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► To cite this version:

Bernard Claverie, Horst Hamacher, Hervé Le Guyader. Report of Franco-German Experts on Global Security /Civil Security (GS/CS) Research. [0] 6th Forum on Franco-German Research Cooperation; Ministère de l'Enseignement Supérieur, de la Recherche et de l'Innovation; Bundesministerium für Bildung und Forschung. 2018. hal-01880435

HAL Id: hal-01880435

<https://hal.science/hal-01880435>

Submitted on 24 Sep 2018

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Report of Franco-German Experts on Global Security /Civil Security (GS/CS) Research

Edited by
Bernard Claverie, Horst W. Hamacher and Hervé Le Guyader

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Introduction

As knowledge-based economies, France and Germany attach particular importance to the areas of education, research and innovation. Innovation is the mainspring of prosperity and quality of life¹.

Franco-German (F-G) cooperation in education, research and innovation is an important driving force of activities on the national level of both countries as well as in Europe. Joint research has been encouraged and supported by the respective governments in France and in Germany, which has proved very successful since the inception of the cooperation in 2002.

In this report, the F-G cooperation is highlighted for the area of GS/CS. The report consists of contributions of a high-level group (HLG) of French and German experts which was appointed by their respective ministries. The goal is to discuss merits, but also problems of the past F-G program, and to propose ideas to enhance the future of F-G cooperation by identifying challenging research topics in the area of GS/CS.

Paris meeting

A meeting was organized on 30th November and 1st December, 2017 as an operational kick-off for this new edition of the Franco-German cooperation. Held in the premises of the French national research agency in Paris and headed by representatives of both ministries, the meeting allowed the invited experts selected by the ministries to present their views on four themes identified by the ministries, falling under the main GS/CS thematic area.

These themes were:

1. Radicalization and the fight against terrorism,
2. Rights and freedoms in the field of civil security,
3. Critical infrastructure protection and resilience,
4. Protection against emerging infections and biological threats.

Of note, a fifth theme,

5. Education and Information towards a shared culture on global and civil security

emerged from the discussions. Confirmed by the progresses made during the drafting period, it was supported by the ministries of France and Germany as a relevant and necessary research domain to be addressed.

In addition to the discussion related to these five specific themes, all experts recommended some general approaches in a new funding horizon to enhance the sustainability of the joint F-G research program:

- All projects should be truly cross-disciplinary. Each of the themes listed above should be interlinked with each other whenever possible and this should be part of every application for funding.
- For each project, some funds should be allocated to allow for an exchange of students, of the master or PhD level, to improve the sustainability of the research.

¹ <https://www.bmbf.de/en/germany-and-france-research-and-innovation-for-the-future-of-europe-4502.html>

Modus operandi

The heads of both national HLG's designed and agreed on a shared methodology aiming at producing, in time, the report expected by the forum's governance. The following steps were identified:

- a) Based on a template and instructions provided by HLG's heads to the experts, each of them was asked to produce an initial individual document, following a common structure. Of note, it was each expert's responsibility to liaise with colleagues he/she would deem relevant for his/her specific theme.
- b) Once this work was done at each national level, a new common template was designed by HLG's heads and provided to all experts. Thus, each Franco-German "experts pair" could design and agree on a structured text that would represent their common F-G view on their respective theme.
- c) Once produced, all five joint reports were compiled in this present document, provided to the experts for final fine-tuning and approval.

We thank the authors to have adhered to this plan and present, as a result, the following unadulterated Franco-German experts' opinion.

1. Radicalisation and the fight against terrorism

By Sébastien Laurent, Robert Pelzer, and Martin Steinebach

a – Evaluation of the past: What is good, what is bad in the current F-G research program?

No experience.

b - Research development in this topic and the chances for improvement by a F-G cooperation

Recent state-of-the-art research on radicalisation emphasizes that becoming involved in violent extremism is a complex, dynamic process, being affected by a variety of factors and mechanisms at the individual and group levels, but also at the level of social movements' mobilization dynamics and macro-societal conditions. For too long the field has been characterized by the prominent role of behavioral sciences and a very large scale approach that failed to cope with. So as to be relevant for public policies there is a need in Europe to go beyond individual psychology and to include the tools of social sciences (anthropology, sociology, political science mainly) and to use local scales as it is made in the relevant prominent academic journals (*Terrorism and Political Violence* and *Studies in Conflict and Terrorism*). Research in the past neglected to take into account the role of social processes including socio-economical grounds. It is important to go beyond. This applies to the research on patterns of behavior or pathways for radicalisation, but also on the analysis of good practices for prevention.

