SE SECURITY
RE RESEARCH

Science leads to
Security

bm**v**it

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2 3 AWARENESS: The local population looks upon security measures like video controls absolutely favorably. A current Mitropa survey arrived at this conclusion. Karl Blecha, Head of Mitropa and former Home Secretary, comments on the most interesting results.

2 9 SECURITY INVESTMENTS: According to a recent study Austrian public authorities spend around one billion Euros on the protection of critical infrastructures. Thus, Austria ranks among the countries with the highest security expenditures.

Content

Editorial

Some people understand by security to be able to walk the town at night without any fear. Others on the other hand would feel safe if their pensions are sufficient to keep up the standards of living they are used to. And still others would feel at ease when their houses are protected from threatening flooding. Like these examples indicate, security is a highly diversified concept which affects almost every aspect of daily life. Thus security research also needs to be seen comprehensively if it wants to meet all the various needs. With its safety research programme KIRAS the Ministry of Transport, Innovation and Technology (BMVIT) has managed to achieve such an integral approach.

With this second edition of the magazine "Security Research" you are holding the sequel of this topic in your hands now. The first version was still all about presenting KIRAS and its basic principles comprehensively, highlighting the development of security research on EU level and its integration in national programmes (you can download the pdf-file of the first magazine from the internet in German and English, you will find the link in the column "Service" on page 47").

The current magazine goes a step further: Promising approaches being pursued at present, give the abstract concept of security research a face. With StegIT there also was the first KIRAS-project completed successfully. You will learn more about it as of page 11. It is also new that for the first time two studies have been dealing with the economic significance of safety research for Austria at the same time. The analysis of the Planconsult Holding has been intensively dealing with companies offering products and services for public security according to the English concept of "security". The study of 4C Foresee has on the other hand been examining the demand side and found out how much the Austrian consumers – public organizations and flashing blue light organizations – have been spending on security per year (as of page 26 or page 29). Another main focus of the study was devoted to the question how safe the Austrians feel and to which extent they accept monitoring. The results (as of page19) definitely are surprising.

With KIRAS Austria is internationally seen a forerunner and a good example for other countries which are also developing a national security research programme. Thus Austria has also decisively influenced European security research. A main emphasis therefore is also on the EU's 7th Research Framework Programme which for the first time also covers security research as an elementary issue. Learn more about the current state of EU research, the committees involved and how Austria wants to link research at national and at EU level with each other with the help of the so-called ERA-NET as of page 34.

Enjoy reading!

The SIFO Editorial Staff

Security Guaranteed

Photo: BMVIT

State Secretary for
Research Christa Kranzl is
happy about the great
interest in KIRAS

Current surveys have lately confirmed that the Austrians feel safe and comfortable in their country. Though they get more and more worried that the level of security can not be kept on the high level they are used to in the medium and long run. Triggers of their fears seem among other things geopolitical changes like the end of border controls in the course of the Schengen expansion towards the East and the fear of an increase in crime linked to it.

If one deals with topics like these, the main issue is how to hold up the security of the citizens if not even how to improve it. Therefore one must not rest in Austria but one must strive to provide for it accordingly even in future. It is particularly upon security research here to develop suitable measures that serve both the subjective and the objective improvement of security.

For this reason the BMVIT has initiated a national security research programme through KIRAS which is dealing exactly with this question and supports the search for suitable solutions. Altogether, about 110 million Euros are available for it until 2013. The great interest in this programme is not just documented by the strong participation in the Call for Expression of Interest prior to its start, but also the high – up to 3.5 times – oversubscription, of the previous bids.

It is particularly pleasing that the SMBs come up to about one third of the previous participations. They profit excessively from the "flag ship function" of the public consumers which are tied into every project compulsively. Therefore security research is also of great importance for the economy of Austria which is characterized by a particularly high share of SMBs.

However, security must never go at the expense of privacy or even civil rights. We need to find out which consequences security measures have on people and their basic rights in advance. Therefore not only the development of new technologies is in the foreground in security research. One rather follows an integral approach: The integration of the humanities, social sciences and cultural studies (HSC) makes sure that the human being permanently remains of central concern. Mankind is the partner of technology with equal rights here. So that potential conflicts can already be avoided or solved efficiently in advance. This multidisciplinary approach carries a quite clear Austrian signature. Just like the HSC are integrated in the European Research Programme now, it has already been an essential part of Security Research in Austria for a long time.

Holistic Approach

Gernot Grimm, Head of the Staff Unit Transfer of Technology and Security Research in the BMVIT, sees in KIRAS the key to the security of tomorrow.

With its National Research Development Programme KIRAS Austria is the first European country that has launched a promotion initiative for security research. Its name is Greek and is made up of the words "kirkos" (circle) and "asphaleia" (security). The circle is representing the holistic concept behind as in KIRAS all disciplines and dimensions are to be included.

Already in the conception phase in the year 2005 it was the aim of KIRAS to set new impulses for innovative new technologies and to generate knowledge to be able to guarantee the public security of tomorrow with the help of research and development. The Austrian Security Research Programme supports national research, because their results contribute to increase security as a sustainable guarantee of a high standard of living and opportunities for development for all members of society. A special aspect here is the integration of the humanities, social sciences and cultural studies (HSC) which already scrutinize the possible effects on society and the basic rights of the citizens already in the planning phase of every project.

Although KIRAS is bound to the political research guidelines like the creation of excellence and technology, the programme at the same time tries to do justice to the highly sensitive political topic of security research with all its security-, socio- political and economic aspects. The basis for such an approach is the integration of all the relevant groups: meaning that all the relevant companies and institutions from the fields of research and development, Austrian businesses and the political executives and consumers are integrated and brought together.

Since KIRAS is obliged to security policy, not only the needs of the security-politically relevant departments for the specification of new bidding focuses are specified again and again but the public consumers are involved into every project bindingly. Thus not only the security-political specifications are taken into account, but it is also taken care of that research is done according to the market's needs. There is not a market in the traditional sense of the word yet, because the market for security relevant products and services is characterised by the dominance if not even monopoly of public purchasing ("public good security").

With the help of research that is oriented at the required needs, marketable technological products and services are developed in future and research is not just done for research's sake.

Thus with the employed means also comprehensible economic effects, like the creation and securing of jobs, are obtained and the creation of value in the country is ensured. This makes sure in the end that tax is used in a sensible way. 48 projects with a total volume of about 30 million Euros were submitted in the first Call for Programme Line Two (December 2006 until February 2007) alone. Almost 500 jobs were created or safeguarded through that. Learn more about its characteristic features as of page 7.

Security Research: Austria is
Leading the Way

PIONEER. With KIRAS Austria is the first EU country that has developed a National Security Research Programme and has thus become a good example for the other member states. At the same time Austria can offer valuable impetus to European Security Research. »

Photo: Photos.com

Austrian know-how is asked for in security research far beyond its borders.

After the attacks in New York, Madrid and London the European Union decided on first measures to increase the security of the population. Consequently the EU has dedicated a major chapter of its own to security in the 7th Research Framework Programme for the first time. Already from the very beginning of all these activities Austria has been building up a National Security Research Programme of its own called KIRAS. The name KIRAS is Greek and is made up of the words "kirkos" (circle) and "asphaleia" (security). The circle has to be understood as representing the holistic concept behind, because in the programme all disciplines and dimensions are combined resulting in a comprehensive concept of security.

Austria was the first country in the EU which has managed to develop such a programme. Its strategic basic orientation was integrated to a large extent in the European Security Research Programme. At the same time, further countries, like Germany, also orientate themselves at KIRAS in their national programmes. Since the programme started, the protection of the so-called critical infrastructures have had top-priority. Altogether, about 110 million Euros of subsidies shall be distributed from 2005 to 2013. It is all about the defence against terrorism, sabotage, but also against natural disasters and the consequences of serious industry accidents, so that the basic functions of the state

„Already the Call for Expressions of Interest triggered enormous response.”

GERNOT GRIMM, BMVIT

and the basic supply of the population can be maintained even under massive threat.

THE NATIONAL SECURITY RESEARCH PROGRAMME was even particularly mentioned in the Government Programme due to its national cross-sectional relevance.

Parts of the six strategic objectives are the following:

- Creation of knowledge that is required for the achievement of the security-political objectives of Austria
- Increasing of the objective security and the subjective security perception of the population
- Development of leaps of technology which are relevant for security
- Growth of security industry
- Building up excellence in security
- Integration of the relevant social and socio-political questions in all projects.

Many countries view security research as a part of national defence and thus as a part of the armaments industry. In Austria however there is a purely civilian approach – which caused certain doubts in the beginning: ”As the armament industry is only operating in certain niches in our country, there were doubts whether Austria has enough industrial potential to reach significant critical sizes at all”, says Gernot Grimm, Head of the Staff Unit of Transfer of Technology and Security Research in the BMVIT, however already the Call for Expressions of Interest at the end of 2005 triggered enormous response. This also speaks for the good job done by the Austrian Research Development Agency (FFG), to which the operative programme management has been assigned.

THE TOPICS are scattered broadly. In principle everything is funded apart from purely military research, also including goods which can be used for both civilian and military purposes such as explosives detection, biometrics or special IT solutions. KIRAS is based on four programme lines, which complete each other:

- Programme Line 1 (”Networking and Probing”) deals with the grouping of national resources and expertise as well as technical feasibility studies
- Programme Line 2 (”Cooperative R&t Projects”) aims at transferring newly acquired knowledge into applied research and technology development
- Programme Line 3 (“Component Development and Demo Projects”) checks the appropriateness of innovative ideas, concepts, technologies and systems in the field of security research
- Programme Line 4 (“Accompanying Measures”) support the other three Programme Lines with studies, for example

ANOTHER FEATURE in KIRAS is that the humanities, social sciences and cultural studies (HSC) are integrated into every project from the very beginning. In the context of public security there is always the danger of interference with basic rights and the privacy of people, too. If the possible consequences are, however, already discussed from the very first project day, the risks are minimized. In the beginning Austria had its problems with this decision, yet in the end it was managed to establish the integration of the HSC on the European level, too.

The high degree of practical and economical orientation is also an important element in KIRAS: Public security is ”produced” by public institutions. For this reason the demand follows political specifications and public procurement measures. Therefore within KIRAS just projects, where public consumers, such as the Ministry of the Interior or blue light organisations, are involved, are

Critical Infrastructure

Under the term Critical Infrastructure KIRAS groups the following points:

- Power Generation and Distribution (power, oil and gas production, storage-type plants, refineries, distribution systems and networks)
- Communication and Information (telecommunications, broadcasting, software, hardware, internet as well as facilities of the national security system like guidance and control systems, sensors or supervisory systems etc.)
- Scientific Infrastructure
- Financial Systems (bankings, insurances, etc.)
- Health service (hospitals, health facilities, laboratories, drugs, search and rescue services, emergency services, etc.)
- Food (security, means of production, industry, wholesale trade, etc.)
- Water (dams, storage-type and finishing plants, supply networks, etc.)
- Traffic and Transport (airports, harbors, inter-modal facilities, trains, public short-distance traffic, traffic control systems, etc.)
- Production, Storage and Transport of Dangerous Goods (chemical, biological, radiological and nuclear substances, etc.)
- Authorities, Administration and Justice (facilities of the security institutions, blue light organizations, etc.)

supported. "We, however, do not just want to do research, but also create value in Austria. This is the only way, how to use tax appropriately", says Grimm. In order to reach this goal all the important parties are involved in the entire development process: basic research and applied science and the industries, which develop prototypes and consequently marketable products as well as the later - basically public - purchasers and users.

In the first Call for Programme Line 2 (December 2006 until February 2007) 48 projects with a total volume of about 30 million Euros were submitted. Almost 500 jobs were created or saved through that. Grimm is satisfied with the other results, too: "We definitely are on schedule and will achieve all our goals as scheduled. Despite the very short running time of KIRAS we are already among the leading countries at European level, when it gets to input for the European Security Research Programme – reflux, outcomes and cooperations.

MORE ABOUT KIRAS KIRAS and its basics can be found in the first edition of "Security Research". You can download the booklet in German and English under www.kiras.at /cms/aktuelles/pressespiegel/broschuere-si-cherheitsforschung.html. «

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Apart from the Federal Chancellery and the Ministries there is a delegate each from the FWF being Austria's key institution for the advancement of basic research, from the sponsoring bank aws and from the Chamber of Labour, the Economic Chamber and the Chamber of Agriculture in the Executive Committee. In addition the Council for Research and Technology Development and the FFG being the operating organ of KIRAS depute one member each for the Executive Committee. The nomination of the jury, the controlling organs and the consultants is done by the BMVIT itself.
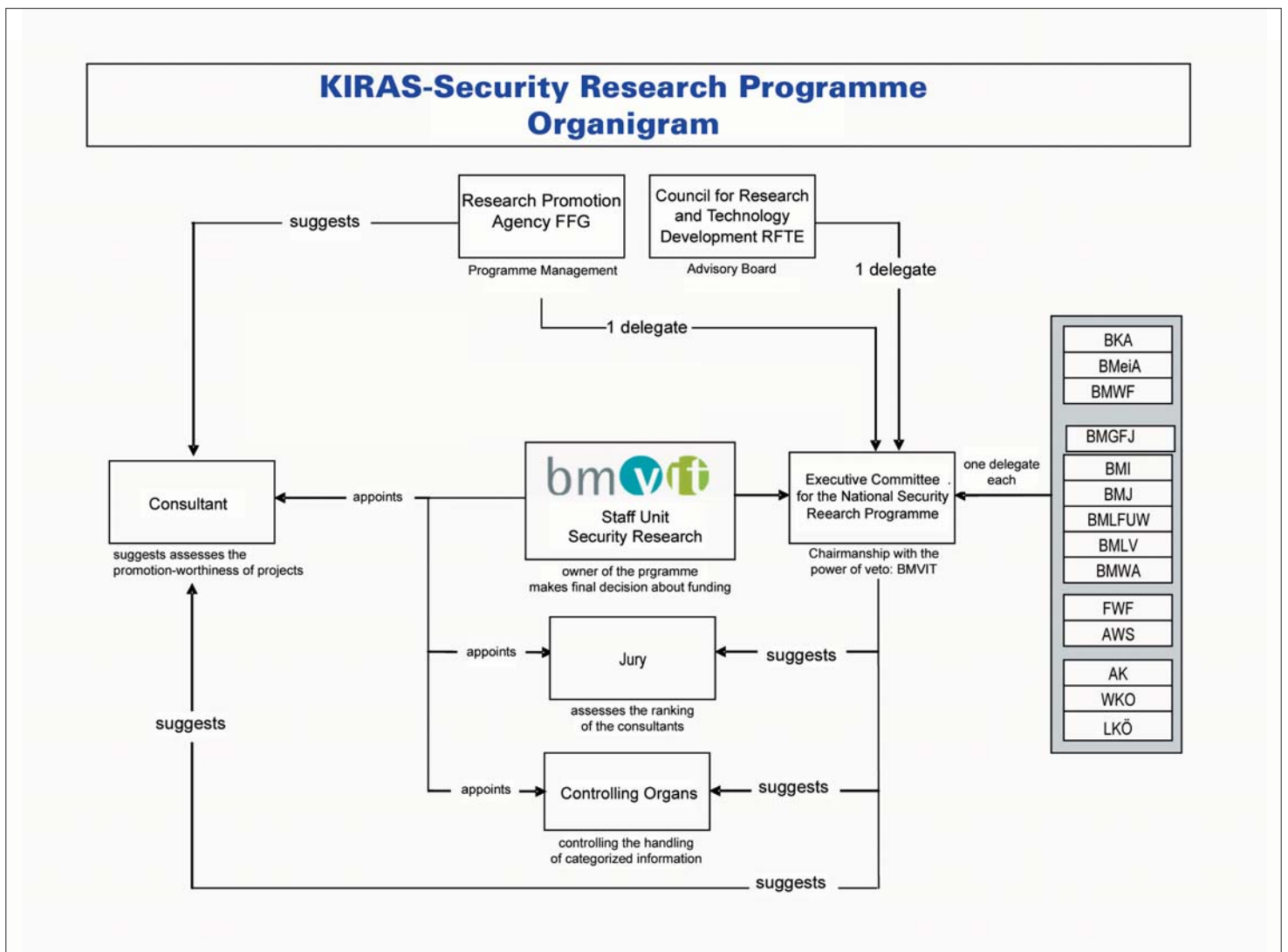
Heading in the Right Direction

CLOSING OF RANKS: The Austrian Research Promotion Agency (FFG) is responsible for the handling of KIRAS, and it is able to provide a satisfying balance for the National Security Research Programme. But also on an international level Austrian presenters play an important role. »

Photo: FFG

"KIRAS has been accepted very well by the research community." Johannes Scheer, FFG"

JOHANNES SCHEER, FFG

The BMVIT has developed the National Security Research Programme KIRAS in coordination with the Council for Research and Technology Development. Being the programme owner it is responsible for its structure, strategy and financing. The FFG was engaged to do the handling and the programme management. The start-up phase of the programme started with a Call for Expressions of Interest in 2005, where statements of interest of possible project partners were collected. "Response and results were just overwhelming", says Johannes Scheer, KIRAS Programme Manager in the FFG, happily. About 250 drafts had been handed in and many of them were subsequently submitted in the various calls for tender as full projects. "KIRAS has thus been accepted very well by the community, which actually first of all had to find, form and develop itself for this programme. After all security research finally is not only in Austria but all across the EU a completely new and big topic." Each of the invitations to tender carried out so far showed high rates of over-subscription, which proves that there are many ideas and great potential on the part of research and industry.

