in coordinating extensive research programmes on security: e.g. he was coordinator for the Security Programme at the European Forum (Stanford University) from 1999 to 2003, and Programme Manager for the programme Physical Protection of Nuclear Material Against Theft and Sabotage at the Centre for International Security and Cooperation (Stanford University) from 2000 to 2003. Prof. Steinhäusler is affiliated with the SME TAAS, focusing on weapons, threat and risk assessment for different industries. Prof. Steinhäusler is member of the Executive Board of ISCC which is an association of high ranking experts in the field of security-research and users in the executive board.

2. Project Control:

A clear decision-making structure has been agreed with the project partners to ensure the following controls:

- control of the achievement of the project‘s strategic objectives,
- control of the project implementation with regard to the decisions made in the workpackages
- permanent financial controlling of the project’s expenditure.

The CAST organisational structure consists of three levels, to enable efficient and precise project management:

1. Overall steering of the project will be done by the **Project Coordinator** of PLUS, Prof. Steinhausler. The coordinator will be in charge:
   - of the project’s administrative, technical and financial co-ordination;
   - to enable the operational team to appropriately do the work scheduled for each workpackage;
   - of a quality assessment plan & tool for activities and project input to the consortium;
   - of the monitoring of the project’s progress and coordinate the various WP-activities;
   - to organise the close interaction between the workpackages;
   - to manage knowledge generated by the project and innovation-related activities.

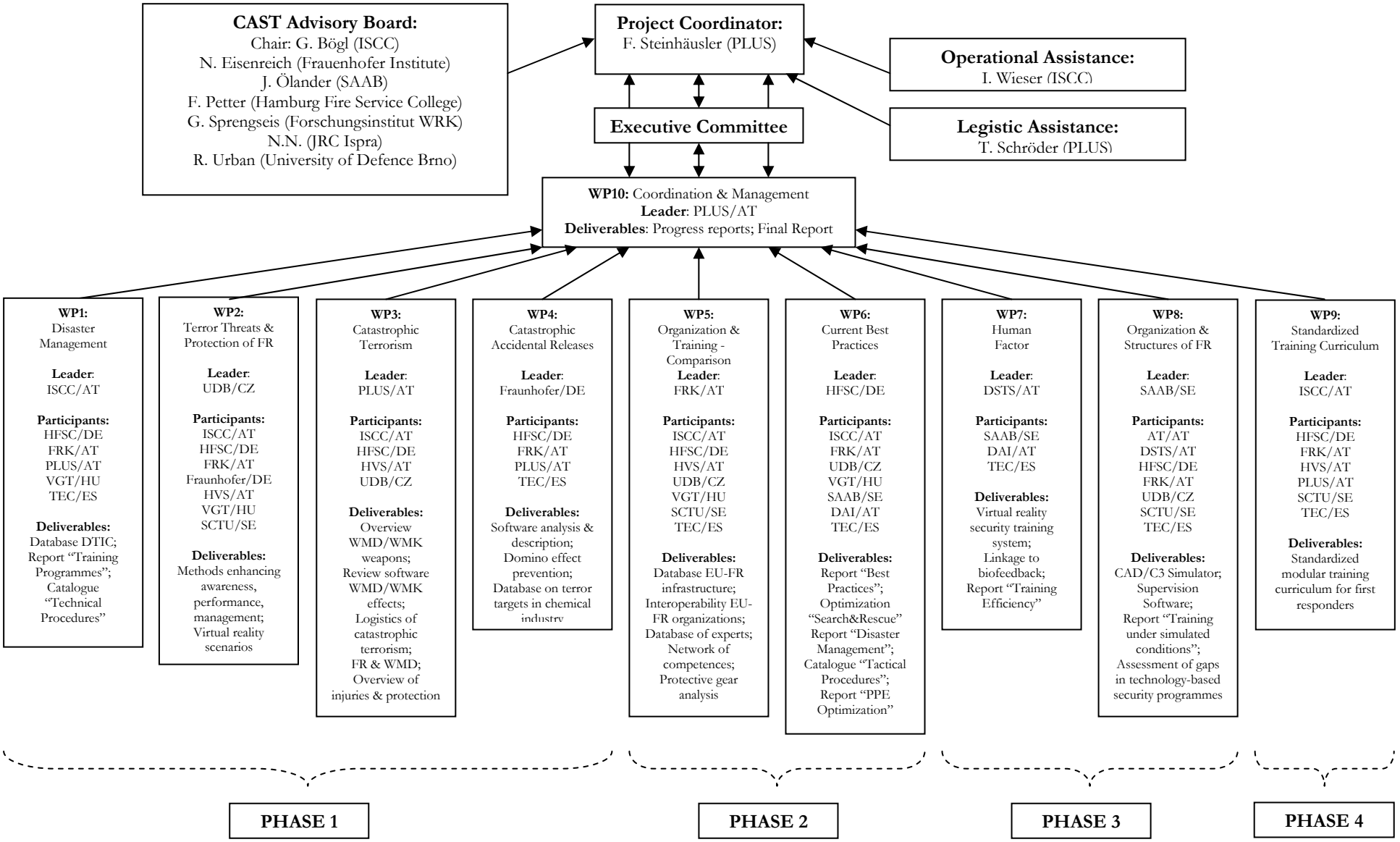
2. At the strategic level, the **Advisory Board** (see table at the end of this section) comprises representatives of ISCC, the Fraunhofer Institute, SAAB training systems, Hamburg Fire Service College, Forschungsinstitut des Wiener Roten Kreuzes, University of Defence Brno and other members by appointment and subject to the agreement of the project partners. The Advisory Board gives advice to the PLUS consortium concerning the strategic development of the project. It will provide guidance and priority criteria for technological roadmaps, threat assessment and will cross check to the final user needs as well as reflect the project objectives achievements.
   JRC ISPRA (Italy) will be invited to join the CAST Advisory Board

3. The **Executive Committee** will be formed by the workpackage leaders. It will meet at least every four months to monitor cost, performance and schedule related progress of the workpackages (WP), whereas the workpackage leaders provide the necessary input for cost, performance and schedule reporting and controlling. The chairman (appointed by election among the workpackage leaders) will be closely integrated in the coordinators activities with responsibility for:
   - quality check of WP related reporting to be delivered to the EC;
   - evaluation and preparation of WP relevant information needed for the preparation of meetings with the Advisory Board and the Commission;
   - supporting the preparation of periodical reports contractually required by the EC;

- alerting the Project Coordinator in case of deficiencies or delays in the implementation of project activities or in case of defaults of any participant with respect to its participation in the project;
- provisions to monitor execution of IPR and exploitation activities, knowledge management and dissemination.

4. Finally, management of the different **Workpackages** will be coordinated by the WP leaders. The WP leaders will be responsible for the direct implementation of the workpackages. Each workpackage will be technically independent, with its own management team. The coordinator will support them in handling administrative & financial matters and coordination with the other workpackages. Each workpackage will be the responsibility of one of the core participants, although other participants will also share responsibility at WP level in accordance with the project's management structure.

The following flowchart explains the structure of the project implementation:


CAST Advisory Board:
Chair: G. Bögl (ISCC)
N. Eisenreich (Frauenhofer Institute)
J. Ölander (SAAB)
F. Petter (Hamburg Fire Service College)
G. Sprengseis (Forschungsinstitut WRK)
N.N. (JRC Ispra)
R. Urban (University of Defence Brno)
Project Coordinator:
F. Steinhäusler (PLUS)
Operational Assistance:
I. Wieser (ISCC)
Executive Committee
Legistic Assistance:
T. Schröder (PLUS)
WP10: Coordination & Management
Leader: PLUS/AT
Deliverables: Progress reports; Final Report
WP1:
Disaster Management
Leader:
ISCC/AT
Participants:
HFSC/DE
FRK/AT
PLUS/AT
VGT/HU
TEC/ES
Deliverables:
Database DTIC;
Report "Training Programmes";
Catalogue "Technical Procedures"
WP2:
Terror Threats & Protection of FR
Leader:
UDB/CZ
Participants:
ISCC/AT
HFSC/DE
FRK/AT
Fraunhofer/DE
HVS/AT
VGT/HU
SCTU/SE
Deliverables:
Methods enhancing awareness, performance, management;
Virtual reality scenarios
WP3:
Catastrophic Terrorism
Leader:
PLUS/AT
Participants:
ISCC/AT
HFSC/DE
HVS/AT
UDB/CZ
Deliverables:
Overview WMD/WMK weapons;
Review software WMD/WMK effects;
Logistics of catastrophic terrorism;
FR & WMD;
Overview of injuries & protection
WP4:
Catastrophic Accidental Releases
Leader:
Fraunhofer/DE
Participants:
HFSC/DE
FRK/AT
PLUS/AT
TEC/ES
Deliverables:
Software analysis & description;
Domino effect prevention;
Database on terror targets in chemical industry
WP5:
Organization & Training - Comparison
Leader:
FRK/AT
Participants:
ISCC/AT
HFSC/DE
HVS/AT
UDB/CZ
VGT/HU
SCTU/SE
TEC/ES
Deliverables:
Database EU-FR infrastructure;
Interoperability EU-FR organizations;
Database of experts;
Network of competences;
Protective gear analysis
WP6:
Current Best Practices
Leader:
HFSC/DE
Participants:
ISCC/AT
FRK/AT
UDB/CZ
VGT/HU
SAAB/SE
DAI/AT
TEC/ES
Deliverables:
Report "Best Practices";
Optimization "Search&Rescue"
Report "Disaster Management";
Catalogue "Tactical Procedures";
Report "PPE Optimization"
WP7:
Human Factor
Leader:
DSTS/AT
Participants:
SAAB/SE
DAI/AT
TEC/ES
Deliverables:
Virtual reality security training system;
Linkage to biofeedback;
Report "Training Efficiency"
WP8:
Organization & Structures of FR
Leader:
SAAB/SE
Participants:
AT/AT
DSTS/AT
HFSC/DE
FRK/AT
UDB/CZ
SCTU/SE
TEC/ES
Deliverables:
CAD/C3 Simulator;
Supervision Software;
Report "Training under simulated conditions";
Assessment of gaps in technology-based security programmes
WP9:
Standardized Training Curriculum
Leader:
ISCC/AT
Participants:
HFSC/DE
FRK/AT
HVS/AT
PLUS/AT
SCTU/SE
TEC/ES
Deliverables:
Standardized modular training curriculum for first responders
PHASE 1
PHASE 2
PHASE 3
PHASE 4