Facing insecurity, liberal democracies are committed to avoid terrorism on the one hand and to comply with legal regulations on the other hand in a context of a strong media coverage. Research in social sciences and law could lead also to a better understanding of the tricky balance between security and liberty. In doing so, research could lay the foundations for the further development of law and policies, so that society can maintain their liberal character while security authorities can keep their ability to act under the condition of highly dynamic emerging risks. A core topic in this regard is to improve inter-organizational cooperation between different state actors (in particular police and intelligence but also the military) as well as between state and non-state actors.

Research on Theme # 1 can only be executed with access to data, which is often closed knowledge for governmental organizations. Apart from this, building technology to gather data from communication platforms and channels in order to build models and to finally run automated monitoring and analysis based on these models, faces numerous legal issues that have not yet been solved. Violent oriented behavior may slowly develop out of a more general political opinion, which is under special protection of privacy laws in Germany. Concepts how to deal with these issues need to be developed. This must include technical (*e.g. privacy-friendly data mining, aggregated crawling, strong pseudonymization*) as well as legal aspects.

A different challenge in addressing radicalisation and terrorism is monitoring of communication between involved parties using encrypted channels, steganography and anonymization networks (aka Darknets) like TOR. This includes the need for forensic hacking, the role of encryption in our digital society, the ethical discussion of anonymization networks and many other aspects.

The F-G collaboration would enable to implement comparative perspectives on these issues and to bundle existing social-scientific excellence on the following topics.

i. Technology/Techniques/Material/Data

1. Socio-economical grounds of radicalisation at local scale

2. Patterns of behavior for radicalisation

- Sub-topic 2.1: Patterns of behavior for radicalisation
- Sub-topic 2.2: Cognitive grounds and incentives for radicalisation
- Sub-topic 2.3: Patterns of behavior for radicalisation in penitentiary context
- Sub-topic 2.3: Patterns of behavior for radicalisation leading to suicide attack

3. Comparison of patterns of radicalisation and practices of prevention in different local and social contexts in a cross-border perspective

- Sub-topic 3.1: Radicalisation/prevention in metropolitan hot-spots including economically disadvantaged Areas

- Sub-topic 3.2: Radicalisation/prevention in rural areas

ii. Policy making and public policies (top-down)

4. Assessments/results of prevention measures and deradicalisation programmes

5. Inter-organizational cooperation and communication between different state and non-state actors

6. Intelligence and legal cooperation in the fight against terrorism

7. Effects of the new European GDPR on the fight against radicalisation and terrorism

8. Beyond Law enforcement, the Military in the fight against terrorism

9. Application of anti-terrorism laws in police and criminal justice practice

10. Monitoring radicalisation beyond the Clearnet (Darknet and Messengers)

11. Framework for privacy-preserving data exchange between research and end users

iii. Involvement of end-users and industry

End users in France are mainly at national level and as follows: Police, Justice, CIPDR, Préfectures, De-radicalisation Structures (in touch with the CIPDR), Miviludes. The two Ministers have set up steering committees (linked directly to the ministries/cabinet) on radicalisation which should be counterparts for the FG Expert Group. They could lead us to the relevant parts of both administrations specifically in charge of radicalisation (Direction de l'administration pénitentiaire (DAP) and Bureau central du renseignement pénitentiaire (BCRP) for the Justice Office and Intelligence Agencies (SDAO, SCRT for the Home Office). (These bodies which collect vast amounts of data on individuals are yearning for means to use them and they are understaffed).

For Germany, also the role of end users at local level needs to be stressed. The development and designing of prevention measures and security policies is a relevant issue at local and national levels. Relevant end users are police, social work, schools and local community actors, policy-maker at national and local level in different resorts (interior, family/youth, integration, justice), criminal justice system including penal institutions, Federal Office for Migration and Refugees (BAMF), Intelligence services at national and federal states level.

c. Summary (key words and specific topics proposed for the next funding period)

Motives, patterns of behavior, prevention measures, prevention measures, deradicalisation programmes, intelligence and legal cooperation, public policies.

2. Rights and freedoms in the field of Civil Security

By Rita Haverkamp, Gilles Lhuilier, and Anke Schröder

a. Evaluation of the past: What is good, what is bad in the current F-G research program?