WITH THE NEW TOPIC security research numerous institutions and companies are addressed to apply for research sponsoring for the very first time. The FFG has therefore invested a lot in consultation, created preproposal checks and set up a Presenter's Day of its own. "If designated experts and jury still decline a project, we also communicate deliberately, why it failed", explains Scheer. The detailed statement does not just give the reasons for failing, but also shows how the application can be improved for the next submission. This is an adjustment and learning process for the companies exceeding KIRAS. The sustainability of this process also shows itself in the fact that initial difficulties, such as wrong priorities set in the applications

or unclear explanations in the scientific part, almost do not appear any more. "If one knows how to submit an application to a research sponsoring institution, this experience can also be useful with all other institutions, too. We are also making the applicants fit for European research programmes", says Scheer. The high quota of successful applications of Austrian companies, universities and extramural research facilities in the European Security Research Programme also shows how well this works. If one has reached European Security Research, then one has reached the Champions League, if one wants to use the words of football", emphasizes Scheer.

BY ORDER OF THE MINISTRIES the FFG as the central institution of the Federation supports research, development and innovation in Austria with numerous promotional programmes and services. It also offers a "one-stop-shop"-consultation for the choice of the right promotional programmes, support in international cooperation projects, in activities in space and especially in the cooperation of science and economy and in the application of research results. The FFG is in the possession of the Republic of Austria, operating bodies are to 50 per cent each, the Federal Ministry of Transport, Innovation and Technology (BMVIT) and the Federal Ministry of Economics and Labour (BMWA). Being a supplier of promotion services the FFG also operates by order of other national and international institutions. «

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Tamper-Proof IT-Infrastructure

SCREENED. In drug trafficking, in industrial espionage or in the precautions against terrorist attacks important information is transmitted - preferably encoded - via mobile telephones and Internet telephony (VoIP). The St. Pölten University of Applied Sciences has developed with StegIT an effective defensive measure against this so-called steganography. A great success for the still young KIRAS programme. »

Digitised audio, image and video files contain so-called noises. These noises offer sufficient room for the inconspicuous embedding of secret messages. In the case of audio files information can be smuggled in via an artificially created echo. Neither in the case of the manipulated photo sent via MMS nor in the telephone call human perception would be able to notice the difference," explains Professor Ernst Piller, Head of the Department Scientific Studies in the Course IT Security at the St Pölten University of Applied Sciences.

There are various possibilities of embedding secret content into average files. The easiest way is to change the "least significant bit", whereby the bit of the lowest order like the grey value in a photo is overwritten by the bit to be embedded. For the forthcoming years the IT security experts from the University of Applied Sciences expect a strong increase in encoded transmissions through steganography. The reasons behind are the increasing distribution of Internet telephony (Voice over IP) and the "intelligence" of mobile telephones turning into Mini-PCs with telephone function.

"It is an extremely complex process to prove the existence of hidden information. To be able to extract them, one must also recognize the embedding technology. The existing procedures quite quickly reach their limits, since they are based on the know-how about already existing steganography-algorithms. New designs are however not taken into account", says Johann Haag, Head of the Course "IT Security" at the University of Applied Sciences. As the secret message bits get embedded in irregular intervals and therefore nobody knows when exactly they are sent, it is particularly difficult to track them down in real time transmission.

THIS IS EXACTLY THE POINT, where StegIT comes in, as it prophylactically prevents every form of steganography effectively. Under Piller's management the staff of the FH St. Pölten has developed a method of defence based on an "inaudible" change of data. With the help of random number generators and mathematical operations in connection with special optimization methods every telephone call, SMS, MMS or video gets changed – no matter whether it contains secret information or not. In a real time transmission, for example, an inaudible noise can be added, so that the receiver cannot decode a hidden message anymore. The normal voice transmission and phototelegraphy would stay completely untouched according to Piller. The transformation of the data is done by hardware used by the Internet or GSM network operator. What is particularly important for data protection reasons: The regularly transmitted information itself is irrelevant for this form of defence and is therefore being neither bugged nor sifted.

IN THE RESEARCH PROJECT StegIT members of staff from the FH St Pölten have together with the Federal Ministry of Defence and the Federal Criminal Police Office worked out first methods and procedures to preventing specific steganographical manipulations effectively. The project management was upon the FH St Pölten. StegIT was part of the Austrian Security Research Programme KIRAS and was finished at the end of 2007. In a follow-up project further techniques and a prototype shall be developed, which should be resistant against a multitude of possible steganographical manipulations. «

Photo: Archive

"Hidden messages cannot be decoded any longer."
ERNST PILLER, FH ST. PÖLTEN

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Security Research in Austria

SUCCESSFUL IMPLEMENTATION. All four tendered programme lines have been accepted by the Austrian research community. The following selection of projects promoted by KIRAS shall demonstrate the achievements of Austrian security research. All projects promoted can also be found on the internet at „www.kiras.at". »

■ DISASTER MANAGEMENT IN THE HEALTH CARE SYSTEM

The biochemical terrorist attacks with anthrax-laced letters in the USA, the SARS epidemic, bird flu in Asia as well as current political, social and technological developments all bear many potential risks and dangers which can lead to a series of extreme damages. Apart from the destruction or the damage of local infrastructure and the threat to the lives and the health of citizens these disasters also have massive ecological and economic consequences.

A project called "Disaster Management in Health Care" was set up which is used to assess the medical and psychological emergency relief management in Austria based on clearly defined dangers in governmental, operational, material and legal terms.

Additionally, the current level of all initiatives taken on a national and on a European level shall be assessed. The results should help to detect existing shortages and flaws in connection with possible disaster consequences.

This project is a valuable contribution to the requirement assessment in the health care system in case of disaster and is used to prepare future measures. It is carried out by the Institute for Pharmaeconomic Research in cooperation with AGES, Foresee, MedConsult and the Austrian Institute of Ecology.

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■ SOS-guide

The Styrian Red Cross has 96 local branches and 360 sanitary vehicles. Each year there are about 550.000 different types of operations in this province alone with an average of one emergency call every 75 seconds. First of all one always tries to get a description as precise as possible from the caller so that the ambulance quickly finds the exact location of the incident. This can be extremely difficult given that the injured person often is under stress and therefore cannot describe his/her exact location.

The SOS-guide is supposed to help eliminate this problem. In the future GPS-enabled mobile phones will transfer the exact location of an accident victim directly to the headquarter At the same time they will show the victim's direction of movement with the help of additional sensors. Thus, "Remote Guidance" can be used to help blind and visually impaired people find their way back to a secure spot or meeting place. Potential users would also be elderly people or people with disabilities, children, hikers, tourists, etc. What also needs to be taken into account during the implementation process is whether the victim is still able to take instructions from the headquarters and follow them. Only if this is not the case an ambulance will be released.

Project objectives are defined as follows:

■ Determination of the status quo in case of an emergency call and alarm
■ Determination of the requirements of the Red Cross with regard to communication and information
■ Determination of data-interfaces
■ Selection and evaluation of available hard- and software for headquarters, helper and caller
■ Determination and selection of suitable geographic data
■ Development of interfaces for voice and data communication

The Institute of Navigation and Satellite Geodesy at the Graz University of Technology is responsible for the project management, partners are SOLVION Information Management and the Austrian Red Cross, Federal Association Styria. «

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Photo: Photodisc

SkiG

SkiG is short for „protection of critical infrastructure at mega events". The programme deals with video surveillance at events with mass attendance.

Since football games often involve dangerous situations and given the fact that there is a certain risk potential for riots, terrorist attacks and similar incidences of serious consequences, the Department for Practical Informatics at the Danube University Krems has been chosen to lead the study together with Center Communication Systems Ltd at the European Football Championships (EURO) 2008.

On the one hand video surveillance can help to react quickly to dangerous situations, on the other hand scepticism persists among the population. Therefore the study does not focus on technical aspects. Instead an interdisciplinary team analyses its psychological and sociological effects.

The aim of SkiG is to determine the citizens' attitude towards video surveillance and to find ways of creating acceptance and confidence.

The Department for Practical Informatics also analyses the visitors' sense of security as well as their personal evaluation of critical situations. "The objective of the study is to be able to judge secure and insecure behaviour of people in big crowds." project manager Edith Huber points out. Another central question to be answered by SkiG is to which extent obvious video surveillance influences the security relevant behaviour of people at mass events.

According to Huber research results will have a great impact on the development of security technologies and especially on video surveillance by defining the relations between technology, people and society.

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Photo: Archive

SALOMON

To guarantee security for the Austrian citizens one needs to determine their main fears of threat and which threat mechanisms are activated.

This knowledge helps to recognise various needs for security of different social groups (sex, age, ethnic background, confession, social circumstances, etc) and to develop specific measures to improve security. Of course, political, economic, organisatorial and cultural aspects must be considered.

At the moment there is no European instrument for systematically and reliably gathering data on the threat perception of migrants. This is why the SALOMON project was started in Mai 2007. Its purpose is to develop a tool to investigate the threat- and security perception of persons with migratory background. SALOMON will be implemented in four steps until reaching its project goal in April 2009.

A comprehensive literature research which was complemented by discussions between scientists and migration methodology- and security research experts provided the basis for the project. Results were used to develop suitable research methods. In the third stage results are edited and then recommendations for security research are made. In a follow-up project the developed measures are implemented on a broad basis determined what persons with migratory background perceive as a threat to security in Austria.

This project is mamaged by the Vienna Research Institute of the Red Cross (FRK) and carried out in cooperation with the Sigmund Freud University Vienna.

A think tank including practical and scientific experts also supports the project.

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DESTRail

Traffic infrastructure is the backbone of the economy. Natural disasters, technical failure, human error or terrorist attack are some of its great dangers which can have dramatic negative effects on the national economy and can also take a toll on human lives. The main task of DESTRail is to look at security aspects and to establish a framework for the prevention of risks and threats on the Austrian rail infrastructure.

The Tasks are among others immediate damage identification, automatic damage calculation and automatic interference in railway traffic. Trains approaching identified damaged spots can be stopped immediately.

One of the main goals is the identification of all hazardous spots in the railway network which may be damaged by earthquakes. An evaluation of Landsat, SAR, Insar and Envisat data helps to draw up a hazard map and identify zones which pass or cross active tectonic faults.

In combination with the evaluation of earthquake records from the Austrian Strongmotion Network a potential damage can be calculated within a few seconds and railway traffic can be stopped. A permanently working combination of sensors and detectors is used to provide indications to such events. This information is evaluated in a Decision Support System and necessary stop signals are activated.

Another part of the project is the identification of damages of railway bridges.

Impacts by ships can damage railway bridges in such a way that a passing train could crash into the river. A decision support system from acceleration data could be very helpful. This concept has already been successfully tested in the area of identification of damages to bridges, a more general applicability of the known algorithms has yet to be developed.

The results of the project provide the basis for an alarm system prototype at Austrian railway engineering structures. Project leader is the VCE Holding, project partners are the Vienna University for Natural Resources and Applied Life Science, the University of Innsbruck, the ÖBB Infrastructure Construction plc., APLICA Advanced Solutions GmbH and arsenal research. «

Photo: ÖEBB

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GEDES

In Austria's landfill sites there are about 50 million tons of municipal waste and about 500 million tons of construction and demolition debris. Numerous studies have shown that the environmental hazard emanating from conventional municipal solid waste landfill lasts for centuries.

This results from the enormous amount of disposed materials which only disintegrate and wash out very slowly due to the heterogeneity of the waterflow in landfills.

Whereas the normal operation of landfills and the associated emissions are well documented and assessable, the consequences on landfills in case of flooding is widely unknown. One can assume that the hydraulic conditions change drastically in case of flood - waste materials soak up the water and large amounts of pollutants can leach within a short period of time.

GEDES should help to assess the environmental risk resulting from landfills and old waste deposits in case of flooding

In the first project stage it is determined how many Austrian landfill sites are at risk of being flooded and which degrees of emission can be expected in case of flooding.

Then possible negative effects of these emissions on valuable resources such as ground water and soil are analysed on the basis of three landfill locations.

Building upon the results from the first project stage, strategies to minimise environmental risks due to landfills in danger of being flooded shall be worked out in a follow-up programme.

Project leader is the Vienna University of Technology and the Institute for Water Quality, Resources and Waste Management. Project partners are the Institute for Mathematical Methods in Economics, the Vienna University for Natural Resources and Applied Life Science (Institute of Water Management, Hydrology and Hydraulic Engineering), the Federal Environment Agency (Waste Management), the Office of the Provincial Government of Lower Austria (Water and Waste Management), the Office of the Provincial Government of Upper Austria (Environment and Hydraulic Engineering). «

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Everybody for it, Nobody against it
Security as a Guarantee for Political Success

PROTECTION AND SECURITY. Security is a very personal and subjective emotion of the individual and not a condition attestable by means of data and facts. Even in times of considerable decline of criminal offences or in phases without big disasters the need for security may increase. »

Photo: Photos.com

Ever since all TV stations worldwide forwent picture rivalry and showed the collapse of the World Trade Centres in endless loops on September 11th, 2001, we know that a media spectacle can boost the needs for security considerably. Yet such dramatic examples are not even necessary. The exaggerated portrayal of minor accidents and crimes in local newspapers quite often have the same effects.