3. Technical Management

- **GANTT charts** will be used to monitor the timing of work packages/tasks. This tool will track delays or advances in R&D work and help ensure that the project's objectives are achieved within the project timeframe. If a task is delayed, for example, others may need to be brought forward.
- **Milestones and Deliverables tables** will be used to evaluate progress. Deliverables refer to the results/information, which are to be provided within a work package. The quality assessment/evaluation work package will use these deliverables as evaluation criteria for assessing the status of a work package (completed or not) and its level of success (assessment of the results or not). This evaluation will be made during the milestone reviews.
- A **Risk Register** will be set up at the beginning of the project and upgraded during milestone reviews so as to implement preventive or corrective actions.

4. Quality Management Plan & Communication Strategy for the Dissemination WP

The project's communication strategy is to be as transparent as possible and help to increase operational synergies. Special attention will be paid to keeping partners informed on the project's status, planning and other important issues.

It will be important to organize **interactive management and technical meetings** to ensure efficient decision-making between the leaders of the workpackages and the overall project management. As project coordinator, Prof. Steinhäusler /PLUS will be responsible for channelling relevant information to partners, such as minutes of meetings, work packages reports, financial information, official technical and financial reports submitted to the European Commission, and for the publication of results.

A **quality management plan** will be defined and agreed before project start-up. Performance indicators could be defined on various topics so as to estimate overall project performance. The indicators of project performance will be evaluated on an annual basis. Flow of information will be ensured by a progress report in a format to be agreed on as well by specifically defined tables containing standardized and detailed outlines.

A **secure internet communication platform**, as well as e-mail and conference-call facilities, will be used to facilitate communication between partners, guaranteeing protected access to PLUS documents for all partners. This platform will be expanded to facilitate communication among partners.

Special care will be also devoted to ensuring proper **external communications**. The consortium will use publications and other means of dissemination. Emerging results will be regularly presented at European scientific conferences.

Members of the advisory board:

Name of participant	*Affiliation of participant*
Günther **Bögl** (Chair)	International Security Competence Centre, Austria
Rudolf **Urban**	University of Brno, Czech Republic
Norbert **Eisenreich**	Fraunhofer Institut , Germany
Franz **Petter**	Hamburg Fire Brigade
Gabriela **Sprengseis**	Research Institute of the Viennese Red Cross, Austria
Johan **Ölander**	SAAB Training Systems AB
N.N *)	JRC ISPRA, Italy *)

JRC ISPRA (Italy) will be invited to join the CAST Advisory Board (see also Part B2, 2.1 Management structures and procedures, Section 2: Project control)

B2.2 Beneficiaries

1: PARIS-LODRON UNIVERSITÄT SALZBURG – PLUS

(Leader of workpackage 3 and 10, project coordinator, contribution to workpackages 1,4 and 10)

The Div. of Physics and Biophysics has been engaged in safety, security and related risk assessment over the past 30 years. Prior to 1999 the emphasis was on radiation safety, whilst this field of activity has been enlarged over the past seven years to include also security-related topic areas. The facilities include modern radiation laboratories, capable of analyzing alpha, beta, gamma and neutron radiation. In addition, the radiation fields can be generated for the same types of radiation with the appropriate radiation sources. Thereby individual training under radiation laboratory conditions as well as in the field is possible. Extensive computer-modelling (e.g., "dirty bomb" scenarios) is part of the didactic approach to the integrated training provided. Staff members are involved in: (a) IAEA Quality Assurance Tests and security/safety missions abroad; (b) several EU-funded research projects; (c) Expert evaluation for EU-PASR 2005 and 2006

Keywords for main fields of expertise: *risks, WMD, WMK*

Persons working with this project:

Prof. Friedrich STEINHÄUSLER, PhD. (Coordinator)

Prof. Steinhäusler has international experience in coordinating extensive research programmes on security, e.g., he was Coordinator for the *Security Programme* at the European Forum (Stanford University) from 1999 to 2003, and Programme Manager for the programme *Physical Protection of Nuclear Material Against Theft and Sabotage* at the Center for International Security and Cooperation (Stanford University) from 2000 to 2003. These programmes involved the cooperation of several US-, European, Russian, and Chinese government agencies and research institutions[4] on security-sensitive issues, such as terrorism, physical protection of weapon-grade nuclear material, as well as technological and operational countermeasures.

At present Prof. Steinhäusler serves as **Leader** on several international security-related commissions and working groups, such as:

- Chairman of the NATO CLG Expert Group on *Nuclear Terrorism*[5]
- Logistics Director of the NATO ARW on *Emergency Preparedness after a major terror attack*[6]
- Chairman of the US/German-ERP Expert Group on *Strategic Terrorism*.[7]

In Austria Prof. Steinhäusler is Director of the Salzburg Government Radiological Measurements Laboratory (RMLS), responsible for the regional radiation safety and security. Furthermore he serves on the Austrian Government *Nuclear Security and Safety Advisory Council* for the Office of the Chancellor (FAF, Vienna), dealing with terrorism threats to the nuclear fuel cycle. Since 1983 he is Full Professor at the Division of Physics and Biophysics, University of Salzburg, Salzburg, Austria, with over international 250 publications on security, safety and risk assessment.

Lyudmila ZAITSEVA

Dr. Wilhelm HEIDEGGER

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[4] for example: US FBI, US Department of Justice, EUROPOL, German Bundeskriminalamt, German Bundesgrenzschutz GSG-9, US Argonne National Laboratory, US Sandia National Laboratory, US Lawrence Livermore National Laboratory.

[5] For details, please visit: http://www.nnt.sbg.ac.at

[6] For details, please visit: http///www.sbg.ac.at/bio/nato-workshop

[7] For details, please visit: http://www.dusa.sbg.ac.at

2: AUSTRIAN TECHNOLOGIES –AT

(Contribution to workpackages 8 and 10)

Austrian Technologies acts as an information platform and central hub for organisations, institutions and corporations operating in different areas such as industry, research and education. Important organisations, like the Federal Ministry for Transport, Innovation and Technology (BMVIT), the Federal Ministry of Economics and Labour (BMWA), the Federal Ministry for Foreign Affairs (BMAA), the Federal Ministry of Defence, the Austrian Federal Economic Chamber (WKO), the Federal Chamber for Employees (AK) as well as numerous research centres, most notably the Austrian Academy of Sciences (ÖAW) and the Austrian Research Centers (ARC), are integrated in the Austria Technology's member structure. Thus, the Agency cooperates with excellent partners and can provide the necessary contacts for its clients. All the activities of Austrian Technologies have one goal in common: they want to improve international, project-oriented co-operations involving Austrian know-how, technology, education and advanced training and education.
In the context of technology transfer and security research, the following topics are covered:Security research: European Security Research Programme, border control, security systems for critical infrastructure, traffic systems and airports.

Keywords for main fields of expertise: *security policies*

Persons working with this project:

Mag.Dr. Rüdiger STIX, PhD,
Ministerialrat at the Austrian MoD.
Dr.Stix is a former professional officer graduated at the Maria Theresian Military Academy and legal expert of the Austrian MoD (with diploma and doctoral degree of the University of Vienna). Dr. Stix has served as head of the Mo´D´s arms control authority and as member of the Vienna state legislation and communal administration (including all aspects of critical infrastructure). Dr. Stix reached his PhD at the faculty of military technologies at Miklos Zriny University, Budapest,is member of the doctoral college of the Zriny Miklos University and serving as visiting professor at the VGT-Corvinus departement with Prof. Dr. Georg Nogradi for 18 years, with the specialization on tacit and implicit knowledge in the analyzis and forecasting of of conflicts and strategic potentials.