Whether I feel safe or unsafe in a tunnel, little has to do with road safety, which in fact holds a lot of true danger. However it is all about the psychological phenomenon of the fear in the dark. For middle-class daddies the security argument is still the standard argument in discussions, why the family should purchase a more expensive car from Europe. The words "I feel safer in a car from Germany!" still continue to be valid, although cars from Asian countries of manufacture aren't necessarily worse. This may have to do with a doubtful fear of foreigners and nevertheless comes in truth from the political and medial conveyance of security. Eventually on television and in tabloids they hardly show any statistics about accidents, but rather more or less lurid pictures from accident. People's need for security in a media democracy is thus shaped by journalistic snapshots and not by scientific data collections.

Whether I feel less threatened by terrorist attacks in Vienna than in New York likewise has little to do with the security measures of our police, but mainly with personal feelings. Lower crime rates similarly do not necessarily result in a higher sense of security. Everybody has at some point read somewhere that somebody's house has been broken into. No matter whether we talk about housebreaking, pick pocketing or vandalism, the media coverage and the following talks about it result in an atmosphere reaching from feeling relatively protected until to true panic against crime. The same is true for al-

Photo: Photos.com

Fears and worries are not a technological, but a psychological problem.

most all the core areas that KIRAS deals with. On the one hand it is all about making sure that health care, power supply, financial service and information supply work in Austria even under the most adverse conditions, for example, after terrorist attacks or natural disasters. On the other hand such demands cannot be satisfied by technical measures alone.

IF PEOPLE ALREADY HAVE PANIC ATTACKS IN THE MOST PEACEFUL TIMES that water or food could be gone for the most dubious reasons, presumably the best supply concept does not protect us from raids in crisis situations. The multidisciplinary and multidimensional approach of the BMVIT Security Research Department and its projects sponsored from technology to studies of civilization is therefore absolutely correct.

POLITICIANS ACTING AS AGENTS OF SECURITY: What does all this have to do with politics? In the end it is a key task of the ruling government to give those being go-

verned security guarantees. This reaches from the compliance with democratic rules, the protection from warlike and criminal threats up to guaranteed public services. The problem for politicians: The greatest possible or even a definite guarantee of security is expected from them. It is a comprehensive package of most different fears which the politicians have to fight against to be able to fulfill their job of getting across the feeling of security.

Not to get robbed, hi-jacked, attacked or raped are solely a few of the many worries of the (voting) population. Fears of the loss of the job, not to be able to afford everyday expenditures, of deteriorated offers of residence or education are at least just as important. There are other fears in the grey area of fear from foreigners and hostility to foreigners and xenophobia. The parallel to the psychological component of tunnel and car security is the comparative irrelevance of the corresponding domestic policy. Reinforcement happens mostly through the media portrayal of individual cases. Part of the psychological tasks of politics (and the media) is to prove that the citizens are taken seriously in their security fears, for example.

Just like the contact officials of the police, politicians must primarily convey the feeling that they are listening to people. Among other things this is true for health care as a part of the security topic. Which doctor has a good reputation? From a medical-technical point of view 99.9 per cent of the patients can hardly judge this. Instinctively I always choose a doctor who patiently listens to my problems - including self-pity. Politics and the media are quite often in the role of the doctor, when it comes to matters of security.

Moreover, security policy does not have any political opposition. Party disputes about the legitimacy of police authorities, notwithstanding, no politician is against security. In principle advocates of more monitoring-measures no matter whether via video camera or Federal Trojan and defenders of data protection alike agree that the citizens should not feel insecure. Apart from fundamental right issues they are discussing – metaphorically speaking – whether the threatening scenario of an armed terrorist or the police officer with a submachine gun in front of the house

A current example is the European Soccer Championship. Hordes of hooligans in boozed condition are frightening. Executi-

ve battalions with full-visor helmets, truncheons and battle shields or even armored cars, which should protect us against them, can be just as much frightening. So politics is also a decision of the appropriateness of the means to achieve security and to handle feelings of security sensitively. Thus besides the tough measures undertaken by the security police a softer access to the needs for security gets more and more important. Immigration politics, for instance, is strongly characterized by stereotypes, so that the dialogue of world cultures as a form of prevention is also important in a completely different sense. A figure to underline this: Up to three quarters have "very much" or "a little" the subjective feeling that there would be more and more foreigners year by year, although the statistics say the opposite in some provinces or can't confirm this for all of Austria.

SECURITY IN POLITICAL COMPETITION: In an election year the topic is not so much real protective measures for more security, but rather image improvement. The key to success theoretically is very easy to find. If it is said "Party X takes care of the security of the country!" or "Politician Y guarantees for our security!" the parties concerned have almost won. Generally, the respective opposition is called "Uncertainty Party" whatever this may actually be. The difficulty for all parties is: What exactly does security mean from the voter's perspective? Not even the standard question whether security represents a rightist or leftist or conservative or liberal topic can be answered clearly. If we talk about law and order and facets of a so-called policy on foreigners and/or about economic stability the centre-right parties will profit in the political competition. If the stress is on homeland and national security primarily the ÖVP, FPÖ and BZÖ would profit. On the other hand from aspects of social security the SPÖ and the Greens as centre-left parties would profit.

IN AT LEAST FOUR CASES of the recent past the security topic even represented the key factor as an immediate causality for the election results and the majority determination:

■ In the Election of the State Parliament of the Tyrol in 1999 the SPÖ was according to all data continuously gaining votes, the party of the Provincial Governor, the ÖVP, was on the decline. It could only be stopped through the avalanche disaster in Galtür by Governor Wendelin Weingartner. Suddenly Weingartner was omnipre-

sent, while his challenger Herbert Prock did not have any room for maneuver, because of the official agreement on an election campaign stop in the interest of the country. Excellent crisis communication also was the foundation for the further career of the Mayor of Galtür.

■ In the German Bundestag elections in 2002 a victory of the CDU/CSU with the Bavarian Governor Edmund Stoiber seemed within reach, before the security needs increased drastically by dramatic floods and the threatening war in Iraq. Federal Chancellor Schröder could use his media talent as a crisis manager - Stoiber reacted too late – as well as the bonus of the incumbent to win by a narrow margin again.

■ In the USA up to three quarters of the voters who declared security top-priority voted for George Bush and not John Kerry in the presidential elections in 2004 after September 11th and the Iraq war. In 2008 it would increase John McCains chances dramatically if classic security topics get more emphasis again. In discussions about security the Republican War Veteran scores much more in comparison to the democrats than in debates about economic and social policy.

Photo: Archive

"Emotions must be taken seriously to be able to give people shaped by fear the feeling of security.
PETER FILZMAIER, ISAK

■ In the Election of the State Parliament in Styria in 2005 the regional floods and the hurricane "Katrina" in New Orleans would have opened up a last chance to the office-holder party ÖVP at the end of August to trigger a reversal of the atmosphere. This chance was wasted through an absurd focus: the dispute with the former ÖVP Member of the Provincial Government Gerhard Hirschmann.

LIMITS OF POLITICS: It is, however, not really that easy for politicians to score with security topics. Who should take care of security anyway? Up to two thirds of the Austrians trust the police, the jurisdiction and the authorities. Yet only one third trusts the government and the parliament and just 20 per cent trusts the parties. The Media score insignificantly better. In other words: The main agents in the process

Photo : Photos.com

Security topics have already determined many an election.

of communicating security, politicians and journalists, have got the menacing boogey-man-image and are not seen as a stabilizing security factor. This shows that security a) needs to be depoliticized and b) that security policy primarily also has to be done at a local and expert level. This should of course both happen with much enthusiasm and on a scientific basis. Security research thus is the basis for new ideas and new knowledge in security policy. Increasingly important are questions of medial emotionalization, where negative emotions, fears and trouble, are dominating. The key question therefore is "What frightens the Austrians?" Purely general knowledge about natural fears from diseases, poverty, crime or war is not sufficient. Politics must authentically represent a point of reference for people filled with very specific fears. Unfortunately, this is still working much better the other way round: Negative campaigns can easily tie in with uncertainties of the voters. Already the fear of change and the unknown is such an example. I bet that Pied Pipers in politics and the kings of tabloid in the media can play wonderfully on this claviature? «

About the Person

Peter Filzmaier is Head of the Department for Political Communication and Professor for Democratic and Political Studies at the Danube University Krems and Managing Partner of the Institute for Strategy Analysis and Communication Research (ISAK) in Vienna.

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Security is Growing –
Doubts are Staying

PUBLIC PERCEPTION. A study of the Institute for Empirical Social Research (IFES) proved that security is an important subject for the Austrians. Although more than three quarters still feel safe in Austria, many citizens are at the same time worried about the future. They expect a deterioration of the situation. »

Photo: Photodisc

In general the Austrians show great interest in everything connected to the topic of security. This was also reflected by the great willingness to take part in this study, explains Project Manager Bernhard Raml.

Security research and the expenses for security are therefore considered to be particularly important concerns and are thus supported. 77 percent think that increased security research is important or even very important. On the other hand there are only 18 percent who consider further reinforcement to be subordinate. The remaining five percent did not make any comments. The results are the same in all segments of the population: People with a high subjective feeling of security and those with a low one plead for security research to about the same extent.

Despite convincing successes in security research, many citizens have their doubts about the forthcoming years

Foto: beigestellt

"Therefore it is to assume that even those Austrians who feel particularly safe want to see endeavors to keep up this high degree of security", says Raml.

The subjective feeling of security is very high in Austria: "39 percent of the people asked claimed in the IFES study to feel "very safe", another 40 percent assessed their feeling of security on the five-stage scale from one (= very safe) to five (= not safe at all) with grade two. Merely five percent of the

context, the rest does not see any change of the situation. Within the ones feeling insecure the following groups have emerged:

■ women,
■ people over 50 years of age,
■ people with little education,
■ people with little income and hardly any opportunities of career advancement or socioeconomic improvements,
■ inhabitants of the provinces of Vienna, Styria, Lower Austria and Carinthia and
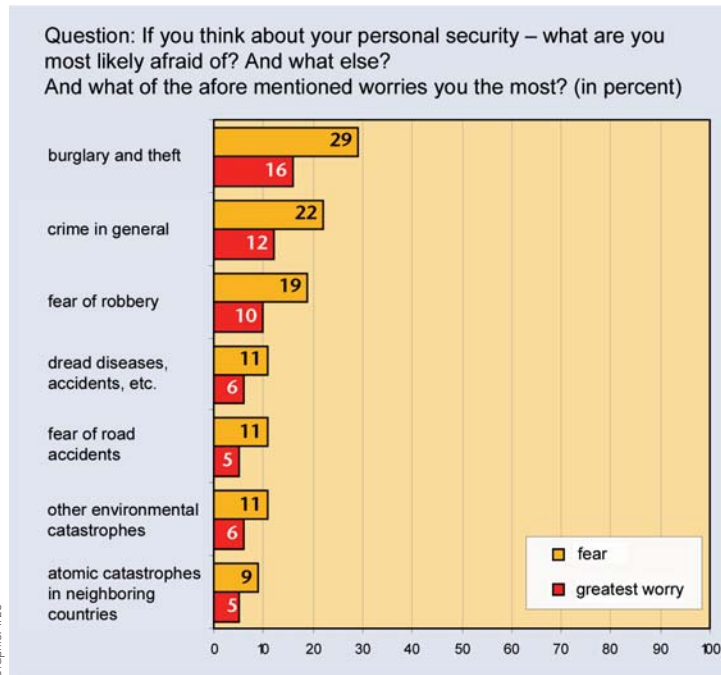■ people reading solely the "Kronen Zeitung".

Some of these aspects are not independent of each other: Especially the older Austrians are represented more strongly in the group of the people with little education than younger ones. At the same time there is a strong connection between education and income. There are primarily two reasons why people in the east feel less safe than those in the west: A possible explanation according to Raml is the direct neighbourhood to Eastern Europe and the Balkans and the fears and prejudices connected to it. In the Burgenland, for instance, the opening of the borders in the context of the Schengen expansion was not yet a big topic at the time of the survey, nevertheless fears about organized gangs, increased crime and more beggary from the East have already been quite obvious.

„Even those who feel particularly safe want to see endeavors to keep up this high degree of security."
BERHARD RAML, IFES

population said that they are feeling deliberately insecure. When the Austrians compare their country to other EU countries, then their judgments are very positive: 27 percent of the people asked believe that the security situation in our country is much better than in other EU countries, after all, another 45 percent feel "somehow safer". Merely four percent call the situation more critical than in the other EU member countries.

Even if these results are ever so pleasing at first sight and give credit to the efforts of the public institutions for more security, it is also obvious that there is a counter-trend: No less than 46 percent of the Austrians have got the impression that our country got less safe within the last five years. Only nine percent talk about an improvement in this

THE SECOND REASON from his point of view could be that Vienna as an urban region holds an exceptional position: "In comparison to other cities Vienna is very safe. In the international comparison we have a very good standing. In an Austrian-wide comparison it has to be considered, though, that in principle urban areas are differently structured than rural ones. Certain forms of crime are concentrated more strongly in cities than elsewhere, for example drug traffic, the drug scene in general, the red light district, more pick-pocketing

Question: If you think about your personal security – what are you most likely afraid of? And what else?
And what of the afore mentioned worries you the most? (in percent)

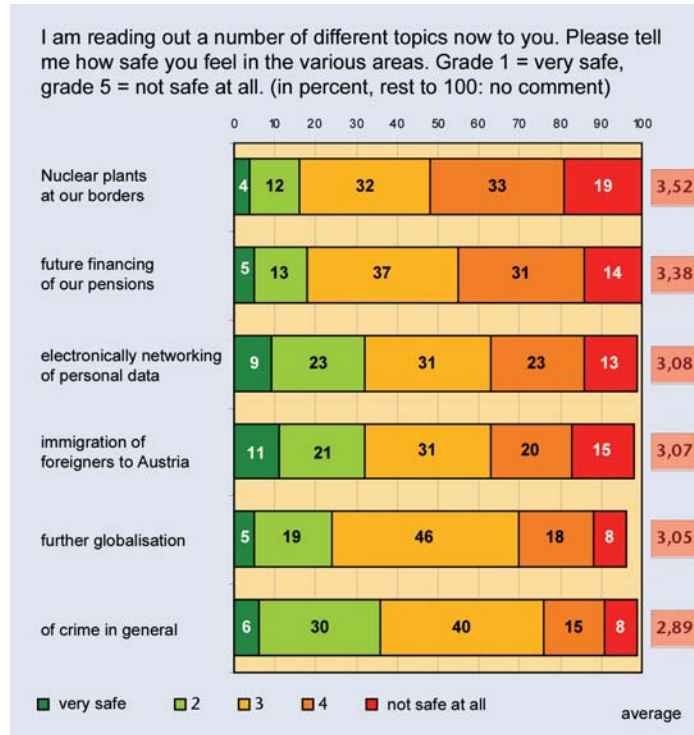|	fear	greatest worry
burglary and theft	29	16
crime in general	22	12
fear of robbery	19	10
dread diseases, accidents, etc.	11	6
fear of road accidents	11	5
other environmental catastrophes	11	6
atomic catastrophes in neighboring countries	9	5

Graphic: IFES

and beggary organized in gangs, vandalism etc. Despite being used to it, all this irritates people and affects their feeling of security."

The media also play a decisive role in this context: According to study results the Kronen Zeitung, the local newspaper with the highest circulation, stirs uncertainty strongest by the way of its coverage – across all age groups, strata and income groups. According to Raml this phenomenon was discovered to a considerably lower extent or not at all among readers of other daily newspapers or those who in addition read other daily newspapers, too.

TO THE QUESTION WHAT ONE IS MOST LIKELY AFRAID OF or what causes the greatest anxieties, burglary and theft, crime in general and fear of robbery clearly drop first. All together they make up 70 percent (general fears) or 38 percent (greatest anxieties) of the issues mentioned spontaneously, sharply followed by "the fateful" as Raml puts it: dread disease, accidents in general, etc. plus the fear of road accidents (22 or eleven percent of the fears/anxieties). Ecological disasters and atomic catastrophes in neighboring countries are also still very important – uneasiness in this respect particularly exists in Upper Austria. The socio-demographic scheme mentioned before is also reflected in the fears and worries according to which women, people over 50, people with a low level of school education etc. are particularly afraid of it. Less importance is attached to topics like xenophobia and racism, terrorist attacks, war and military threats. In addition there are fears of social decline and loss of prosperity (unemployment, cutbacks of social benefits, insufficient pension) on about the same level. Raml emphasizes that these points are definitely relevant in view of the spontaneous association nature of the question despite the comparatively infrequent mentioning; the supported detailed query in some parts shows considerable fears and worries here. Raml's conclusion is that these topics basically are not consciously associated with security, a circumstance which should be taken into account in the communication about security research.

TALKING ABOUT the assessment of certain threat scenarios deliberately questioned, another picture becomes apparent: The fear of a nuclear accident close to the borders lies far in front, followed by the uncertainty regarding the financial feasibility of our pensions. In third place already follows the electronic networking of personal data – even though restrictions of private liberty by the

state were only attached minor importance in the spontaneous associations. The immigration of foreigners to Austria and the globalization is playing an essential role now, however, while crime in general only land-

I am reading out a number of different topics now to you. Please tell me how safe you feel in the various areas. Grade 1 = very safe, grade 5 = not safe at all. (in percent, rest to 100: no comment)

Graphic: IFES

ed on place six now. "If one talks about security in general, then people primarily think of crime. But if one asks more subtle questions and looks deeper into the subject matter, many other issues appear. This means that among the Austrians a very wide concept of security is at least unconsciously present. The statistical analyses namely show a strong connection between the general security consciousness and social fears like loss of prosperity, unemployment, social conflicts etc. - together with questions of accommodation and crime these are the most important factors for the feeling of security",says Raml.

IN VIEW OF THE STRONG ASSOCIATIONS of security and crime, the police are by far most frequently considered responsible for security. Multiple answers were permitted in the survey and 75 percent of the people asked supported this opinion. The Federal Government was also quite often named (25 percent), followed by the autonomy of every individual in society (24 percent). While the EU was considered to be relatively important for international security, its role for the security in Austria was however completely underestimated: Only 0.5 percent of the

Photo: Photos.com

The feeling of security is made up of many subjectively experienced components

people asked see the EU's importance in this context. "The EU is only perceived peripherally. For the people asked it is important to know what the executives in Austria have to say about security. That many security-relevant decisions are taken on EU level, that

there are strong links in the EU – for example through Europol – is hardly known by the Austrians."

ALL IN ALL IT CAN BE SAID that the population regards security topics as being relevant and most interesting. However communication needs to be strengthened to spread more knowledge and understanding about security research, stresses Raml. From the results a need of the Austrians for visible activities and measures concerning crime, immigration, social security and environmental protection also can be derived. Additionally in view of the study results he recommends a target group-specific presentation of communication according to

■ sex – more women specific topics,
■ degree of urbanisation – crime and immigration are relevant topics in cities, while e.g. environmental threats are rather a topic of interest in rural areas,
■ education – since higher educated people have a stronger sense for security, the communication should fit the needs of less educated target-groups, if possible,
■ the media, in the first place print media, should get involved since in the field of security they still represent the most important source of information and not television.

FROM ALL THESE RESULTS FOUR MAIN EMPHASES CAN BE DERIVED: Primarily the fight against crime is most important in the cities and in Eastern and Southern Austria to achieve an even higher feeling of security. At the same time the integration of immigrants and the encouragement of an intercultural cohesion are a nationwide topic. Both natives and immigrants express worries and fears of a radicalization of certain splinter groups in this regard. Another important issue is the fear of the loss of prosperity and social decline. And finally the majority of the Austrians feels threatened by the climatic change and thus by natural disasters. ««

Design of Study

IFES in total questioned 1.500 Austrians over 18 years of age for the study between July 30th until and August 14th 2007. As KIRAS aims at a comprehensive concept of security also ecological, economic, political, cultural and social aspects were taken into consideration apart from military and civilian security.

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Supervision, but with a sense of proportion

AWARENESS. The local population looks upon security measures like video controls absolutely favorably. A current Mitropa survey arrived at this conclusion. Karl Blecha, Head of Mitropa and former Home Secretary, comments on the most interesting results. »

According to a current Mitropa study monitoring facilities generate a feeling of security among the Austrians.

Foto: Photos.com

Mr Blecha, the research institute Mitropa has published a study now about how much the Austrians accept monitoring measures. What was the tenor of this survey?

The Austrians look upon the monitoring measures introduced in the media very favorably. Particularly video control is accepted largely. They believe to get an increased feeling of security through it. At present, the overwhelming majority doesn't feel threatened in its privacy by video control. One rather accepts it, because it helps to find thieves, robbers or terrorists.

Meanwhile there already are many places where video cameras are installed; most of them cannot be seen at first sight. Do you think the awareness of them would change this positive attitude?

On the basis of the study I don't think that it would change anything. Whether somebody sees a camera or not, is not so important.

What is the general attitude towards other monitoring measures? In Germany, for example, the feelings ran high, because of the installation of a Federal Trojan with the help of which online computers can be searched. Would this evoke similar reactions in Austria or would the Austrians also accept such measures due to the positive attitude towards video supervision?

At present the Austrians would actually accept a kind of Federal Trojan quite well. This is partly due to the fact that data protection in comparison to other European countries is of no priority in Austria. The knowledge about the dangers of possible misuse is commonly not widespread either. Quite often the Austrians are not aware of the fact that by data collection and storage

connected to the monitoring an intervention in their privacy actually gets possible. The general attitude usually is: "As I am a good person and have done no harm, nothing can happen to me." Yet the dangers of intrusion into privacy are very high if no operating control mechanisms are installed."

In an IFES study about the feeling of security in Austria (you will find the summary as of page 19) population groups who feel less safe have crystallized. Is there a similar trend in the acceptance of governmental monitoring measures?

Yes, there is. It is exactly those groups which feel less safe that are particularly positive towards governmental monitoring. These are primarily women and old people, but also less educated people and those with a lower income. If someone is feeling socially less well off, this social discontent then has a very strong effect on the subjective security feeling. Video monitoring, for example, eases this general uncertainty a little.

Can we perhaps deduce from the high acceptance of video monitoring, that the Austrians in comparison to other EU citizens have a higher need for protection?

No, this cannot be deduced from the study. But it confirms that the security conditions are judged to be better than in other countries. The Austrian is convinced that Austria is a very safe country, however, he is extremely afraid that this might change soon.

To which extent does the Schengen Enlargement play a role here?

Schengen plays a role here. One must however not overestimate the level of information of the Austrians. Most Austrians don't even know what "Schengen" actually means. All they know is: The EU has been enlarged and people get into the country much more easily now. And from their point of view this increases the danger of crime caused by gangs of the East, for example, or similar threats.

Is there a difference between state and private measures in the acceptance of supervision?

The approach is a quite clear one here: If it is done by a public institution, it is considerably more acceptable than from private hand. It is assumed that monitoring measures of state-run security institutions serve the individual's personal security and aren't used against him or her. Here the afore mentioned attitude "I have done nothing wrong" comes into effect. The people are afraid of crime and they are afraid that it may further increase. Therefore they also appreciate that crime is fought against still more effectively.

If this is done by advanced technical means like video monitoring, then the Austrians are very much in favor of it. In the case of private institutions the situation is a completely different one. People never really know exactly what really is behind them. What is the private monitoring good for? People are sceptical and very cautious here. There is that sensibility which is missing in the context of state supervision. It's a different kettle of fish.

This means that there is at least a subconscious sensibility for data protection?

I wouldn't say so. In the case of state monitoring it is all about the fight against crime. Property offences, vandalism, drug traffic and the fight against terrorism are particularly important in this context. The protection from pedophilia plays a major role here. And it is particularly important for the Austrians here to underline that they are not part of any of these categories. Here one even accepts more or less

that the personal rights might be curtailed.

The situation is a different one in the case of monitoring measures from a private institution, one is very superstitious here: a private institution doesn't make sure me from a drug dealer, it doesn't prevent that my house is broken into. So what do they want? Do they want to spy out my assets situation to be able to sell something to me I don't need? Will they sell my data to an address office? Perhaps my data will get into the hands of criminals who will then hold me up or break into my house?" We observe this scepticism again and again when an organization like the Retiree Association does mailings, for example. Quite often we have enquiries like: "How do you know that I am a pensioner? And where did you get my address from?" This figure has increased unbelievably; there have been thousands of them.

The crimes mentioned by you, burglary, robbery, drug traffic and child abuse, are highly emotionally charged issues, because they are ever so real and practically everybody is confronted with them sometime in the one or the other form – no matter whether personally or through acquaintances and friends. Do these "vivid examples" support the acceptance of the Austrians or in other words do they accept to sacrifice parts of their privacy for the prevention of these crimes?

Absolutely, and also the way how this is communicated by the media and perceived through them also plays a role. Their influence is very big, because they reinforce already existing attitudes: The video monitoring serves the fight against crime, one must however be careful with the passing on of personal data to private institutions.

This means from your point of view that the media must definitely be involved, if the possible dangers of monitoring measures shall be pointed out?

Yes and this partly is already happening, when the media, for example, report about the dangers of American law. Airline passenger data transmission, fingerprints on the entry, etc. make the Austrians suspicious. More and more there is the argument: "This is harassment. I don't go to America any more under these circumstances."

> „The restriction of the personal liberty as it has already become true in America must never happen in our country."
>
> KARL BLECHA, MITROPA

The restriction of the personal liberty as it has already become true through some laws in America must never happen in our country. This can only be avoided by targeted education with the help of the media and by the strengthening of the consciousness of the population. Already in my days as Home Secretary one was able to achieve a lot in the area of data and services networking in the fight against terrorism.

Yet the interferences that are accepted more or less uncritically today were unthinkable at that time. A typing mistake or a similarity of names with a wanted criminal is sufficient that one gets big problems. There must be limits somewhere.

It is one of the advantages of KIRAS projects that the humanities, social and cultural studies deal with this problem from the very beginning and already check in advance whether all measures are also really compatible with data protection. «

About the person

Dr. h.c Karl Blecha. describes himself as somebody who "had to deal with security questions a lot in the past and who hasn't been able to get away from it to this day". He was Home Secretary from 1983 to 1989. After his retirement from active politics he founded the MITROPA-Institute for Economic and Social Research, which develops planning documents and offers decision support for science, administration and the media. In addition, Blecha was appointed President of the Retiree Association Austria in 1999.

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Security Business:
Booming Industry

MOTOR OF INDUSTRY. Meanwhile Austrian companies already make between 800 million and a billion Euros turnover per year with their products and services for security. While the service providers are already well positioned, there is still considerable potential for development at the technology sector. »

The fire brigade as a first aider is among the most important users of new technologies.

Foto: ISCC

One of the essential programme objectives of KIRAS is to push the growth of the local security industry. Thus only projects that secure or create jobs and increase the added value in the country in the long run are sponsored. A positive side effect is that the international competiti-

veness of the Austrian companies involved is also strengthened. So far it was, however, not known how big the market for public security is in the country and who the local suppliers are.

FOR THIS REASON the PlanConsult Hol-

ding was commissioned to identify the enterprises which provide products and services for public security under the afore mentioned prerequisites. The basis should be interviews with experts, the study of literature as well as the analysis of databases and the Yellow Pages. It has however turned out quickly that quite often products and services couldn't be assigned satisfactorily from a scientific point of view, because of missing security-relevant basic definitions. For this reason the research method had to be extended: In addition safety officers of operators of critical infrastructure were questioned about the kind of security-relevant systems and services they are using and their suppliers.

The companies then were questioned about their entire business activities (turnover and employees), about their business activities in the fields of safety and finally on the aspect of security. Furthermore for the study PlanConsult closely cooperated with the Austrian Federal Economic Chamber, individual departments in the Federal Chancellery and in the Home Office and obtained detailed information about members of the Austrian security business from company databases. The list of the exclusion criteria was long, not taken into account were among others:

■ those enterprises which are only indirectly responsible for the operation of critical infrastructure like suppliers of security companies or subcontractors, service providers. There is just one exception: the suppliers of head offices with security-relevant tasks, the so-called con-

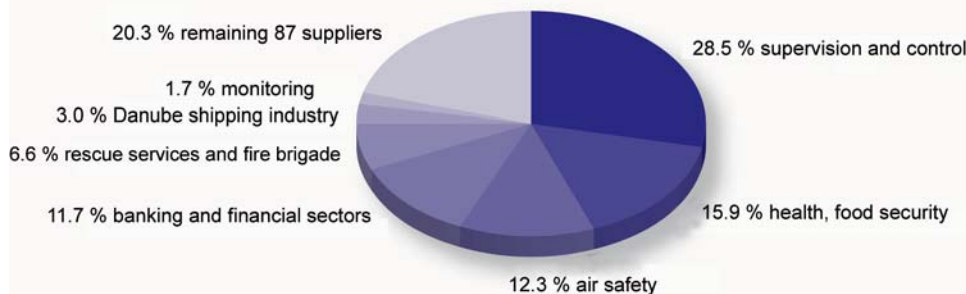trol centre solutions (control rooms, coordinating offices)
■ suppliers of road safety facilities and institutions (section control, signal systems, etc.)
■ space research and scientific infrastructure
■ security importers because of the missing added value in Austria
■ fitters of security installations
■ predominantly export-oriented enterprises as they are of no economic value for the Austrian security market.

According to PlanConsult there are 102 Austrian companies which render products and services for security. They have made a turnover of over 800 millions of Euros and employed about 7,500 employees in this segment alone in 2006. However, they are not exclusively working for public institutions or operators of critical infrastructure, apart from a few exceptions. Their total turnover from all lines of business therefore has amounted to about seven billion Euros, altogether. About 2.3 billion have been allotted to the entire field of security (safety and security). About 50 percent of the total amount of 38,000 employees also found their jobs in this sector.
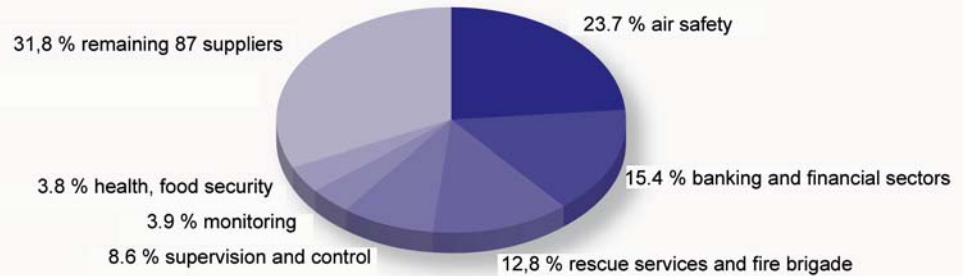
IF ONE ANALYSES THE COMPANIES ACCORDING TO EMPLOYEES AND FIELDS, the following picture arises: The top five are lead by AGES, Austrian Agency for Health and Food Safety. On behalf of the Republic of Austria AGES examines food according to the Austrian food law, carries out veterinary examinations and deals with the fight against and the prevention of infectious

> The Top-5 security providers employ just over 50 percent of all the employees in the business.