Siegfried Albel
Senior research fellow

3: DSTS-ADVISORS TO EXECUTIVES

(Leader of workpackage 7, contribution to workpackages 8 and 10)

DSTS was founded in 1994 in Geneva, Switzerland as a Consulting Institute. In Austria, in 1996 it was expanded by the Institute for Traffic Psychology. In the meantime DSTS is responsible for training-institutes in every district in Upper Austria. It deals with scientific tasks as well as with a wide range of applications with psychological treatment, tests and training.The main topics are both security-related measurements and traffic-psychological aspects.
The relevant field of activity of DSTS for this proposal is a *biofeedback-system* in combination with stress-management, which is successfully applied in the coaching of key-personal from civil companies.

Keywords for main fields of expertise: *biofeedback*

Persons working with this project:

Mag. Eva SCHRANK
1986 - 1987 IFES, Interviever and projectleader
June 1987 Psychiatrisches Krankenhaus Baumgartner Höhe,
1988 - 1998 Austrian Federal Railways (ÖBB), Human Resource Management Department
+ Selection of employees
+ Clinical psychological Diagnostics
+ Traffic Psychology and Diagnostics
+ Mangement Training (Prevention of crisis, stress management, substance misuse)
from 1. July 1997: executive manager of DSTS KEG,
since 20. Feb. 1998 executive manager of INFAR, Department of Lower Austria, Traffic Psychology
since 1. Dec. 1998 Clinical Psychologist selfemployed
March 1987 Master degree in Psychology
1988 - 1997 Psychotherapytraining of Psychodrama
March 1997 Graduated Psychodramatherapist
November 1997 Graduated Clinical Psychologist
January 2001 Biofeedback therapist

4: HAMBURG FIRE SERVICE COLLEGE – HFSC

(Leader of workpackage 6, contribution to workpackages 1,2,3,4,5,8,9,10)

The Hamburg Fire Service College is an institute of the Hamburg Community with about 2500 staff members.
It is represented in various international working-groups to maintain training, equipment and strategies of operations on the state-of-art.
The Hamburg Fire Brigade runs also the German School for Fire-Fighters, which is a high-levelled institute for FR-training and education, with experience in 3D-simulations.
The Hamburg Fire Brigade is also head of the organisations of the voluntary firefighters of the Hamburg Community.
There are several special units, e.g. one for decontamination and disastrous chemical releases.

Keywords for main fields of expertise: *threats, equipment, operations*

Persons working with this project:

Mag. Franz PETTER

1982 – 1987	NBC defence, Austrian Military
1987 – 1997	University of Salzburg, Austria. (genetics)
1993	degree Mag. rer. nat
	Lektor for laboratory security, University of Salzburg
1997 -	Hamburg Fire service

EUDREX 04 European Disaster Relief Exercise 2004
Common Cause 2002
EURATOX 2002

2005	Hamburg fire service college

Publications:
Several publications as an editor in the field of comprehensive security topics (CBRN-protection).

Frank SEIDLER

5: FORSCHUNGSINSTITUT DES WIENER ROTEN KREUZES-FRK

(Leader of workpackage 5, contributions to workpackages 1,2,4,6,8,9,10)

FORSCHUNGSINSTITUT DES WIENER ROTEN KREUZES broadly approaches and discriminatingly deals with relevant societal problems and – in cooperation with its partners – works on developing creative and innovative solutions. Our central concern and also integral part of all our activities is to guarantee the transfer of project results back into the practical context. Theory and practical experience go hand in hand in order to assure the quality of our research. Our Institute is currently participating in national and international research projects and programmes in the spirit of the high principles of the FORSCHUNGSINSTITUT DES WIENER ROTEN KREUZES".The Research Institute works in **four core research fields**:

- **Rescue, emergency care and security:** In order to devise and offer tools and knowledge for effective and long term security strategies and policies, a clear, multi-disciplinary view as to how society perceives security and security related topics is of high importance. Our organization is involved in gathering and analyzing basic data and disseminating results and solutions among the growing network of partners in this research and intervention field.
- **Care:** Demographic change leads to a range of alterations in the final stage of one's life and to die in a dignified way with the respective care and attendance is one of our main focuses. Our Institute aims at analysing and developing solutions for these changes.
- **Labour market, employment and volunteer services:** Our research also focuses on unemployment and its consequences, reintegration and integration of people seeking employment, empowerment and age management.
- **Health promotion and prevention:** Our research activities centre around workplace health promotion and health promotion for older people.

Keywords for main fields of expertise: *threats, equipment, operations*

Persons working with this project:

Mag. [a]Gabriele SPRENGSEIS, MSc

Degree in Sociology at the University of Vienna,
Degree MSc - Postgraduate study - Health Care Management – at the Corvinus University of Economic Sciences and Public Administration Budapest
Long time occupation as sociologist and Senior Consultant with the core themes of employment and social policy, organization consultancy and Gender Mainstreaming
2003-2004 Project Manager Viennese Red Cross, Health and Social Service responsible for the reorganization of 400 employees in the department Health and Social Services, development and implementation of a new administration software
2004-2005 scientific employee at the Research Institute of the Viennese Red Cross in charge of the development and management of socio-scientific projects and as agent for Gender Mainstreaming
Since 2005 head of the Research Institute of the Viennese Red Cross
Award of Dr. Hans Lauda-Stiftung 2005 of the Austria Red Cross
Multiple publications in the field of sociological research and health promotion

Dr. Karin RAINER

6: FRAUNHOFER GESELLSCHAFT ZUR ANGEWNDTEN FOSCHUNG - INSTITUT CHEMISCHE TECHNOLOGIE – Fraunhofer

(Leader of workpackage 4, contribution to workpackages 2 and 10)

Fraunhofer Institute of Chemical Technology ICT (Germany) worked on propellants, pyrotechnics, gun powders, explosives since its foundation 1959. The work concerns experimental and theoretical issues as well as ignition, detonation and combustion phenomena. Safety research paralleled these activities concerning gas explosion, fire and explosion protection. Gas generators are used for various purposes like airbags in cars and expelling fire and explosion suppressing agents. The only public research institute applies complete equipment and facilities to develop airbag modules starting from the gas generator molecule including all static testing with high speed sensor and video techniques to measure the data and verifies by simulation. Fast scanning spectroscopy detection is dedicated to identify substances in flames and explosions but also hazardous substances in safety research of chemical engineering. Current work concerns counter-terrorism, non-lethal weapons useful in asymmetric conflicts and anti-terrorism, including also the detection and destruction of explosive, chemical and biologically hazardous materials. R&D includes also the distribution of anti-agents by methods of explosive blasts, pressurized gases and gas generators, and the sub-sequent destruction of these hazardous substances by UV-radiation, photocatalysis, burning and decomposition by fuel/air explosives, thermobarics and pyrotechnics. Fraunhofer ICT organized international conference on Energetic Materials, Airbag Technology, Non-Lethal Weapons as well as Safety and Security.

Keywords for main fields of expertise: *threats, modeling, equipment*

Persons working with this project:

Dr. Norbert EISENREICH
Physicist, Fraunhofer ICT, director of department Energetic Systems,
Technical University Munich: 1969 – 1974 student, 1974 – 1978 post graduate student,
Fraunhofer ICT: R&D 1975 – 1989, Director Energetic Systems since 1990,
Member of Board: Airbag conference 2000+, European Symposium NLW,
Editor of Journal: Propellants, Explosives and Pyrotechnics,
Coordinator of 6 completed European projects, currently Coordinator of 1 IP-SME,
More than 200 Publications

7: BMLV (MoD AUSTRIA) / HVS

(Contribution to workpackages 2,3,5,9,10)

The National Ministry of Defense has the complete technical and logistical infrastructure to provide support for this project within the framework of workpackage No 3. The HVS (Logistics School) has a long year experience in education of EOD-Personal (not only military staff but also police staff !) for peace-keeping missions and thus on international cooperation of first-responder units. There is also long-year experience in cooperation in development of security-related technologies

Keywords for main fields of expertise: *didactics, training, operations, WMK, equipment*

Persons working with this project:

Bgrd Mag. Dieter JOCHAM

He has extensive operational experience on managing severe crisis situations, which he can apply to first responder threat scenarios envisaged in this proposal.