Structure of the security business according to employees and sectors

20.3 % remaining 87 suppliers
1.7 % monitoring
3.0 % Danube shipping industry
6.6 % rescue services and fire brigade
11.7 % banking and financial sectors
12.3 % air safety
15.9 % health, food security
28.5 % supervision and control

Structure of the security business according to turn overs and sectors

- 23.7 % air safety
- 15.4 % banking and financial sectors
- 12,8 % rescue services and fire brigade
- 8.6 % supervision and control
- 3.9 % monitoring
- 3.8 % health, food security
- 31,8 % remaining 87 suppliers

Foto: beigestellt

"The position of Austrian manufacturing companies in the security sector needs to be strengthened."

HELMUT KUNTSCHER, PLANCONSULT

diseases of mankind. In second place comes another company in state property: Among other things Austrocontrol is responsible for air traffic control, including technological equipments like radar, the air weather service, checking the airworthiness of aircrafts, etc. In third place comes the Vienna International Airport Security Services (VIAS) which belong to 100 percent to the Vienna International Airport. By order of the Federal Ministry of the Interior VIAS carries out identity checks and hand luggage inspections. For other customers from the aviation industry it executes general luggage inspections. The G4S Security Services (to 100 percent in Danish hands) and the Securitas Security Services (to 100 per cent in Swedish hands) rank fourth and fifth.

THESE FIVE COMPANIES exclusively render services, gain their complete turnover with Security and employ with 3,900 just a little more than half of all the employees (51.5 percent) in the security business. Helmuth Kuntscher, Head of the PlanConsult Group, admits, though: "While security services are predominantly offered by subsidiaries of foreign companies, Austrian enterprises dominate the production sector."

RANKING THE SUPPLIERS ACCORDING TO TURNOVER AND AREAS, a different picture emerges. "This can be traced back to the fact that manufacturing companies achieve a higher turnover per employee compared to service providers", says Kuntscher.

Austrocontrol is the number one here with clear margin. With Rosenbauer a manufacturing enterprise ranks second, though.

Its broad range of municipal, airport and industry fire-fighting vehicles as well as lift rescue appliances and fire brigade-specific equipment has helped the group to become the second biggest manufacturer worldwide in this segment. The third biggest supplier in Austria is Austria Card, a subsidiary of the Austrian National Bank. The company develops and produces high-security chip cards for electronic payments, telecommunications and identification. First Data Austria has also specialized on card-based, cashless payment transactions. Place five goes to PKE Electronics, a leading service provider for complex high power, low current and telecommunications projects. Just like in the ranking according to employees the five leading companies also dominate the market in this evaluation. In 2006 their share of the total security turnover amounted to almost 360 million Euros, which makes about 44 percent.

EVEN IF REGARDING THE TURNOVERS the manufacturing enterprises come off really well, this does not change the fact that the service providers definitely come first in Austria. If one adds up all of the latter under the top 15 companies, then they employ almost 63 percent of all the people working in the security business. "This shows the necessity to strengthen the position of Austrian manufacturing companies in the security sector," is Kuntscher's résumé. «

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Austria invests Strongly in Security

SECURITY INVESTMENTS. According to a study carried out by 4C-Foresee Management Consulting Austrian public authorities spend around one billion Euros on the protection of critical infrastructures. Thus, Austria ranks among the countries with the highest security expenditures and is also ahead of Germany and the US in terms of per capita expenditures. »

Photo: Photos.com

Just like the study carried out by Plan-Consult, the 4C-Foresee model was used to evaluate and describe the "market" for public security. Whereas Plan-Consult opts for an offer-oriented approach locating companies in the security business, 4C-Foresee attends to the demands of the "public good security". Given that this approach depends very much on political objectives and that security cannot easily be captured in concrete numbers in this context, the consulting experts focused on three main approaches in order to get quantifiable results. The first one is the assessment deduced from risk analysis. Thereby the critical infrastructure risks are assessed and possible consequences are taken into consideration. This can be an extremely complex task, floods being a typical example. First the damage in all flood-affected provinces must be assessed. This includes households (capital goods), businesses,

agriculture and forestry (buildings, machinery, stocks, loss of production) and also public authorities (buildings, capital goods, infrastructures). Afterwards the costs of damage repair are estimated and prevention measures are determined, e.g. mountain torrent control structures as urgent measures. The third step is to assess the measures which have already been taken by public agencies (federal government, provinces, communities, operating organizations, etc) and evaluate institutional complexity.

OBTAINING FLOOD RISK ASSESSMENT RESULTS is a complex and time-consuming task in itself, which would have to be repeated for every single threat such as terrorist attacks committed with conventional, chemical, biological or radiological weapons, chemical accidents, avalanches, contamination of drinking water, earthquakes, etc. "This shows that on the security market, the public and the private sector cannot be easily separated.", Werner Clement, Director of Studies, points out. This is why the second approach is more convenient: research, e.g. the governmental departments among unsers responsible federal provinces and the communities determining how much they invest in the protection of critical infrastructure and how high their budgets are per year.

On the federal level the Interior Ministry is responsible for the prevention and relief of security crisis and disasters (security expenditures and civil protection).

The Federal Ministries for Finance (disaster funds), Agriculture and Forestry (control structures for water and avalanches, emergency measures), Health, Family and Youth and Women, Media and Civil Service (Austrian Agency for Health and Food Safety, preventive medicine and epidemiological measures, radioprotection), National Defence (assistance mission, frontier protection, emergency aid, support tasks), Environ-

ment and Water Management (Radioprotection) and the Ministries of the Exterior (aid funds for disasters in foreign countries), Traffic, Innovation and Technology (water engineering – disaster funds) all have key positions. For the intervention in major disasters the federal government conveys the majority of its tasks to the provinces (traffic, innovation and technology, alarm control units of the provinces, voluntary operation units) and in case of other disasters to the local administration and the municipal government (mayors).

ORIGINALLY THE FIGURES WERE SUPPOSED to be assessed by means of questionnaires and interviews but due to confidentiality reasons the budgets released to the public were eventually used to determine the relevant dimensions.

Clement had to decide whether personnel costs of these institutions should be included in the calculations. "We took a look at the procedures in the USA. Homeland Security believes that products and services should be provided on a public market which doesn't include civil servants and their costs. Personnel costs of public agencies are therefore excluded from all estimates for the security market." As a consequence they weren't incorporated in the calculations.

Excluding personnel costs and the double count of the disaster fund the federal state spent almost 760 million Euros on security in 2006.
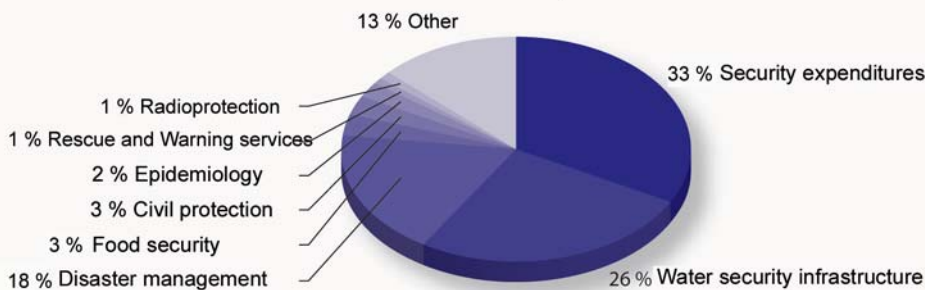
Almost half of the expenses went to Vienna, for the Burgenland the results had to be projected by 4C-Foresee because no data was available. Hence the figures of the Plan-Consult study have been confirmed according to which the entire security market lies at about one billion Euros per year.

IN MACROECONOMIC TERMS investments on this sector have a great impact on the overall economy. Every single Euro spent leads to leverage effects of 1.78 to 3.06 depending on the sector according to 4C-foresee. This leverage is lower in labour-intensive sectors and higher in sectors with added value intensity. GDP leverage lies between 1.4 and 2.5 billion Euros. The import quota of 20% was not included in the calculation.

In terms of employment – the security market safeguards 11.200 to 20.000 jobs.

Clement's next step was to compare the results with those of GB (security expenditures: around 8 billion Euros), Germany (10 billion Euros) and the US (21 billion Euros) since the security market is quantitatively well-documented. But Clement points out

Security expenditures of the federal government and the federal provinces

- 13 % Other
- 1 % Radioprotection
- 1 % Rescue and Warning services
- 2 % Epidemiology
- 3 % Civil protection
- 3 % Food security
- 18 % Disaster management
- 33 % Security expenditures
- 26 % Water security infrastructure

that the calculated figures are not entirely comparable because this area is only a cross-sectional-matter and also because the definitions are different in the individual states and survey methods are therefore not homogenous.

Clement thinks that this comparative illustration is very suitable for reflecting trends and the importance of the issue of security in the various countries.

With its per capita expenditure of 123 Euros Austria lies ahead of Germany (around 121 Euros) and surprisingly far ahead of the US (104 Euros). Only GB spends more on its citizens (132 Euros). Together with the GDP per capita (Austria ranging third behind the US and GB) this positive image is even more reinforced.

THE SECURITY MARKET is closely related to the know-how in certain technologies which are again based on security research and previous research. Public institutions have created an impetus on the general research quota. In 2006 the security research expenditures of all public agencies amounted to more than 105 million Euros, around 12 million Euros went to the KIRAS security research programme.

Including research effects resulting from various connections, a budget of 184 million Euros for security research has been assigned by public institutions. This sum should be increased by the amount of private research not induced by public institutions.

According to Clement, international data also shows a strong growing potential. Hence Austria has a great security research potential and programmes like KIRAS certainly have a stimulating effect.

The study carried out by PlanConsult focused on the supply side for security products and –services. Two focal points were identified: Civil protection and information- and communication technology (ICT). "In the ICT-area the problem of budget separation arises, i.e. what is ICT outward protection in terms of security and what is the protection of the own infrastructure for PCs or computer systems. The latter could be usual protective measures such as anti-virus software and so on.", Clement says.

A MUTUAL STUDY of the Austrian Academy of Sciences and the Austrian Research Centre (ARC) points out the high competence of the Austrian research institutions in the following areas:

- Telecommunications
- Measurement and control technology
- Sensor systems and image recognition software
- Special vehicles
- Tunnel security
- Protective suits and textile equipment
- Software security
- Simulation technology and failure management
- Encoding technologies
- Medical security and biotechnology
- Natural disaster management
- Conflict research
- Crisis intervention research

Clement also believes that even though both works have provided us with an interesting insight, an intensive study would still be necessary for a comprehensive, statistic and descriptive analysis of the detailed offer potential.

Such a study would show that competence in various technological and social areas could be used very well for future security purposes. "This is exactly what the future calls of proposals issued by KIRAS are aiming at.", Clement says. "We can only speculate which areas should be especially monitored and sensitized until we have the results."

Photo: Rosenkranz

„Our future scope must be how competence in other areas can be used for security relevant technologies and consequently also for products and services."

WERNER CLEMENT, 4C-FORESEE

WHAT IS ESPECIALLY IMPORTANT FOR THE FUTURE is how competence in other areas such as sensor-, surface-, material technology or ICT is used to create security relevant applied technologies and how they are consequently turned into products and services.

Additionally, other development programmes such as COMET or initiatives like clusters should be monitored concerning their security relevance and research institutes and companies should be found who can work on new niche products and services for the security market. «

Calculable Risk in View

A BASIS FOR DECISION-MAKING. Research and development funding programmes are classified according to their positive impact on research and development, according to their indirect added value and in terms of creating jobs and increasing exports. The promotion of security programmes includes an additional aspect: How can security research, i.e. the improvement of critical infrastructure reduce or prevent damage? A discussion with Professor Werner Clement on impact risk analysis. »

Photo: ÖBB

How to assess risk potentials: If for instance rail infrastructure gets damaged, the consequences are massive for many parts of our everyday life.

Professor Clement, what does impact risk analysis mean?

I believe that impact risk analysis is the main task of security research. Of course we must also find out how much additional research is triggered by programmes such as KI-RAS and how this affects sales figures and jobs. But the more apparent question is: How much can property damage be reduced and how many lives can be protected?

Threats and their possible consequences are the subject of risk analysis and impact risk analysis. There are many steps of analysis to go through and there are many decisions to be taken. First of all we need to identify the type of threat like threat of force of nature or terrorist attack, organised crime, chemical or nuclear dangers, threat of pandemics etc. Then we must evaluate the possibility of occurrence which is not easy and certainly not entirely verifiable.

Research is based on incidents that have been observed in the past and their recurrence. Often, historical data is used for observing

threats of nature such as floods, e.g. how many times they occurred over the past 20 years under specific constellations. If the necessary data is not available, one must turn to the process of scenario analysis. This involves designing models and calculating which flaws in the system may lead to which consequences.

Risks combined with flaws result in a very high threat potential. Risk evaluation comes next. If an incident occurs the tolerance level must be assessed. Certain risks are tolerated to a certain extent e.g. if the possibility of occurrence is very low and only associated with minor damages but prevention measures would be very cost-intensive.

In such cases the question arises: How much does damage prevention cost? Usually a decision-making process follows to decide which measures are taken to which extent in order to eliminate or reduce threats and to alleviate their consequences.

How are risks calculated and how are they evaluated concerning their possible risks?

The basic formula is "risk = possibility of occurrence x extent of damage". Generally the term risk can be defined as the possibility of damage or loss as a consequence resulting from a certain behaviour or incident. The risk usually equals the total of possible damages caused by a certain activity or event.

Considered formally the total of possible damages is always very important, especially if it includes personal injuries. The amount of damages usually results from the insurance sum for material items and in case of personal injury from the number of those dead or injured. The higher the threat potential (possibility of occurrence), the higher the resulting damages.

How are risks and flaws determined?

First of all, the type of damage needs to be classified. Damage resulting directly from an incident include damages to persons, buildings, chattels, infrastructure, clearing costs and risk-lowering costs, indirect damages are for example interruption of business, interruption of logistics, financial aid and food and shelter for the victims. General threats and possible damages are to be assessed on the basis of concrete cases. An Austrian example would be danger zone plans for avalanches and mountain torrents.

Danger-zone red: No settlements possible due to mountain torrents and avalanches.

Danger-zone yellow: Settlements and traffic strongly affected etc. followed by danger-zones with a lower possible intensity of damage. Intensity classifications are determined according to historic events and weather observations. A certain subjectively perceived social sense also plays an important role in the process.

The breakdown of or the negative impact on parts of the infrastructure cannot be seen as isolated events, they also affect many other areas of our everyday lives. How are these consequences taken into consideration?

If a railway line gets destroyed by a mudflow or a terrorist attack this has serious consequences on other areas of the national economy. Passenger services are affected and additional transport costs arise. Coal cannot be transported, less power is generated and additional power needs to be fed in, production stops, etc.

The connections can be illustrated with the help of models showing the economic integration. A US example illustrates the consequences: A breakdown of the railway which is considered as critical infrastructure would affect
- 42 percent of all Intercity mileage tons,
- 64 percent of all coal transports,
- 40 percent of grain crop transports,
- 70 percent of the US car production,
- 20 percent of all chemical products, etc.