1969 – 1974 Technical High School, VIENNA
1974 - 1975 Officer candidate program
1975 - 1978 Austrian Military Academy, WR.NEUSTADT
1982 - 1985 Austrian General Staff College, VIENNA
1998 Series of Military Courses at NATO-School, GERMANY
1999 General and Flag Officers Course at NATO Defence College in ROME
since 01 July 2000: CO of the Armed Forces Logistic School in VIENNA
since 01 April 2003 Head of Logistics Branch

Wolfgang REITSCHMIED

He has a long year experience as technical officer and is an expert joining NATO EODWG and international EOD-conferences. He did a main contribution in building up the organisation of the training center on ammunition of the MoD logistics school and attended also foreign missions with UN-mandate.

Jürgen PIROLT

He attended several international courses on IED and EOD (e.g NATO, BKA-Germany) and served with international EOD-missions in former Yugoslavia.

8: International Security Competence Centre - ISCC

(Leader of workpackages 1,9 and contribution to workpackages 2,3,5,6)

The International Security Competence Centre (ISCC), with its Corporate Headquarters in Vienna, represents an international network of security experts. Members of the ISCC Board of Directors and the international ISCC network of partners have decades of experience in theoretical methodology of security-related threat and risk assessment, as well as in security technology and operational security.
ISCC cooperates closely with eminent scientists and engineers from universities and private industry – many serve as associates of ISCC. ISCC operates in a sophisticated virtual electronic office setting and data management system, linking all employees and associates working at the ISCC locations in different countries. This flexibility allows ISCC to respond immediately, regardless of the location and sets ISCC apart from its competitors. Many of our security professionals are scientists, engineers, chemists, physicists, including also experts in weapons and explosives, as well as undercover operations and related security operations in the field.

Keywords for main fields of expertise: *WMK, risk assessment, didactics, management*

Persons working with this project:

Prof. Friedrich STEINHÄUSLER, PhD,
Full professor of Physics and Biophysics since 1983 and Director of the Government Radiological Measurement Laboratory Salzburg (Austria) since 1986. For further details, see 2.2/sect.1: PLUS

Ingo WIESER, MSc

1975 – 1978	Theresianische Military Academy Degreed as technical officer in the field of weapons and ammunition technology
1987 – 1989	legally trained for public administration
1978 – 2002	different national and abroad military uses; in the long run head of the development department of the Austrian Defence Technology Agency and deputy commander of the agency
1981 – date	certificated and legalised expert for the court on the field of weapons and explosives
1991 – 2002	Expert of the Ministry of Interior for weapon, ammunition and war material
2002 – date	Member of the Scientific Advisor Report of the Ministry of Defence
2003 – date	head of the Division for Security Research at Austrian Technology
2003 – date	Member of Board of ISCC
2004	graduated as Master of Science

Publications: 4 specialised books, 41 scientific publications

Dr. Günther BÖGL

- degree holder of Bundeslehr- und Versuchsanstalt (i.e. Federal Education and Trial Establishment) for chemical industry in Vienna
- studies of law – degree Dr. iuris
- 22 years at Bundespolizeidirektion (Federal Police Department)
- 22 years at the Austrian Ministry of Interior; from 1968 to 1970 delegate of the permanent European Council Subcommittee for facilitation of border formalities within the member states as well as 1 year head of the Minister of Interior's office
- General and Commander of the uniformed police force
- Superintendent in Vienna
- from 1989 to 1991 official consulant of the Hungarian Ministry of Interior during the installation of a democratic police structure in Hungary
- after the civil war in former Yugoslavia 2 years of activity on behalf of and mandated by the United Nations to install a democratic police structure in the Federation of Bosnia-Herzegovina (two-thirds of the police command there have been trained according to the conception in Vienna)
- Founder of the Middle-European Police Academy (MEPA) for engagement against organised crime, still one of the most successful police instruments in Middle Europe. Member States: Germany, Austria, Poland, Switzerland, Slovakia, Slovenia, Czechia and Hungary
- Founder of the permanent Middle-European Superintendent Conference of the cities Berlin, Munich, Prague, Bratislava and Vienna
- author of 6 specialised books and several articles in the press and periodicals

Dr. Bögl is founder of the **Middle European Police Academy (MEPA)** which is being organized and financed commonly by the following states: Republic of Austria, Czech Republic, Federal Republic of Germany, Republic of Hungary, Republic of Poland, Slovak Republic, Republic of Slovenia, Swiss Confederation. As a jointly maintained education institute, MEPA draws up and organizes advanced training events for managers of the medium level police government having completed higher professional police education (as a minimum educational requirement), with several years of professional experience in related fields. Cooperation with the European Police Academy (CEPOL) and the Association of European Police Colleges (AEPC).

Dr. Bernhard Schneider:

Graduated chemist and is head of the explosives section of the Austrian Defence Technology Agency. He has been working for many years in the field of chemical technology of explosives and he is member of a NATO working group concerning safety of energetic materials. He is also a consultant of Austrian energy suppliers in the field of safety analysis and risk analysis concerning hazards of gas-explosions and a consultant of the Ministry of Commercial Affairs concerning chemical technology of explosives for civil use. He also has experience in risk and safety-analysis and hazardous event analysis in chemical industry. Furthermore he is a sworn expert on court in the field of explosives, ignition systems and ammunition.

9: UNIVERSITY OF DEFENCE IN BRNO – UDB

(Leader of workpackage 2, contribution to workpackages 3,5,6,8 and 10)

Czech University of Defence is ranked among the best qualified and competent universities for security research in the Europe. The educational and research abilities of Czech University of Defence and its three Faculties: Economy & Management, Technological and Military Health Sciences they are fully matching the CAST project proposal requirments. Within the CAST proposal it acts as the security technologies developer in three fields, which are matching the *DOMINafter* module:

a) Toxicosis prevention via antidotes
b) Virtual modelling and simulation via 3D + CAD
c) WiFi Pilot Technology for Interoperability improvement of crisis management

Keywords for main fields of expertise: *risk, WMD, WMK;WMDi,training, software-tools*

Persons working with this project:

Prof. Dr. Jiří F. URBANEK

Associate Professor, branch "Mechanical Technology and Industrial Management", University of Technology Brno and branch "Theory of the Management", Czech University of Defence.

Scientific qualification: Process control of mechanical technology systems; Non-conventional technologies (nanotechnology); Production logistics; Progressive Methods of Industrial Engineering and Management; Standardisation of Integrated Management; Computer aided modelling & simulation of a processes; Forensic engineering; Risk and Crisis management; Operability and interoperability of crisis management systems; Civil emergency planning (CIMIC); The methodology of operational and preventive activities in Civil Protection - all including research and technological development projects, technology transfer and innovation.

Practice and pedagogical qualification: Forensics specialist; Non-conventional Technologies; Automation; Methods of Industrial Engineering and Management; Environmental Engineering and Management; Process Engineering & Management & Design; Management Information Systems; Interoperability and integrated systems for information and communication of crisis / emergency management, including mathematic modelling; Civil emergency planning.

Memberships: "International Society of Water Jet Technology", "International Society of Solid Waste Management, Research", "The Society for Computer Modelling and Simulation", "The International Emergency Management Society", „Czech Expert Working Group of Civil Emergency Planning Committee for Security Research Co-ordination"and "NATO Joint STS – CNAD" participant.

Management of 15 significant scientific projects, more than 120 expert reviews, 170 specialised papers, 6 books.

Prof. Dr. Rudolf URBAN

University of Defence rector-commander

10: CORVINUS UNIVERSITY OF BUDAPEST – VGT

(Contribution to workpackages 1,2,5,6 and 10)

The VGT - Departement of Security Economics at the Corvinus University Budapest is the leading institution among hungarian universities (and non-university research organisations) in this field, including university research and higher education for the main governmental institutions like Ministry of Defense, Ministry of Interior, Border Police, Diplomatic Service and many others within and outside of Hungary. The Corvinus university is the best ranking and biggest hungarian University on economics and public affairs and is specialized in teaching economics (but since 2000 it has incorporated other universities as well). The Corvinus Unversity is specialized in its research and curriculae on the cooperation with the Ministry of Defense, the Police, the Border Police and the Diplomatic Service as well as on the economics of security affairs and fulfills all academic requirements to provide full technical support for the workpackages 1 and 3 foreseen in this proposal.

Keywords for main fields of expertise: *training, crisis management*

Persons working with this project:

UnivProf. Dr. habil. Gyorgy Nogradi,
Head of the Depart. Of Security Economy

- Since 2003 Chairman of MoD Electronics, Logistics and Property Management Co.;

Member of the Directorate of the University of the Armed Forces, Czeck republic, Brno, Czeck Republic

- Since 2003 President of the Club of Rome Hungary
- Member of the Presidential Council of UNESCO Hungary
- Member of the Science Board of the Austrian Minister of Defense
- Head of the Scientific Council of the European Academy , Vienna

Brigadier-General Peter KLOCKO,

Tutor at the VGT - Corvinus Departement and head of the communicational infrastructure branch of the Austrian MoD.

Brigadier-General Peter Klocko, graduated at the Maria Theresian Military Academy and the National Defense Academy, is specialized on technical communications (including all types of satellite systems or ground based networks)and the sensitivity of critical infrastructure concerning public communication and information in case of large scale emergencies.

11: SAAB TRAINING SYSTEMS AB – SAAB

(Leader of workpackage 8, contribution to workpackages 7 and 10)

SAAB Training Systems AB develops, manufactures and markets advanced military training equipment, such as laser simulator systems, instrumented training systems, target equipment, and provides service and maintenance for delivered systems. As these technology is originally developed for the military customer is proven by a lot of European and international customers it becomes now applicable to the civil security community. SAAB Training Systems AB with its close contact to the SAAB Group has access to a wide variety of different technologies in the area of Hard- and Software. Saab serves the global market with world-leading products, services and solutions ranging from military defence to civil security. Saab has operations and employees on all continents and constantly develops, adopts and improves new technology to meet customers' changing needs. focuses on the use of simulation tools in the training of first responders.

Keywords for main fields of expertise: *training, simulation, operations*

Persons working with this project:

Johan OELANDER,

Director, Civil Security Mission Training

Education:

1982 – 1989	University of Lund - Law school, Master of law degree and studies in political science
1989 – 1995	Bofors ElectronicsNobelTech/ CelsiusTech - Contract management, Marketing Management , Electronic Countermeasures , Simulation
1995 – 2000	Marketing and Sales Director Comator / Mandator/ Cell Simulation & Training
2000 – 2001	Framfab - Regional Sales Director
2002-	Business Segment Manager Civil Security Mission Training

Björn LINDERÖ

Project manager

Education

1994	Neural Networks (5 p)	Chalmers Institute of Technology.
1991	ADA-programming (10 p)	Örebro Institute of Technology.
1989	M Sc. Computer Engineering (180 p)	Luleå University.

Patents

2004	System for Indoor Positioning; Simulation of mines; Non prism precision simulation
2000	Device for trailer tracking.
1995	Device for selecting mode of effect in kinetic energy weapons.
1994	Device for visual combat simulation on-board fighter aircraft.
1993	Sensor system for detecting low flying IR-targets.

12: SWEDISH COUNTER TERRORIST UNIT – SCTU
(Contribution to workpackages 3, 4 and 8)

The Swedish Counter Terrorist Unit (Nationella Insatsstyrkan) is a special unit of the Swedish Police. Scenarios of operation are concerning kidnapping, taking of hostages and terrorism. But also other dangerous situations, such as rescue of persons trapped in tunnels might be handled. Staff members are recruted from regular police forces aftrer at least 5 years of practice.

Training is partly done in cooperation with military forces, So there is an experience in joint operation with units of different FR-organisations.

Keywords for main fields of expertise: *terrorism, WMK, WMD, equipment, operations*

Persons working with this project:

Per ENGSTRÖM
Super-Intendent

Johan NYQVIST
Instructor

13: DIAMOND AIRCRAFT INDUSTRIES – DAI
(contribution to workpackages 6,7,8,10)

Diamond Aircraft Industries is a worldwide operating composite aircraft manufacturer with offices in major centers across North America, Europe, Asia and Australia. There are three production facilities: one located in Wiener Neustadt, Austria, the others in Canada and China. The company employs 1200 people, and has already produced over 3,500 aircraft. Diamond Aircraft Industries (Canada) is the largest general aviation manufacturer of single engine aircraft in Canada, and the third largest in North America. Diamond Aircraft Austria is approved as a Design Organization (DOA) under (DOA No. EASA.21J.052 according to EASA Part 21 Subp. J) and is therefore authorized to largely independently develop internationally accepted aircraft design and modifications. As a manufacturer the corporation holds a "Production Organization Approval"(POA) (under (POA No. AT.21G.001 according to EASA Part 21 Subp. G) and the authorization to produce and inspect new aircraft and to deliver these with an Aircraft Statement of Conformity within the entire EASA area.

Diamond Aircraft Industries is actively involved in many areas of material research, development and application. The company's expertise in advanced composite technology is being used to develop products for aerospace and defense applications which are in use worldwide. It has a unique worldwide status as the provider of all-in-one solutions delivered directly from the aircraft manufacturer. DAI has developed the innovative, twin-engine DA42 MPP (Multi-Purpose Platform) as a specially designed platform for carrying multi-functional aerial sensor and communication equipment. It combines the advantage of extremely low operating costs with the specialized requirements of sensor operators.

Keywords for main fields of expertise: *operations, logistics, simulation, communication*

Persons working with this project:

Mag. Dr. Elisabeth GUSTENAU

- Starting in 1985 chemistry studies at the university of Vienna focussing on physical chemistry and theoretical solid-state chemistry
- 1994 (Mag.rer.nat) "*with honor*" on "*theoretical analysis of the electronic structures and chemical bonding relations in Ti(C,N)*"
- 1994 - 1998 dissertation "*first-principles calculations on compounds with $ThCr_2Si_2$ – structure: electronic structure, chemical bonding, total energies*"; three publications; conferral of a doctorate (Dr.rer.nat.) "*with honor*"
- in parallel studies on "*project management*" at the „*Theresianische Militärakademie*", Wiener Neustadt
- 2000 - 2001 development of EU projects at the Austrian Research Center Seibersdorf (Österreichischen Forschungszentrum Seibersdorf/ ARCS)
- in 2003 technology marketing and project development at the Fotec GmbH (Forschungs- und Technologietransfer GmbH), Wiener Neustadt
- since 2004, technology development and project development at ecoplus (Niederösterreichs Wirtschaftsagentur GmbH), Wiener Neustadt, since 2006 focus on security related technologies
- since 2007, Special Assistant to the CEO Daimond Aircraft Industries, Wiener Neustadt

Michael FEINIG
Managing director

14: TECNATOM, S.A – TEC

(Contribution to workpackages 1, 4,5,6,7,8 9 and 10)

TECNATOM is a Services Companies providing training and assistance in Safety issues of Industrial plants, including Nuclear Power Plants. TECNATOM possesses highly qualified human resources and research and development laboratories allowing it to ensure technological independence and a high degree of availability.
The services provided by TECNATOM, as an engineering services and support company, are requested by companies in Spain and in Europe, America and Asia.
TECNATOM covers a wide range of continuously updated and extended technological capacities, this allowing the Company to provide numerous services and making of it a multi-disciplinary concern in an on-going process of evolution.
The Company possesses technological capacities in the following areas:

Training, Plant operations support, Radiological protection, Inspection, Testing of systems and components, Design and manufacturing, Safety Culture implementation

TECNATOM has a wide experience in the development and implementation of Training Systems based on the Systematic Approach to Training (SAT) Methodology.
TECNATOM has experience in the design, planning and organisation of Training Centres, definition of training needs, design of training programmes, definition and development of training centre facilities, training materials and tools, training organisation, development of manuals and procedures and training of instructors.
TECNATOM provides training not only related with technological aspects but also with **Safety Culture**, Leadership, **Team-work**, Problem Solving Techniques, Communications, **Human Factors**, Stress control, etc.

Keywords for main fields of expertise: *training, didactics, safety, communication*

Persons working with this project:

Rafael J. CARO

He is Ms. in Sc. on Applied Physics by the Universidad Autónoma of Madrid since 2000. In 2002 he obtained the M.B.A. specialised on Information Technologies from the E.T.S.I. Telecomunicaciones of the Universidad Politécnica of Madrid. In 2005 he has obtained his Diploma of Advanced Studies on Systems Engineering and Automatic from the Universidad Nacional de Educación a Distancia, UNED, developing a investigation work on object oriented methodologies for modelling the core of light water reactors. In 1993 he joined the Tecnatom I+D Area, where he developed the DAMUT project, a Manual Acquisition by Ultrasounds Device. Since then, he worked in the Simulation Area in which for 10 years he took part in simulation projects of Nuclear Power Plants (C.N. Vandellós, C.N. Trillo) as well as Conventional one's (C.T. Granadilla, C.T. Barranco de Tirajana). During the last years he develops his professional labor in the Operation Engineering Area where he arranges activities of qualification and training, giving licensing courses, (Reactor Physics, Thermal-Hydraulics, Regulation and Legislation, Nuclear Emergency Preparedness) with other activities as the development of operation procedures or the design of Annual Exercises of Nuclear Emergencies (C.N. Garoña).

Eva FRUTOS

Nuclear Engineer by Polytechnic University of Madrid, has worked in Tecnatom simulation department. At present, she is the responsible of Virtual Reality projects in New Technologies Unit, including adaptation of available tools to Nuclear sector necessities: maintenance training, optimisation of design of inspection devices and control room improvements. She is the head of Tecnatom representation in VR projects (Virthualis, Intuition, Gatarvisa, etc).