Such indirect damage intensities must also be illustrated over a specific period of time. Similar calculations have (unfortunately) not been carried out in Austria yet. This would also be a topic in the setup of "critical infrastructure".

How is prevented or reduced damage evaluated?

Risk impact analysis arrives at an expected result of damage before and after the implementation of measures taken to reduce damage. The expected degree of damage depends on the probability of occurrence and the measures taken before.

Another example: The degree of damage is assessed under the presumption that no security measures were taken, e.g. personal or material damage after the descent of an avalanche in a region with no protective constructions.

If there are protective constructions, fewer buildings are located in the exposed area. In case of an avalanche damage is reduced. If the reduced damage costs still exceed prevention costs, we talk about a positive cost-benefit ratio. Unfortunately these measures don't always guarantee such a positive cost-benefit ratio. Therefore one must find out which levels are socially demanded.

Photo: Archive

„Risk impact analysis can save lives and prevent material damages."

PROFESSOR WERNER CLEMENT

What does all this mean for KIRAS and security research in general?

Risk impact analysis is in line with the main objective of KIRAS: How many lives can be protected from threats and how much personal and material damage can be avoided? This objective must always be considered when dealing with the critical infrastructure defined by the KIRAS programme such as energy, water, food, public health, public safety, traffic and transportation, etc. KIRAS projects support security research and their task is to achieve a higher level of security. Security research therefore runs parallel with security policy measures, risk impact analysis and risk management being an integral part of it. «

Europe's Way
to even more Security

ROADMAP. Security research in Europe has fulfilled its primary tasks and is ready to focus on the next level. While the emphasis was on basic orientation and the establishment of suitable working mechanisms in the beginning, specialists now focus on the strategic alignment of the relevant research agendas in terms of content and on the institutional level. »

Photo: Photodisc

Only five years ago, after several announcements, the establishment of a "Group of Personalities" and a three-year "preparation phase" (Preparatora Action for Security Research" – PASR, 2004-2006), the European Commission started to assess the possibility of designing, financing and running a comprehensive European security research programme.

In this preparation phase 45 million Euros were invested in three - on a European level rather small - calls for tender which developed into 39 successful projects. Some of them have been completed and have provided the Commission with a good overview on the respective protagonists, their fields of activities, their interests and their competence.

THIS IS WHAT WE MUST BUILD ON. "I am very happy with what has been put into practice so far.", Paul Weissenberg, Director of Aerospace, Security, Defence and Equipment at the Commission's Directorate-General Business and Industry. Weissenberg is responsible for security research in the 7th EU Research Framework Programme which he has set up together with his team and which he is now leading to a new, mature stage in order to establish it and make it a popular tool to work with.

"I'm especially pleased with the constructive attitude of all member states during the process. But we are well aware of the fact that some difficult tasks are still ahead of us. To a certain extent we were able to build on methods of the framework programme research but security research is a very special topic, it is a sensitive political issue. Some areas of co-operation are still unknown territory for all of us."

With the start of the 7th EU Research Framework Programme, which security research is part of, cooperation with the member states and the 10 countries associated with the programme was formalised according to comitology rules.

This concerns the process of setting common priorities for calls for proposals and the finalisation of promotion contracts for successful applicants.

THE DISTRIBUTION OF ROLES HAS BEEN ESTABLISHED SUCCESSFULLY. More than 150 million Euros were distributed among 44 selected research projects in the first call for proposals in 2007. Contracts are currently being negotiated or have already been enforced. In a call for proposals named "Information- and Communication Technologies" of the 7th Framework Programme another 40 million were distributed for security-relevant questions.

A new major call for proposals with a budget of about 115 Million Euros will be started in summer 2008, the framework programme is currently being put together.

Altogether, a budget of 1.4 billion Euros is available for security research within the 7th Framework Programme, which has been a remarkable step since PASR.

The content of these calls was mainly determined by ESRAB ("European Security Research Advisory Board"), a high-ranking group of experts, who were appointed in the run-up to the 7th Framework Programme.

As from 2009 the Commission will gradually outsource routine project evaluation and contract management tasks to an agen-

cy in order to be able to focus more strongly on strategic and political aspects and the challenges of a security research programme.

"What we have been dealing with intensively recently is the correct handling of research questions that are so sensitive that they must not fall into the hands of criminal organisations or terrorists. National safety authorities can be charged with the classification of such sensitive projects which then must only be carried out in

> "Altogether, a budget of 1.4 billion Euros is available for security research within the 7th Framework Programme"
>
> PAUL WEISSENBERG, EU-COMMISSION

compliance with special precautionary measures."

The Commission and the member states have agreed to cooperate in the process of creating suitable procedures and in the distribution of tasks not only making effective and efficient research work on sensitive subjects possible, but also taking into account related potential risks.

"Only when we have obtained a high level of experience and are fully aware of our responsibility we are able to deal with difficult questions together and publish classified calls for proposals, which is essential for the impact and the credibility of a comprehensive security research programme."

FIRST OF ALL WEISSENBERG needs to find an answer to the question which topics are worth of spending so much money on. "Generally security research tries hard to be as transparent as possible. As soon as it is clear that some or all member states have true demands we should be ready to publish classified calls for proposals.

Exactly specified tasks will be put out for tender and the rights for the results will be reserved to the Commission and respectively the member states that are in charge of their safety and their implementation.

After partly outsourcing project implementation work to the new agency in 2009, the Commission will be focusing on policy work. "Security research only makes sense if it endorses security policies by enabling and improving their implementation. Therefore we closely cooperate with all Directorates-General responsible for security policy. Coordination on a national level is also necessary. We must not pretend to be blind and say that

we only provide the tools and that we are not responsible in case they are abused. We attach great importance to the fact that responsible security research is done in the interest of the freedom and the rights of the European citizens. We want to protect them instead of unnecessarily comprising them.

This has also been the main concern of ESRIF, the European Security Research and Innovation Forum the Commission has been involved in since September 2007.

ESRIF was set up by the Member States and FP7 – the associated countries – also involving three important agencies (Europol, Frontex, EDA) and with the explicit approval of the European Parliament. Its scope is to develop a mid- and longterm strategy for security research and innovation providing valuable guidance for preparing future programme strategies on a European and national level.

"Austria shows great interest in civil security research. It was the first EU member state to establish a complementary security research programme"

PAUL WEISSENBERG, EU-COMMISSION

Apart from the European security research programme various other national security research programmes have been set up since PASR was founded. These are partly ranging between the concepts of safety and security and sometimes also between either civil or military security concepts.

ESRIF has 63 official members representing three stakeholder groups, the demand side and supply side of security research and civil society in Europe. All of them participate on a voluntary basis just like more than 500 other persons who have enlisted in the eleven working groups building thus the basis for elaborate strategies for the Joint Security Research Agenda.

IN ITS WORK ESRIF is based on the future strategies of security policy decision makers, the identified threats and the challenges determining the demand of security research necessary for reaching the required capabilities. Exact planning is only possible for a few years in advance. Since research is understood as a long-term challenge on the other hand ESRIF builds on foresight and scenario techniques drawing on future trends to make arrangements for the future up to 20 years from now one cannot make any clear predictions about. "We try to be well-prepared for security problems Europe will most

probably be facing in the next years and decades. But we must also be prepared for situations we aren't yet able to imagine and which we'd rather not want to become true. It the good right of the citizens of Europe to expect their governments to be prepared and to have the necessary tools ready to avoid the worst and to quickly take control over critical situations", this is how Weissenberger explains the ESRIF strategy. Results are expected for September 2008, a status report can be expected at the 3rd European Security Conference on August 29 and 30 in Paris. The conference will be hosted by the French EU-presidency in the second half of 2008.

The tradition of yearly European Security Conferences was started in 2006 during Austria's EU presidency. More than 1.000 participants came together at the Vienna Hofburg in February 2006 and at the Berlin Maritim Hotel in March 2007 hosted by Germany's EU presidency to exchange information on the rapid development of this new research sector and its cooperation with security policy.

Austria was the first country to realize the demand for such a public event and has always shown great interest in civil security research. It was the first EU member state to establish a complementary security research programme, appointed one of the two ESRAB chairmen, shows presence in the programme committee and plays an active role in the issuing of calls for proposals. Military research also shows a clear interest in civil security research. Weissenberg is not surprised: "Not only have defence budgets in Europe been tightened since the end of the Cold War but the military tasks have also changed. Classic warfare plays a minor role today. Peacekeeping and peacemaking missions abroad are more typical fields of cooperation in Europe and they often resemble police operations. The military forces also play a role in rescuing tasks in case of natural disasters or industrial accidents.

CIVIL AND MILITARY FORCES need very similar equipment. This is why EU security research allows the study of dual use technologies in civil areas. Both sides can profit from mutual research cooperation. The Commission regularly coordinates security research in the 7th Research Framework Programme with the European Defence Agency (EDA).

Weissenberg assumes that civil and military research coordination will be improved. "The increasing necessity of working together very closely in these political fields mustn't be doubted. Security research will contribute its share. 〘

Austrian Impetus
for Europe's Security Research

PIONEERING TASK. The European Union has given top priority to security research and has dedicated a focal point of its own to it in the 7th Research Framework Programme. Austria was leading from the very beginning, when it was all about implementing European Security Research. »

After the terrorist attacks in New York, Madrid and London the EU decided to increase the security of the citizens with the help of a Europe-wide research programme. The preliminary works have been running on two levels: For the preparatory programme PASR (Preparatory Action for Security Research) lasting from 2004 to 2006 altogether 45 million Euros of funds were available. At the same time, the official Advisory Council ESRAB (European Security Research Advisory Board) discussed all sorts of topics on a broad basis and thus created the bases for European Security Research. With Helmut Krünes as Co-Chairman, Austria was leading from the very beginning and could thus offer valuable impetus. More about it in "Security Research" part 1; you find the link for the download of the pdf-version in the column Service on page 47.

The results have influenced the 7th Research Framework Programme of the EU, where a main emphasis of its own was dedicated to security in Point Ten in the Chapter Cooperation. Altogether 1.4 billion Euros are available for it from 2007 to 2013. Three committees on EU level have decisive influence on the development of security research policy: the Programme Board, the Advisory Group and the European Research and Innovation Forum (ESRIF).

ALL THE 27 EU-COUNTRIES plus ten fully associated countries, which pay their fees and therefore have a say and the right to participate, are represented by delegations. The size of these delegations lies between two and ten members; yet, only one vote counts per country. However, voting or even crucial voting practically never exists. As this committee finally was not founded to be for or against a regulation or an act, but rather to create a valuable research programme together. Suggestions are therefore discussed until a consensus is found. In addition third

Photos: Archive

countries, which are however not represented in the Programme Committee, may also participate in the EU-wide research programme. Their most important task is to participate in and decide on the creation of the working agenda, which is newly compiled every year and which is the basis for further tenders. When the requests are evaluated, the sequence of the projects to be financed and the standby-lists are finalized; the Committee makes its statement before the European Commission finally signs the contracts. The Programme Committee repeatedly meets every year at regular intervals of several months depending on which decisions are to be made. In addition the Commission regularly reports to the Programme Committee about the progress of the individual topics on the agenda. Head of the Austrian delegation is Gernot Grimm from the BMVIT, however, there also members from the Austrian Research Promotion Agency FFG on board.

THE SECURITY RESEARCH ADVISORY GROUP is the second important group to realize the Security Research Programme. It also was compulsory in this field like in all other sub-areas of the Framework Programme. The Advisory Group's task is to consult the European Commission in the design of the security research topic in the framework programme, which for it's part again presents topic lists or drafts for the working agendas and similar things to be discussed by the Advisory Group. The annotated or revised outline then goes back to the Commission or to the Programme Committee.

Unlike the Programme Committee, which represents the interests of the Member States or associated countries, the Advisory Group solely takes care of the interests of the applicants and makes sure that a pan-European security research scene is developed which is as good as possible. The Advisory Board is made up of 20 people coming from universities, from the industry, but also from the user side. Austria is represented by Gabriele Sprengseis (Austrian Red Cross). One is trying to represent important stakeholders in the composition of security research. With 20 people this cannot be done comprehensively, but absolutely representative, though. So one gets an idea, what security research is able to achieve.

The overall plan of the 7th Research Framework Programme, which defines the structure, chapter, etc. along general lines for the entire runtime, applies for the working agenda to be developed each year. Which topics are actually advertised is not fixed from the very beginning, but is developed every year in detail. It is, however, possible that topics from the previous year come up again, for instance, when a certain topic has not been dealt with satisfactorily from the point of view of the Commission, no good suggestions have been handed in or for some reasons no contracts could be signed. At present, the basis for the selection of the topics is the report of the Expert Strategy Group ESRAB. The papers of the Advisory Group can be downloaded from the Internet (you find the link in the Column Service on page 47). There is a sector of its own where one can observe the working group, where it publishes reports and recommendations - what can be very interesting for potential applicants. However, the work of the Programme Committee is not publicized. This has not just to do with opinions, but also with data protection or the protection of the interests of a particular company, which are unveiled through the participation in project applications.

THE EUROPEAN FORUM FOR SECURITY RESEARCH AND INNOVATION (ESRIF) was

established in autumn 2007 for the period of two years. Both the European Commission and the Member States employed the 63 members, however, they do not represent their interests, but act as independent experts just like the members of the Advisory Group. Further representatives come from European agencies which are important to security research as well as from the European Parliament. Austria has deputed Brigadier Gustav Gustenau (Ministry of Defense) and Johannes Prinz (Frequentis).

An essential task of ESRIF is the formulation of a medium to long-term strategy for security research and innovation. Therefore ESRIF brings together representatives of security politics with other people involved in security research. The forum shall help to exactly define the requirements of politics and make recommendations. So that science, industry and users can get prepared for a long-term plan and prepare their means accordingly.

Working out a research roadmap for the next 20 years, however, is said more easily than done. One can, of course, get prepared for certain developments in the future like the climatic change, the excessive aging of people in society or the shift of the economic power towards China. However, there also can be all sorts of unexpected happenings – like 9/11 – which are impossible to foresee, but one must nevertheless be prepared.

Therefore ESRIF works with two time horizons. In the medium term it is all about the current trends and paradigms in security policy. Decisions, which are taken in a year, are in the pipeline now. One already knows now which goals shall be achieved within four years. Thus the forum can already now consult the respective decision makers and include their input in a medium-term strategy.

EVERYTHING THAT GOES BEYOND THIS PERIOD OF FIVE, SIX YEARS IS UNCERTAIN. One makes use of other instruments here like Foresight, scenario planning, trend scouting and similar methods, which futurologists have in their "magic boxes". These forecasts however rarely occur like they have been forecasted; still they provide valuable information as tendentious propositions. At the same time it is also all about having the civil rights in view and to guarantee the personal liberty of the citizens. Therefore there is a working group of its own within ESRIF which deals with these topics. ESRIF has been existing since September 2007 and

An essential task of ESRIF is the development of a middle to long-term strategy for security research and innovation.

shall be in work until the end of 2009. Interim reports are expected for the Security Conference in Paris in September 2008, the final report follows in autumn 2009. «

Top-Performance
in the International Sponsorship Scene

GOOD QUOTA. The first invitation to tender on the topic of security of the 7th Research Framework Programme of the EU took place in 2007. The Austrian projects handed in were exceptionally successful. Thus further pleasant results are to be expected in future calls. »
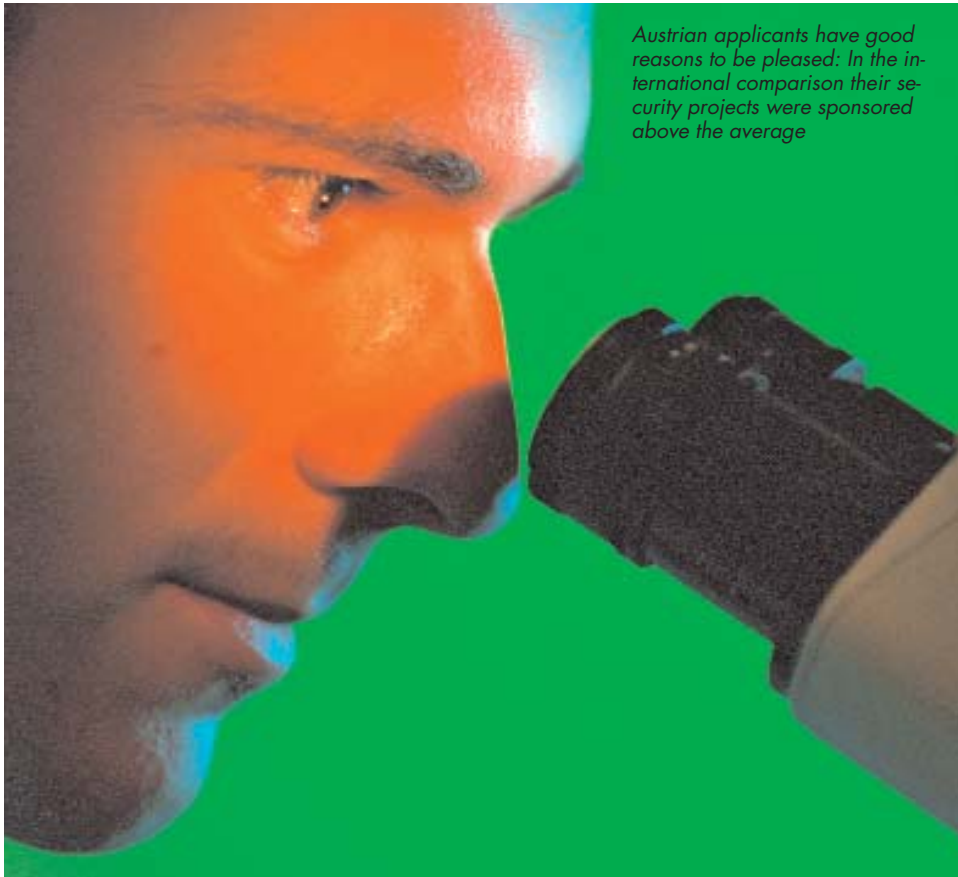
Austrian applicants have good reasons to be pleased: In the international comparison their security projects were sponsored above the average

Photo: Photos.com

Until the deadline for submission on May 31st, 2007, projects of the sum of a little more than a billion Euros had been handed in at the first invitation to tender on the topic of security (FP7 SEC-2007-1). Projects which were classified worthy of sponsorship still amount to 477 million Euros. As there had been a promotion budget of 156.5 million Euros available for the tender, this is a triplication of the amount. At present, the Austrian organizations on the promotion list are negotiating about a promotion volume of about four million Euros. As Chart 1 shows the share of the authorized projects with Austrian interests

was disproportionately big compared to the share of the total amount of submissions.

IN THE SUBMITTED PROJECTS (Chart 2, page 42) 90 times organizations from Austria are involved in the 59 evaluated project proposals. 20 participations from Austria are represented in 13 granted projects. According to the PROVISO evaluations Austrian institutions make 3.8 percent of the participations allowed altogether. "This is a very good result for the first invitation to tender", says Andrea Hoffmann from the National Contact Point for Security in the FP7 in the Austrian Research Promotion Agency (FFG).

A highly important issue from an Austrian point of view is "Security and Society". It has little to do with the development of new technologies but rather with research relevant for society: Which factors influence the feeling of security of the population of a country? How is security perceived by society? How is security organized in the various countries, etc.? The satisfying thing about it is that the performance of the Austrians was particularly good here and that at least ten local partners are involved in successful projects.
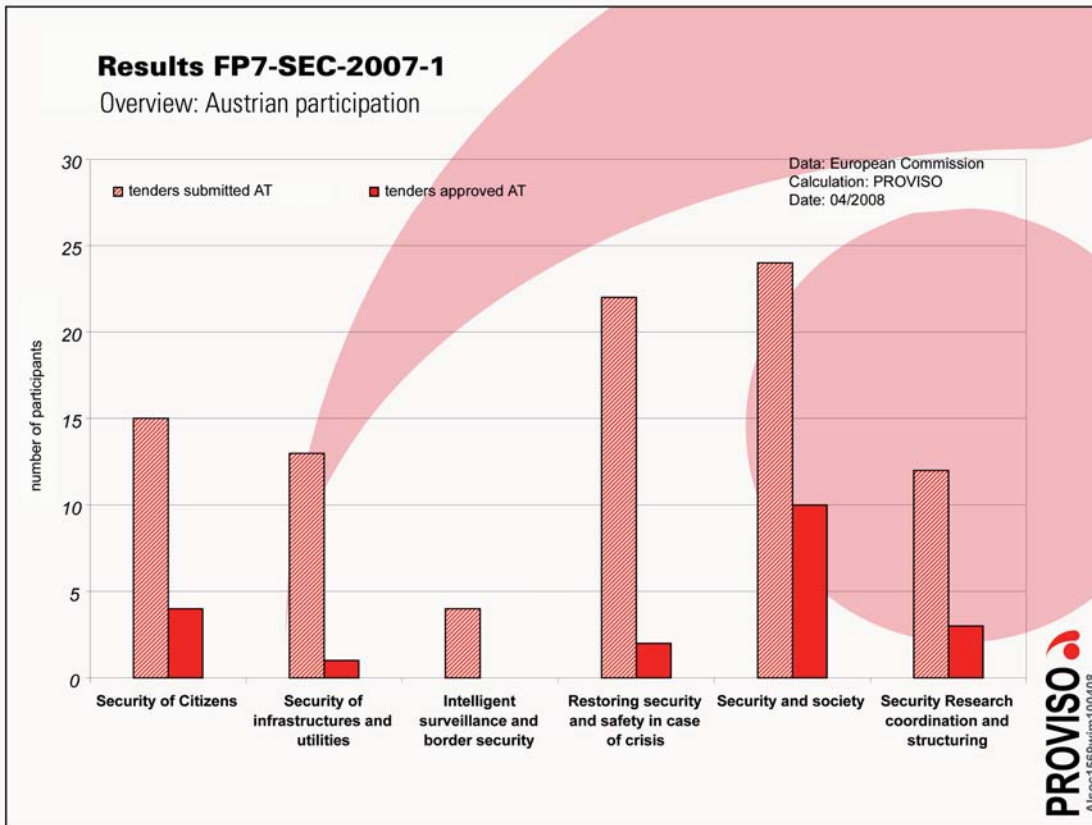
With CAST a local top project is among the winners. CAST stands for "Comparative Assessment of Security-centered Training Curricula for First Responders on Disaster Management in the EU" and provides protection for catastrophe helpers from new dangers, the optimization of the crisis management and makes sure that everybody can co-operate with everybody in Europe in future. "The idea for this project was born, when I analyzed the readiness for action of the fire brigades, rescue teams and police forces on behalf of the Nato in their member states. It was shown that the outcomes leave a lot to be desired independently of the size and means of the respective country as soon as a disaster exceeds a certain extent. But if the Nato already has such problems, then what's the situation like in the EU, which has less means?", describes project manager Friedrich Steinhäusler from the International Security Competence Center (ISCC) the starting position. The examination at EU level showed that there are also difficulties in interoperability, when several countries shall collaborate in cross-border catastrophes.

"We have realized that the last barrier for the protection of the population breaks down, when the action forces themselves are endangered. This is an extremely critical moment. Our task now is to set up with CAST an EU-wide standardized education and training programme for fire brigades, rescue

Results FP7-SEC-2007-1
Overview: Austrian participation

Data: European Commission
Calculation: PROVISO
Date: 04/2008

tenders submitted AT tenders approved AT

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teams and police forces which primarily concentrates on the new threat scenarios." According to Steinhäusler it will be closely cooperated with the industry which provides new technology. Another exceptional component is the cooperation with Special Forces in Russia, Israel and the USA, which have already gained extensive experience with disaster prevention and terror fighting. Altogether, 14 international groups are involved in CAST with a very strong Austrian component.

IN "SECURITY OF CITZENS" very good results were also achieved in relation to the submitted project applications: About 20 percent of the authorized Austrian partner organizations are involved in projects for the identification of explosive substances

and the development of intelligent information systems which serve for the protection of the population from organized crime and terrorism.

With CREATIF there is another successful Austrian project: It shall build up a network of technical test centers, which concentrates on the admission and certification of security-relevant products and services for tracking down radioactive/nuclear, biological and chemical substances as well as explosives. This network shall become a communication platform for technology users, decision makers, suppliers and test experts to improve test procedures and systems. All stakeholders are invited to become members, to bring in their knowledge and to exchange opinions: The test centers can publish their expertise and technical equipment for equip-

Proviso – the facts

This project is carried out on behalf of all the Austrian Ministries concerned with research issues (BMWF, BMWA, BMLFUW, BMVIT) as well as the Austrian Computer Society OCG as the project sponsor. It is an objective to support the Austrian Ministries and the EU delegates entrusted with research agendas in the administration of research political agendas on a national, European and international level. PROVISO has the following tasks:
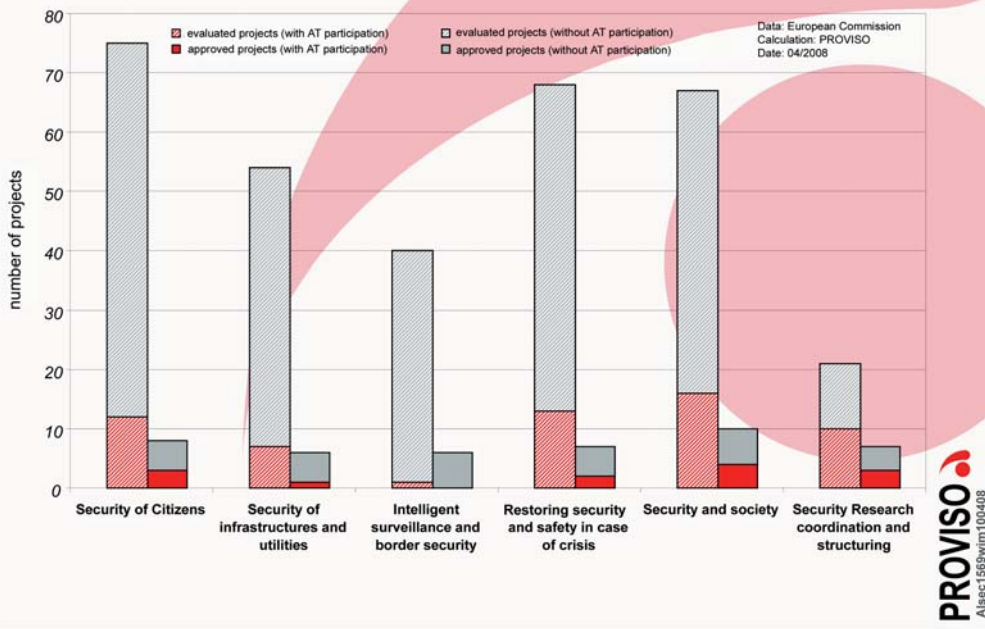
■ harmonizing and standardizing the data of the European Commission to create a compatible, user-friendly database and information infrastructure
■ processing data and information graphically and as regards content
■ carrying out continuous stock-takings and comprehensive monitoring of Austrian involvement in the EU Framework Programme for Research and Technological development

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Results FP7-SEC-2007-1
Overview: projects

tria's longstanding and intensive tradition of participation in the EU Research Framework Programme and that also in the context of the preparatory initiative PASR valuable experience could be gained. "With 45 million Euros in PASR the budget was very small, so that sometimes Austrians only got a chance in re-submissions. In addition, presenters profited from the network that they had already built up at that time. Any submission which has exceeded the threshold value has in principle to be judged as a positive result and represents an investment in the future which hopefully bears fruit at re-submission."

Another plus is the intensive national supervision and support of the presenters. For instance, the Department European and International Programmes in the FFG offers extensive service. Here the focus is on personal consultancy reaching from the project ideas and the composition of the consortia to the proposal checks of the project applications. "Applicants that have made use of detailed consultations and/or proposal checks have a success rate of 35 percent. In contrast, there is a Europe-wide success rate of authorized projects of about 14 percent", says Hoffmann proudly.

An additional support measure of the FFG is the attractive initiation funding of up to 15,000 Euros for coordinators and up to 7,000 Euros for partners. Already before application, the FFG clarifies, whether the idea of the project fits into the invitation to tender or how the chances for support can be increased. A new service of the department European and International Programmes is the FFG Academy launched in 2007 with a practical training series for the 7th EU Research Framework Programme. Three modules for newcomers, applicants and project managers are available. Further information about the offers of the FFG can be found under Service on page 47. «

ment tests in a database about test centers within the EU 27. Besides users and technology suppliers can become members of an advisory council to incorporate their views and their needs into workshops and projects. CREATIF will check existing test procedures and relevant standards so that for detection systems for the mentioned substances EU-wide standardized regulations and approval procedures are established. Thus the existing test methods shall be extended by essential aspects like user-friendliness and the avoidance of incorrect handling of technologies under realistic operating conditions. This project is coordinated by the ARC, Department Radiation Safety and Applications.

To derive Austria's strengths and weaknesses from the results of the first invitation to tender is in Hoffmann's point of view not legitimate, though. In fact this asks for a detailed analysis which must go beyond the participation in the EU Research Framework Programme. "Especially the security topic is a highly sensitive one", stresses Hoffmann. It is actually conceivable that some companies or researchers would be discouraged by the administration effort which is necessary when dealing with confidential and secret information. It also has to be taken into account that, from time to time, some companies wouldn't like to bring in existing know-how in international consortia.