B2.3 Consortium as a whole

End-users:

Participant	Main expertise	Main Contribution to Workpackages
Hamburg Fire Service College	Practice on disaster management Special units School for firefighters Contacts to EU-partner organisations	4,6,8,9
Forschungsinstitut des Wiener Roten Kreuzes	Security-related coordination with overregional events Human factor and social issues	5,7
BMLV/HVS Austrian Federal Army/ Logistics School	Cooperation with companies in development of equipment Joint operation in international operations	3,9
Swedish Counter Terrorist Unit	Cooperation with companies in development of equipment Contacts to EU-partner organisations	2,5,9

Research institutes:

Participant	Main expertise	Main Contribution to Workpackages
ISCC	Security technology Training of first-responders	1,3,9,10
Paris-Lodron Universität Salzburg	Threats of terrorism Nuclear and radiological releases Data-mining	1,3,9
University of Defence Brno	Chemical and biological releases Organisation of FRs Communication of FRs	2,3,8
Corvinus University of Budapest	Social and legal aspects of security	1,5
Fraunhofer Institute ICT	Assessment of threats Security related technologies	2,4

Security business enterprises:

Participant	Main expertise	Main Contribution to Workpackages
DSTS-Advisors to executives	Assessment and training with biofeedbacck and virtual reality	7,8
SAAB Trainingsystems	Hard-and software-tools Training and synchronisation of FR	7,8
Diamond Aircraft Industries	Hard-and software-tools Training and synchronisation of FR	6,7,8
TECNATOM	Hard-and software-tools Training and synchronisation of FR Human-science related aspects of security and of training for FRs	6,7,8

JRC ISPRA (Italy) will be invited to join the CAST Advisory Board (see Part B2, section 2.1 Management structures and procedures, sub-section 2: Project control)

Upon acceptance of the invitation by JRC ISPRA to join the CAST Advisory Board all costs (travel, accommodation, per diem) resulting from the participation of one expert from JRC ISPRA will be covered from the CAST-project budget allocated for ISCC,UDB and SAAB up to a maximum amount of EURO 10 500 (3500 each.)

Expertise of the involved partners contributing to this project:

- *1-PLUS: risks, WMD, WMK*
- *2-AT: security policies*
- *3-DSTS: biofeedback*
- *4-HFSC:- threats, equipment, operations*
- *5-FRK: threats, equipment, operations*
- *6-Fraunhofer: threats, modeling, equipment*
- *7-HVS: didactics, training, operations, WMKm equipment*
- *8-ISCC:WMK, risk assessment, didactics, management*
- *9-UDB: risk, WMD, WMK;WMDi,training, software-tools*
- *10-VGT: training, crisis management*
- *11-SAAB: training, simulation, operations*
- *12-SCTU: terrorism, WMK, WMD, equipment, operations*
- *13-DAI: operations, logistics, simulation, communication*
- *14-TEC: training, didactics, safety, communication*

The project consortium consists of researchers, representatives of the first responder community, security business enterprises and government agencies with experience in security-related agenda, as they are:

The *overall coordination* of the project will be carried out by the Paris Lodron Universität Salzburg (PLUS; project coordinator: Prof. F. Steinhäusler).

The CAST-Consortium has been selected to incorporate the necessary experience in terrorism, FR-operations, security-related technologies and software-skills. It represents a large variety of representative governmental and non-governmental organisations, research institutions and industry to realise the goals of the project. All members of the consortium have a considerable amount of expertise in:

- Successfully managing innovative projects related to security issues, acquired either through participation or in the lead of previous and ongoing EU-programmes;
- Hands-on type practical experience in the field (exercises, actual search and rescue operation, recovery and clean-up operations).

Thereby they can provide the expertise within the project that complement each other and cover the full spectrum required to achieve the CAST key-goals.

The members of the consortium, representing researchers as well as representatives of the first responder community, security industry and dedicated government agencies dealing with security, will provide the guidance and oversight concerning the project implementation as outlined in the table below.
The EU-wide significance of the project is also reflected by the fact, that 6 EU-nations are represented in the consortium.

The project will be implemented in ***close cooperation*** between the dedicated specialised end-users representing the FR community (i.e. paramedics, fire fighters, military), members of the security research community (universities, research centers), and representatives of the security industry and software-technology companies

The first responders community is well represented by ***Forschungsinstitut des Wiener Roten Kreuzes*** (now involved in security-related coordination of the overregional event EURO 2008 and good contacts to partner-organisations in Spain and Israel), the ***Swedish Counter Terrorist*** (with experience in close cooperation with a technology-developing company and experience in co-education with units from other organisations), the **Hamburg Fire Service College** (with good contacts and cooperation with fire-fighters in the Baltic countries and a wide-spread experience in joint action and also very active in and **Austrian Federal Army Logistics School (HVS)** (with the experience in international joint peace keeping operations) and education of military and police staff.

These organisations have also well developed international contacts within the FR community (e.g Baltic Nations, Spain and Israel) and will provide the inputs for the needs and the current status of FR training curricula and are first users and test organisations of the standardized training curriculum to be developed.

The research community is represented by Universities and other research institutes.

The University of Salzburg, University of Defence Brno and University of Budapest. All three of them are involved in security research projects and evaluation of threats of terrorism covering the full range of technical and social and legal aspects.

Nuclear and radiological threats will be covered by University of Salzburg, chemical and biological threats by University of Defense Brno, social and legal aspects by University of Budapest.

The ICT institute is covering the aspects of catastrophic chemical releases and ISCC is covering threats of conventional weapons as well as education of FRs and training-curricula.

Austrian Technologies will contribute in the fields of how to adress the FR-community on introduction of new technologies, how to place new security-related technologies on the market.

All of these institutions are embedded into international networks of expertise. This will assure the comprehensive and complete view of threats, needs and emerging technologies

The industrial resp. economic community is represented by the companies SAAB, Diamond Aircraft Industries, DSTS and TECNATOM.

DSTS and TECNATOM are consulting and services companies in the fields of human science and security.

SAAB and Diamond Aircraft Industries cover the expertise in organising data and information into powerful expert-systems.

The link of the results of the assessment provided by first responders and research institutes and companies ***with security-related expertise in the fields of engineering, communication and information technology and human-science*** will merge into tools for modern education of first responders: Virtual reality training, Biofeedback and technologies for synchronisation will be a main feature of a modern training-curriculum.

B2.4 Resources to be committed

- **Paris-Lodron Universität Salzburg** will commit

(a) experienced technical and scientific staff (3 full academics, 3 laboratory technicians, 1 data mining/database expert, 1 adminstrative staff), as well as
(b)the complete modern institute infrastructure (about 300 m² special radiation laboratories, several lecture rooms)

- **Austrian Technologies**: will provide support to project coordination and contribute to the assessment of available technologies with the longyear expertise of promoting implementation of security-related technologies (1 academic)

- **DSTS-Advisors to executives: w**ill provide

(a) 2 scientists (psychologists)
(b) Biofeedback-System

- **Hamburg Fire Service College** will provide

(a) selected persons for comparative assessment of situation awareness by 3D-Simulations
(b) contact to Baltic Countries for possible dissemination of the curriculum for pilot-projects
(c) technical staff (2 scientists)

- **Forschungsinstitut des Wiener Roten Kreuzes** will provide:

(a) technical staff (3 scientists)
(b) contact to partner-organisations in Spain and Israel
(c) input from the experiences with EURO 2008, an event with overregional cooperation of different FRs, with respect to prevention of terrorism and violence.

- **MoD Austria (BMLV/HVS)** will provide

(a) infrastructure for testing and training (shooting range and ballistic instrumentation)
(b) 1 officer with experiences from longtime engagement in multinational peacekeeping operations and training for these operations
(c) training-curricula for special operations

- **Fraunhofer Institute ICT** will provide:

(a) Technical staff (2 scientists)
(b) Software-tools (safety evaluation of chemical industry), which will be provided for assessment procedures.

- **ISCC** will provide full support through

(a) its project-assigned Board Members (4 full academics)
(b) technical staff (3 academics)
(c) adminstrative infrastructure (3 full-time staff employees)

- **University of defense Brno** will provide:

(a) System for Virtual modelling and simulation via 3D + CAD
(b) Technical staff (3 scientists)

- **Corvinus University of Budapest** will provide

(a) Technical staff (2 scientists)

- **SAAB Training Systems** will provide:

(a) products and services in crisis management (CM) training, information technology for CM
(b) Technical staff (2 scientists)

- **Swedish Counter Terrorist Unit** will provide

(a) selected persons for comparative assessment of situation awareness by 3D-Simulations
(b) contact to partner-organisations

- **Diamond Aircraft Industries** will provide:

(a) a tool to validate, refine and demonstrate the recommendations to be developed within this very project by practical experiments (DA 42 MPP).
The estimated costs for leasing the DA 42 MPP (including operators) for specific validation experiments are at approximately 15.000,- to 20.000,- EUR

(b) Technical staff (2 scientists)

- **TECNATOM** will provide

(a) Curricula definition based on the Systematic Approach to Training (SAT) Methodology. Knowledge and experience on training with different scenarios in Emergency control room.
(b) Technical staff (2 scientists)

B3. Impact

B3.1 Strategic impact

Expected impacts of area 6.2 are addressed as follows :

(1) "Improved insight and advice for security policy makers,security research programme makers and (mission oriented) security research performers."