WHAT MAKES THE AUSTRIAN PARTICIPANTS SO SUCCESSFUL? Among other things the FFG expert explains this by Aus-

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TRANSNASEC is the „Missing Link"

NETWORKED. Together we are stronger. This is true and in particular true in security research. Austria that has already until now been a generator of innovation in Europe's security, wants to build up and coordinate an international network, which is promoted by the EU and interlinks the individual national Security Research Programmes of the EU countries now. »
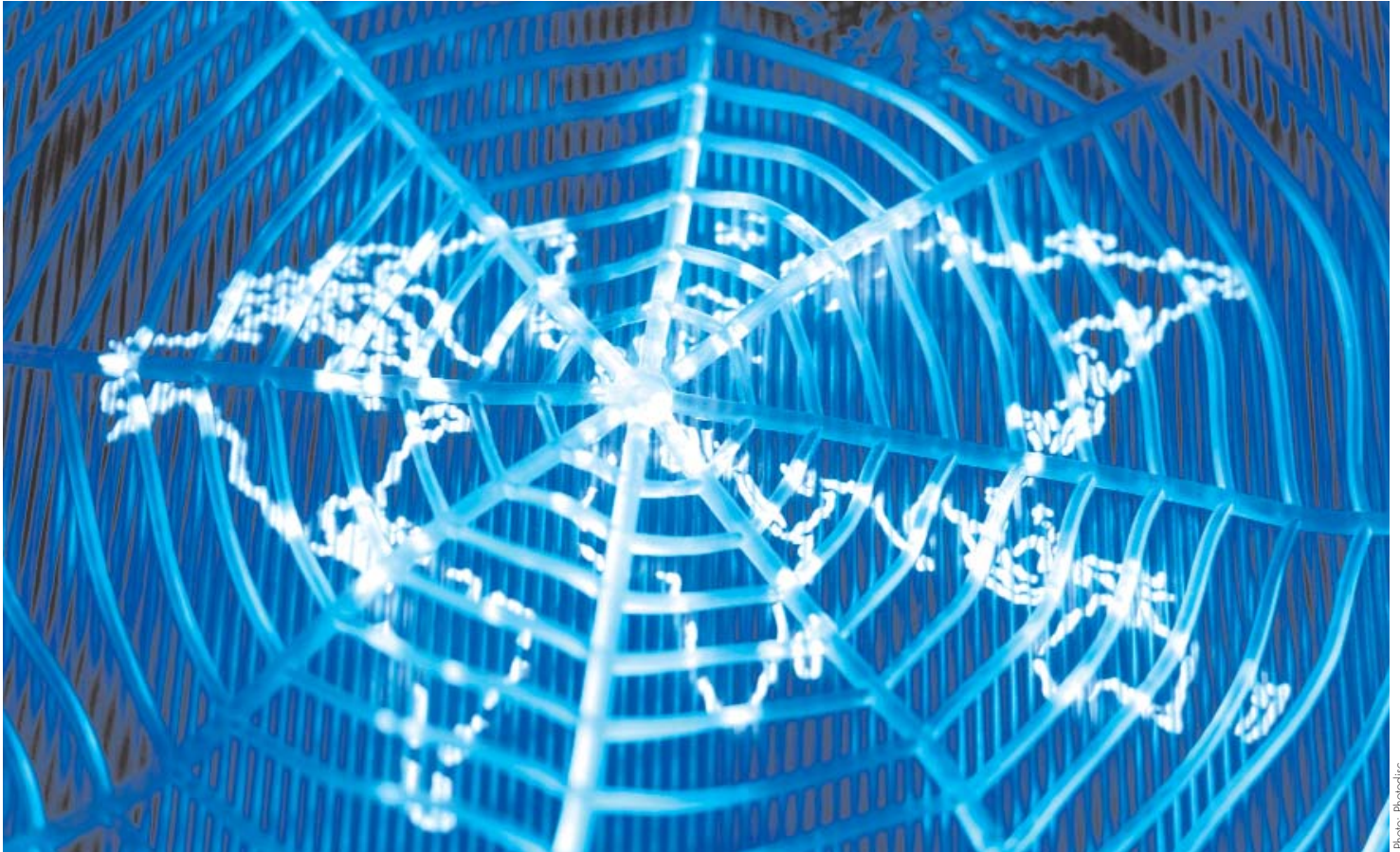

Photo: Photodisc

At present security research is taking place on two levels in Europe: nationally where every country is responsible for its security on its own, and since 2007 at a European level with the European Security Research Programme (ESRP) being part of the 7th Framework Programme. The European Commission knows, however, that the link between these endeavors is missing.

The so-called European Research Area Network (ERA-NET) shall provide remedy here. With the BMVIT as the coordinator Austria agreed to build up and to coordinate an ERA-NET for security research. The TRANSNASEC (Transnational Security Research Initiative) has been set out as pioneering work in security research for four years and shall be complemented in the 7th Frame-work Programme, Sector Cooperation in topic 10 ("Security"). It is meant to be a coordination instrument which is funded by the European Commission with the objective of linking the different national research programmes to each other and stimulating and supporting international research initiatives between the ministries of the countries involved – also exceeding the 7th Framework Programme.

THE CONCEPT OF TRANSNASEC is essentially based on the principles of and experiences with KIRAS: Like in Austria the BMVIT plans to involve the humanities, social and cultural studies bindingly from the very beginning also in international cooperation. Through the different common activities

like choice of topic, evaluation and copyright use the development of a homogenous course of action in Europe shall also be possible, which always takes the developments at European level (ESRP/ESRIF) into account. Apart from the coordination of the network, Austria will also take over the management of TRANSNASEC. Among other things the establishment of a common secretariat and the coordination of the various work packages, into which the ERA-NET is subdivided, belong to the tasks.

"We see a chance here to lift KIRAS to a European level on the one hand and on the other hand to start a productive exchange between the participating countries", says Ralph Hammer, employee in the Staff Unit of Transfer of Technology and Security Re-

"We see a chance here to lift KIRAS to a European level and to start a productive exchange between the participating countries."
RALPH HAMMER, BMVIT

search and coordinator of the ERANET applications. The work on KIRAS will also benefit from that. Apart from Austria Germany, the Netherlands, Sweden, Great Britain and Hungary have already expressed their interest in participation.

IN PRINCIPLE, THE INITIATIVE IS ALSO OPEN TO OTHER PARTICIPANTS. They must merely satisfy those three prerequisites which apply to every other ERA-NET: The basis is a national security or security re-

search strategy or even better a security research programme of its own, which is just being realized, is in its final planning phase or is already running. Furthermore owners of the security research programme or its operator have to be in the TRANSNASEC consortium of the country, whereby the European Commission attaches great importance to the participation of the former according to Hammer. The third prerequisite is sufficient research budget. For KIRAS for example on average ten to twelve million Euros per year are estimated for the total running time.

The second invitation to tender for the ESRP, the Call FP7 SEC-2008-1, where the submission of TRANSNASEC is planned, starts in July 2008. As a deadline December 2008 is scheduled. Afterwards the evaluation by the European Commission is on the agenda. Hammer expects that the negotiations with the Commission about the organizational concept, the costs and the distribution of resources will start in the middle of February 2009. If they come to a successful conclusion, work could start in July then.

AT PRESENT, the preparatory works in the international cooperation for TRANSNASEC is working very well. Hammer attributes this to the fact that security research is a young field of research and that the interest is very high - also at a national level. The currently still relatively low number of partners also facilitates the cooperation. "At the beginning there is the information exchange. We want to find out, which plans and interests the partners have for the next years, what

ERA-NET – The Facts

The ERA-NET concept was brought into being with the start of the 6th Framework Programme in order to network and coordinate national research promotional programmes of the EU and the associated countries. At the same time these programmes shall mutually be opened for the participants from the other countries involved in the network. To achieve this the following steps are aimed at:
■ Information exchange
■ Definition of and arrangements for common activities
■ Implementation of joint activities
■ Foundation of a common, transnational research.
Meanwhile, about 70 different ERA-NETs

exist including hundreds of national research programmes. They cover a wide spectrum from transport, energy and environment and health of people and plants up to astrophysics and social sciences. In the 7th Research Framework Programme the principles of the ERA-NETs are not just carried on, they even have been strengthened: Thus the EU supports new activities; existing networks can apply for support from the Commission again to extend or consolidate their networks. In addition, the European Commission promotes the organization of joint invitations to tender of national research programmes with additional means from the new "ERA-NET Plus".

their big topics are", explains Hammer. In principle, all the endeavors are heading in the same direction with differing focal points, though. Some countries are strongly research and development-oriented, for example in the field of sensors or protective materials. Others put their main emphasis on the humanities, social and cultural studies. Austria for example covers both fields.

The range of the topics is indeed very wide. It shall still be prevented that some fields covered by the 7th Framework Programme are covered twice. In principle, it is planned that at least two countries merge to a consortium and work on the topic important to them together. It all starts with the creation of a homogenous taxonomy. "We have discovered in the talks and negotiations with our partners, that even in the case of airport security, for example, everybody understands something else," explains Hammer. "Some say: Checkpoint Security starts in the hall for us. For others, in turn, it already begins in the car park or in front of the terminal."

THIS DEFINITION PROBLEM is also one of the reasons why the European Commission keeps the texts in its invitations to tender relatively general. Although the topics are defined, it says at the same time in the annual working agendas that the submissions are flexible to a certain extent. The probability that misunderstandings occur when the descriptions are all too strict is too high, because the associated partners understand something different by the very same idea.

Even though European security research is positioned very broadly, there are still topics again and again which do not quite fit in the working agendas worked out every year as they differ too much from the ideas of the European Commission. Quite often these projects are however of great interest for more than only one country. Through the organized close cooperation of research, industry and users in the TRANSNASEC consortium it is much easier to find partners for broader common topics. Though it is still hypothetical at present, the BMVIT has already now included measures in its plans for an international cooperation for the time after TRANSNASEC: There is a work package with the task of pursuing the development at a European level, searching for networking approaches and finding out the needs for cooperation. "We wouldn't actually call TRANSNASEC a success if in the end the organized cooperation also comes to an end," is Hammer's résumé. «

TRANSNASEC shall support the coordination of security research on a European level.

This is how TRANSNASEC works
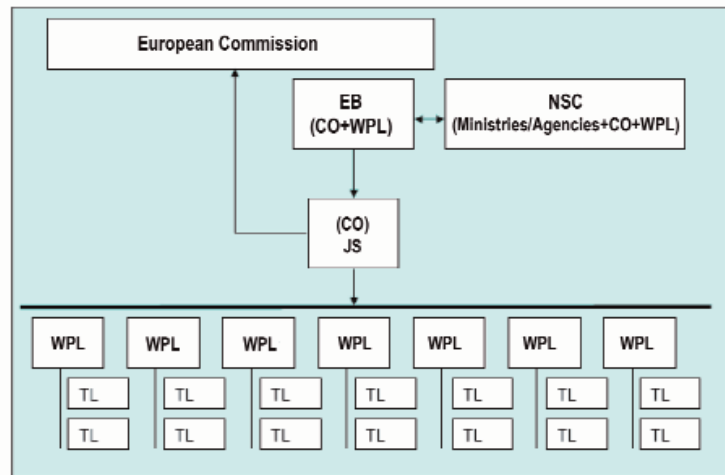
NSC: The Network Steering Committee is the strategic decision-making body of the ERA-NETs made up of programme owners and managers.

EB: The Executive Board is the operative head office of the networks and is made up of the coordinator (CO) and the Work package Leaders (WPLs); it supervises the implementation of the network, is responsible for the internal and external communication (among others with the European Commission) and prepares strategic decisions for the NSC.

JS: The Joint Secretariat supports the activities of the coordinator.

WPL: Work Package Leaders are responsible for the implementation of the objectives aimed at in the individual work packages in due time. They coordinate and represent the activities of the Task Leaders (TLs) and work closely together with the coordinator.

WP: The Work Package contains things like information exchange, joint activities, invitations to tender, management.

Task: Every Work Package (WP) consists of several subdivided tasks to achieve the respective objective of the WP.
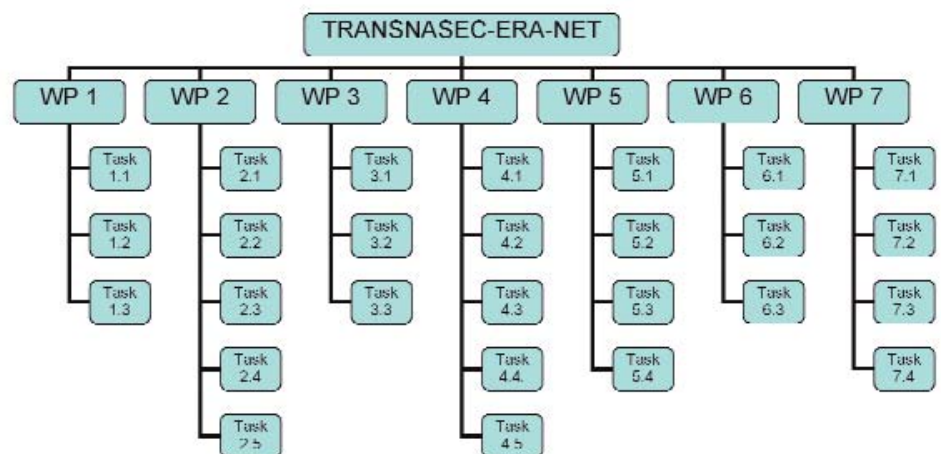
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From Application to Funding

SERVICE. Details about the workflow of the Austrian and European Security Research Programme with links can be found here. »

Information about KIRAS and application forms can be found on the KIRAS homepage. After submitting the complete project application forms the applications are checked formally. In case of a positive appraisal, an evaluation is carried out by independent experts. If the project applicant should file an application for classification, this application is passed on to the National Security Council (NSR) as soon as it passed a formal check done by the Austrian Research Promotion Agency FFG. The NSR checks whether the project is compatible with existing or planned systems and whether it really must be carried out as classified. If the NSR finds that the classification application is justified, an examination by the control commissioner is carried out to find out whether the applicant has taken the precautions according to the information security regulations.

After the successful check of the contents of the project applications these are presented to the jury together with the statements of the experts . The jury ranks the projects and suggests a sum for the funding of the successful projects at the same time. This recommendation of the jury is presented to the executive committee. The BMVIT then takes the legally binding funding decision. The FFG is responsible for both the notification of the applicants and negotiations and conclusions of contracts and the funding contracts.

THERE IS A MAIN EMPHASIS ON SECURITY AGAIN in the 7th Research Framework Programme of the EU . There is the so-called initiation funding in the Framework Programme. It covers expenditures for development, planning and application of projects in the Framework Programme. The programme, which is for the first time carried out centrally by the FFG/EIP, co-finances labor, travel and accommodation costs with up to 75 percent of the admissible costs. Applications for initiation funding must be submitted to the FFG three weeks before the deadline of the respective EU invitation to tender at the latest. There is a line for each science and eco-

nomy in the initiation funding. The process of funding in the EU Framework Programme is similar to the one in KIRAS; the application is, however, exclusively made electronically via the so-called "Electronic Proposal submission System – EPSS."

After submission every application is first of all checked and evaluated individually by external experts. Then there is a so-called Consensus Meeting of the evaluators, where the different appraisals are compared, discussed and analyzed. The experts allocate then scores for every project and describe in the Evaluation Summary Report how they have come to the scores. In the end the projects are ranked according to these scores. The EU Commission finally decides, whether a project is sponsored or not. At the end of the procedure there is the Grant Agreement, a kind of contract with the European Commission.

There is no way around the internet address cordis.europa.eu. The Research and Information Service of the Commission is of particular importance in the application process since all application documents for the different invitations to tender of the Framework Programme can be downloaded from this site and it also offers access to the EPSS. Moreover, the internet page also contains databases as additional help for the application. «

KIRAS-homepage: *www.kiras.at*

„Security Research", first issue: *www.kiras.at/cms/aktuelles/pressespiegel/broschuere-sicherheitsforschung.html*

FFG-homepage: *www.ffg.at*

Information about the 7th Research Framework Programme in the FFG: *http://rp7.ffg.at/sicherheit*

Initiation Funding (FFG): *http://rp7.ffg.at/anbahnungsfinanzierung*

FFG Academy/European and International Programme: *http://rp7.ffg.at/ffg_eip_akademie*

Official homepage of 7th RP: *http://cordis.europa.eu/*

The works of the Advisory Group including reports and advice: *http://ec.europa.eu/research/fp7/index_en.cfm?pg=eag*

KIRAS Sicherheitsforschung   FFG

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SEVENTH FRAMEWORK PROGRAMME   FFG

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