The first part of the project will deal with a comprehensive assessment of threat scenarios to European society and first responders (Stage 1, workpackages 1 to 4)
It will adress the awarenss level and planning and management levels as well as the performace level of first responders(workpackage 2)
It will deal with operational and techological countermeasures of disaster management (workpackage 1)
And it will assess the threats from a technological point of view (workpackages 3 and 4).

The comprehensive database generated, will act the base for the development of strategies and will work as aa tool for decision as well as orientation for security policy makers, security research programme makers and (mission oriented) security research performers.

(2) "Attain a broad and well-based understanding of the public administrative, cultural and societal framework in which in which security enhancing policy measures, including in particular security research, take place. "

Workpackages 5 and 6 will deal with the assessment of tactical procedures, communication strategies and related technologies.
This will reveal aspects of mutual dependency of technology on one side and organisational dynamics and human factors on the other side.
It will address the needs of the FR-community and the technologic state-of-art.
It will establish strategies of close cooperation of end-users and developers of security-related technology.

(3)" They effectuate in-depth understanding of the mutual dependency of technology, organisational dynamics, human factors, societal issues as well as related legal aspects".

A deeper understanding of the human factor will be achieved by workpackages 7 and 8, as there will be a comperative assessment of the situation awareness of different FR-communities in different countries by modern methods of virtual reality training systems with biofeed-back.
The standardized curriculum will reflect the assessment of organisational dynamics.

(4) "*The outcome of the research together with appropriate dissemination strategies contribute to the effective and efficient planning and designing of future security research programmes."*

The dissemination of a standardized training curriculum (workpackage 9) will contribute to that, as the standardized approach is an effective measure to concentrate the demands and later on to disseminate the output of security reseach programmes through that standardized channels.
It will have a positive influence by focusing developments on the detected needs and later on for implemetation, as the standardized curriculum will also standardize the market for a broad introduction of new technologies.

Meeting EU Security Strategy Objectives

The EU security strategy *A Secure Europe in a Better World* defines the following strategic objectives, all of which are met by this project:

- *Addressing the threats:*

The training curriculum on disaster management for the FR will reflect the currently valid terrorism threats for the EU, i.e. responses to acts of terrorism deploying WMD (nuclear, biological, chemical weapons), deploying weapons of mass killing (WMK, e.g., large amounts of conventional explosives in the kiloton range), deploying weapons of mass disturbance (WMDi, e.g., radiological dispersal devices).

- *Building security in our neighbourhood:*

The EU-27 will have direct borders with regions of significantly lower levels of security than currently. In order to ensure its citizens of a consistent high level of security in *all* of its territories, the EU will have to provide the standardised training curriculum to be developed in this project for *all* members of the FR community in every EU member state.

- *An international order based on effective multilateralism:*

In view of the global threats due to international terrorism, no single EU member state will be able to address the current or future security threats alone. In order to avoid duplication and possible incompatibility with regard to training and equipment dedicated for FR operations in response to a major security threat, it is essential that effective mutual cooperation is assured among the EU member states. This project will provide the basis for it by developing a standardized training curriculum on disaster management for the FR community, applicable in every EU member state.

Thus the assessment of threat-szenarios as well as of the existing training-curricula of the various public users buliding the FR-community will result in a comprehensive assessment of their needs,reflecting scope(a) of the Topic.

The security training course is aimed at the following target audiences:

- Security training for fire fighters and paramedics
- Security-training for security forces (police, customs, border control)
- Security-training for security-staff members of companies representing national vital infrastructure in EU member states (energy, telecommunication, aviation, mass transport, high-tech industries).

In view of the significant importance given to security-related activities in all EU Member States as well as outside the EU, combined with the large number of FR in need of an updated security training reflecting the new security challenges, the *market potential for this product can be considered as significant.*

Education of the FR through EU wide standardized disaster management methodologies, operational procedures and decision tools ensures:

- Coordination and standardisation of the FR training in disaster management being *the* security (response) basis in the day- to-day awareness of the EU citizens that concrete measures are undertaken to strengthen their security
- Minimizing the structural and functional deficiencies in the operation against the threats originating from terrorism/crime, including the reduction of threats due to natural and technical large catastrophes
- Optimizing the capability of FR to quickly assess the nature of the potential threats to critical infrastructures and determining the necessary steps in regaining control after a major disaster
- Strengthening EU wide effective crisis prevention and crisis management by FR through mutual operational measures for enhanced protection and assurance of elements critical to public, private and government infrastructures
- Fast EU wide multiplication of the positive effect of strengthening the operational capabilities of FR with the standardized training courses, thus establishing a critical mass of knowledge and awareness
- Facilitating feedback and cooperation from public security to private security organisations, thus ensuring force multiplication through congruent operational methods in all EU Member States
- Enabling feed back to the industrial base and the R&D community to effectively develop FR (user=customer needed) orientated tools for disaster management at all technological branches and levels.

➢ ***These capabilities will enable "to assess the specific needs of private and public end users with a view to applicability, user friendliness and affordability of the results of the security research results of the 7th Framework Programme" ; as it is the explicitely announced scope of the activity area 6.2-01(a) of this security call within FP7***

Reducing the fragmentation, i.e. achieving increased cooperation throughout the whole EU 27 FR educational standards, addresses coherent and interoperable methods in operations against all man-made and natural threats, thereby applying the principle "*Best delivers best value for money*".

In summary, this project will improve the EU security market potential in the following manner:

- Support of the security-industry and the responsible authorities by providing standardized specifications of hardware and software needed by the FR to meet the new threat situation;
- Development of new hardware and software in the field of virtual reality (threat simulation) and the methods of biofeedback;
- Development of training to prevent posttraumatic stress-disorders and gain specific strategies for stress-management by the support of biofeedback;
- Development of methods and technical equipment of biofeedback, which is a growing field in clinical-psychological methods to manage extreme stress-situations, such as the aftermath of a catastrophic terror attack.

In view of the experience of the project coordinator with the present level of FR training in disaster management in NATO member states (director, co-director, and manager of several NATO security research projects dealing with terrorism, FR and countermeasures), the strengths and deficits of the current FR training programmes will be accounted for in the development of the proposed standardized EU FR theoretical training curriculum on disaster management, as well as computer-simulated and practical field exercises.

Therefore it is safe to assume that the training programme to be developed will **open new opportunities** for:

- FR training centres currently operating in the EU – provided they will adopt the new curriculum developed in this project – to attract new clientele, also from outside the EU
- Security industry in the EU (particularly SME's) to provide insight into demands and needs of the FR-community with respect to specific organisational and institutional structures to enhance the possibilities of implementation of emerging technologies and to adapt research and development programs to the specific needs of the FR community.
- EU security R&D community, receiving a stimulans for developing new approaches (e.g. in real-time 3D-simulation trainers) to provide realistic, and yet safe training of FR in complex and potentially hazardous environments typical for the new threat conditions the EU is facing (e.g. bio-terrorism, radiological terrorism, nuclear terrorism).

  This standardized approach will ensure that the inter-operability of FR and their equipment between EU member states in acts of mutual assistance will be facilitated in the future.
  Standardisation is also a very important tool, providing an efficient interface between the demands of the FR-community and efforts, strategies and capacities in research and development, which will help to the cost-effective and timely development of security-related industry and economics, avoiding costly duplication.

➢ ***A standardized training curriculum will therefore be an important contribution to integrate the diversity of public user organisations (first responders) into research and development of security technologies, which addresses the scope(b) of the topic 6.2-01 of this security-call within FP7.***

The training curriculum will focus on the threat situation of an incident of catastrophic terrorism or of natural disasters.
Traditional education of FR is based on response to “normal” incidents of daily-life.
In case of a disastrous incident there might be no possibility of quick operation of first responders, as it might be a problem to enter the area of disaster.
So the training curriculum for response to catastrophic incidents has to provide solutions for self-organisation of the available resources by local FRs. Synchronisation of the response staff has therefore to be understood in a broader sense, including all´”available people”: with catastrophic incidents it is of importance to be aware of proper self-protection. This principle always has to be in first place.
So the new curriculum will also focus on self-protection and organisation of simple structures of leadership on commanding all of the human resources (“potential first responders”) available for FR-operations in an environment of an incident of catastrophic terrorism.
The creation of a standardised training curriculum on disaster management for the various categories of FR will provide European emergency services and crisis management with a strategic advantage in the international efforts to provide an optimum level of security to citizens.

B3.2 Plan for the use and dissemination of foreground

Dissemination of results

Special care will be also devoted to ensuring proper **external communications**. The consortium will use publications and other means of dissemination. Emerging results will be regularly presented at European scientific conferences.
Many of the deliverables of the workpackages will be comprehensive reports which are meant to serve as public guidelines:

D3.1: Comprehensive overview of used weapons and explosives suitable for WMDi terror attacks

D2.1: Methods for enhancing the level of awareness, performance, planning and management of first responders

D3.2: Critical review of available software for analysis of effects of WMK on structures

D3.4: Comprehensive overview of used weapons and explosives suitable for WMK terror attacks

D4.2: Comprehensive overview on strategies to prevent domino effects

D1.2: Report on current training--programmes on disaster management

D3.7: Comprehensive Overview of types of injuries and consequences for the wound-ballistic theory, and protective measures

D6.2: Optimization of strategies of search & rescue operations, including software-tools

D6.3: Assessment of new technical equipment and emerging technologies for optimized countermeasures and disaster management by first responders

D5.5: Assessment of the international “state of art” of protective gear, recognition of deficiencies compared to the results of practical tests, and recommendations for improvement

D6.5: Optimization of personal protection equipment for first responders

D7.3. Report on results of comparative assessment ofFR-staff in view of training efficiency with respect to disaster management

D8.4. Recommendation for closing gaps or tailoring technology based security programs

- Through **First Responder Disaster Management Seminars,** organised jointly with dedicated NGO’s in the EU Member States, such as Civil Defence Organisations, the national Red Cross and *Malteser* Paramedics, the generic findings of this study will be made available to them. Furthermore, the findings of this project will be communicated through already established channels to the EUROPOL Counter-Terrrorism Unit (The Hague, The Netherlands).

These seminars will communicate *inter alia* also the EU security policy issues to the extent that they are applicable for the mission of first responders.

The establishment of a standardised European FR education will be executed in a three-stages process:

Stage 1: Train the trainer programm
Stage 2: Developmen of tools and equipment for FR
Identification of applicability of technolgies
Measures for enhancement of compatibility of existing equipment
Stage 3. Best practice:
Provision of know-how and application-profiles to end-users
Optimization of development processes by provision of strategies for close cooperation of end-users and developers (The consortium has experience in joint development of equipment by end-users and developers and producers, e.g . Mod Austria, SAAB, Technatom, Hamburg Firefighter Brigade)

Management of intellectual property

All innovative results in the development of novel training curricula, simulation software, and training-related hardware will be managed through PLUS, taking into account the intellectual property rights of the individual partner who’s work achieved these innovative results.

The ***prove of ownership of foreground will be part of the quality management plan***.
All members of the consortium will have to ensure proper documentation of the generation of results and knowledge.

The ownership of foreground will be clearly defined in the numerous reports generated with this project.

The performance of these foreground-management procedures will be controlled by the advisory board.

The decisions concerning the "best way ***to protect IPR with a potential of industrial or commercial application***" will be made collectively within the advisory board. If not a permanent member, the owner of that IPR will be temporary member of the board by appointment for the time of negotiating that issue.

No dissemination of foreground will take place before decision of the advisory board concerning protection of the IPR:

One database and 2 reports have to be classified confidential, as they contain security sensitive information which must not be accessed by potential terrorists.

Dissemination of Databases, software-developments and the standardized training curriculum will be restricted to project partners until the end of the project.
Further dissemination and possible commercial utilisation of this foreground and other foreground produced by this project will be negotiated by the end of the project starting at the 2nd plenary meeting.

Management of innovation-related activities

On the basis of the management structures established for PLUS, there will be a number of activities designed to ensure efficient and appropriate management before, during and after the implementation of the work program. The objectives of these plans include the development of methods and tools to reduce the risks raised by the complexity of a large international project that are listed hereafter:

Use of resources (planned activities): to assess regulatory & contractual constraints, define planning, required reporting, carry out troubleshooting in case of conflict.

Communication flow (high number of participants, various communication channels: technical, financial etc.): to concentrate official communication flows upstream & downstream through the management structure and maintain clear communication routes for all information (secure internet platform).

Coordinate activities: to define consistent implementation plans while ensuring a high level of project progress reporting, set up milestone reviews and track deliverables.
PLUS environment & decision-making process (EC Contract and expectations, evolution of state-of-the-art, standards): to set up rules of participation in PLUS (Consortium Agreement, Quality Procedures), communicate on EC contract requirements, assign highly-qualified managers to head work packages.

Management of communication

At the start of the project a contract has to be signed which states clear directives for decisions and the responsibilities of all members of the consortium.
This agreement will also contain a clause on confidence: Communication of partial results will be checked in advance by the executive committee, if the information is suitable for free distribution or contains security-sensitive information, necessitating classification.
To guarantee the proper handling of sensitive information, data-safety will be managed by the following procedurs:

- All people who are involved in collecting and managing security-sensitive information have to sign the contract on confidence.
- State-of-art technology will be applied for best practice in secure internet-communication

B4. Ethical issues

ETHICAL ISSUES TABLE

	YES	PAGE
Informed Consent		
• Does the proposal involve children?	NO	
• Does the proposal involve patients or persons not able to give consent?	NO	
• Does the proposal involve adult healthy volunteers?		YES*)
• Does the proposal involve Human Genetic Material?	NO	
• Does the proposal involve Human biological samples?	NO	
• Does the proposal involve Human data collection?	NO	
Research on Human embryo/foetus		
• Does the proposal involve Human Embryos?	NO	
• Does the proposal involve Human Foetal Tissue / Cells?	NO	
• Does the proposal involve Human Embryonic Stem Cells?	NO	
Privacy		
• Does the proposal involve processing of genetic information or personal data (eg. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)		YES*)
• Does the proposal involve tracking the location or observation of people?	NO	
Research on Animals		
• Does the proposal involve research on animals?	NO	
• Are those animals transgenic small laboratory animals?	NO	
• Are those animals transgenic farm animals?	NO	
• Are those animals cloning farm animals?	NO	
• Are those animals non-human primates?	NO	
Research Involving Developing Countries		
• Use of local resources (genetic, animal, plant etc)	NO	
• Benefit to local community (capacity building ie access to healthcare, education etc)	NO	
Dual Use		
• Research having potential military / terrorist application		
I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL	YES	

*)The Virtual Reality Training with bio-feed back will be carried out by volunteers who will be informed about all details of the test procedure prior to the start of the test. The test results will be maintained as anonymous results and cannot be traced to any individual participating.

B5. Gender aspects

Basically the project is not associated with gender issues.
Assessment of first-responders sitation awareness, of organisations and institutes as well as of the human factors might reveal gender aspects, which cannot be thought of at this stage.

The “Forschungsinstitut des Wiener Roten Kreuzes” is following an active gender policy and addressing gender aspects in research and education. The representative is member of the Advisory Board of this project.

The monitoring of the raise of gender issues during this project as well as proper consideration will be ensured by the “Forschungsinstitut des Wiener Roten Kreuzes”.

B6.Security sensitivity issues

Protection of security-sensitive information will be necessary, since the project will use security-sensitive data from open sources as well as confidential data, necessitating the creation of a secure data environment.
Open sources will be analysed to develop the database DTIC. As the single data are not necessarily confidential, the combination of data or the conclusions drawn will be confidential, however (e.g. Standardized database of potential terror-targets in industry involving hazardous chemicals).

This will be achieved in the following manner: [8]

1. All persons involved in the data management will be subject to a thorough security clearance process prior to their hiring as well as during all phases of the operation.
2. All potential users of the data will be subject to a detailed process of verification concerning their identity, affiliation, and intended end-use.
3. All approved users of the data will be contractually obliged to ensure the necessary level of security concerning the information obtained through a legally binding *Confidentiality and Security Agreement.*
4. The project management will deploy state-of–the-art security measures with regard to Internet security in order to prevent unauthorized access to the data.

[8] Prof. Steinhäusler has extensive practical experience in the field of data security due to his managerial responsibilties in connection with the creation and operation of the database DSTO on nuclear material security and his collaboration with EUROPOL, INTERPOL, and NATO.

Security Aspect Letter (SAL)

Level of classification of background and foreground:

See Annex “Security classification guide” (SCG), attached to this document.

Requirement to have export-control or transfer-licences:

No requirements, as there is only classified intellectual property.

Access right per participant to the information:

See Annex “Security classification guide” (SCG), attached to this document

Statement on the clearances (or clearances requests):
Facility Security Clearance Statements by the involved partners are provided and attached to this document.
Also the personal security clearances for the persons of whom they were requested, are submitted and attached to this document.
Standardized forms for Facility Security Clearance Statements will be provided by the commission and will be resubmitted as soon as possible.

Export or transfer licences (or requests),

No requirements, as there is only classified intellectual property.

Confirmation of the compliance with specific national or international legal restrictions.
The “Security classification guide” (SCG) was passed to the national security authorities of the involved partners by the commission. No objections have been made.