The following joint F-G projects refer to rights and freedoms in the field of Civil Security: Prevention work and knowledge transfer (CODISP) (concluded), Security in urban surroundings: crowd monitoring, prediction and support for making decisions (S2UCRE) (running), Organised parades and demonstrations in public space: planning and crisis management under high conflict potential in cities (OPMOPS) (running), Handling drugs in public – challenges for the security of cities (DRUSEC) (running). While S2UCRE and OPMOPS incorporate judicial aspects such as fundamental rights (e.g., right to demonstrate), data protection, and privacy, CODISP and DRUSEC mainly seem to address sociological and ethnographical research questions. In CODISP the focus was on preventive policing and the transfer of knowledge between different authorities (police, social work). In DRUSEC the project aims at developing measures which are able to significantly reduce the risks of drug use in public or semi-public settings for users and the public. Since 2009, the ANR has launched calls for tenders on global security, known as "Concepts, Systems and Tools for Global Security" in partnership with the Directorate General of Armaments (DGA) and the General Secretariat for Defense and Security of National Security (SGDSN), inspired by a sui generis concept of "global security". Since the Call for Tender CNRS Attentats-recherche, of November 2015, a new French approach of security has seemed to emerge closer to the German approach.

All joint projects research important societal questions that affect the coexistence of people in public space and civil security. This also shows the importance to support transdisciplinary approaches, mixed methods methodology and a well-maintained combination of researcher and stakeholders resp. end-users and to stress the importance of the respect of human rights to meet the goals of global or human security.

Although an awareness for rights and freedoms can be observed, emphasis should be enhanced concerning to the judicial framework of the police and other authorities as well as to a deepened analysis to the various implications of fundamental rights and their interplay to different laws. Despite the already mentioned topics rights and freedoms are affected in many settings that are linked to safeguards of fundamental rights and to different judicial framework and jurisdictions. Furthermore, concerns from an ethical perspective are also crucial. Rights and freedoms are usually concerned when it comes to the development of (digital) technologies to increase safety and security for populations.

The different funding of German and French joint projects makes it difficult to organize equal partnerships (e.g., DiverCity: first a bilingual call, in the end only funding for the German part).

b - Research development in this topic and the chances for improvement by a F-G cooperation

In the last decades, the concept of security expanded in four dimensions: subject (militaries, economical, ecological, human), reference (national, societal, individual), space (territorial, regional, international, global), and danger (threat, vulnerability, risk). This extension reveals a need for being sensitized for the rights and freedoms. This need is articulated by the concept of human security, defined as a condition that exists when the vital core of human lives is protected, and when people have the freedom and capacity to live with dignity. Regarding crime and deviance, crime prevention goes beyond reactions on disaster and is a societal task with various stakeholders in order to increase objective and subjective security.

i. Technology

- In all possible cases of infringements of fundamental rights and freedoms interdisciplinary joint projects – involvement of law and/or ethics is necessary.
- Crime prevention:
 - criminology, criminalistics, sociology, social work
 - sustainable development, industrial design, architecture, and planning aspects
 - evaluation: ethical, gender and diversity aspects, regarding dynamic changes in civil society
 - combining different small scaled data sources and associating into complex data (police statistics, victim surveys, socio-economic data, spatial relevant data)
- Internet of Things:

Use of high-speed internal security means, multi-protocol, sensors (Safe City, home automation)

2- big data and new "analytics": development of machine techniques / deep learning, artificial intelligence and decision support for the detection of risk situations from a multi-sensor analysis of the situation (analyze video, audio, etc.), the recognition of suspicious activities, objects, the tracking of real-time automated people from the network of intelligent sensors (recognition and monitoring of people)

3- identity - authentication; GAFAM (Google, Apple, Facebook, Amazon, Microsoft) and data protection in a national and European context

4- interface between the real world and the virtual ones: diffusion of new tools for the real situations (faithful perception of the environments, prices in account of the cognitive senses and the emotions), new training techniques by immersive simulations, injection of tactical information on safety glasses and face a multiplicity of sensors and data, ability to store, process, cross and analyze in real time, to improve decision on the ground.

ii. Policy making (top down)

- Human security:

The shift to human security allows to understand that the causes of insecurity – such as terrorism or civil war – are the interaction of multiple global factors notably the operation of markets, the state, and civil society, poverty, discrimination of many kinds, and extreme natural and technological disasters. The illusive concept of human security should be combined with a human rights approach.
- Securitization:

The dynamics of security are studied by speech acts where the focus lies on the ways in which a certain issue might be socially constructed as a threat. Crimmigration is also related to securitization and poses the question how to deal with migration. The analysis highlights the mechanisms of securitisation and options for de-securitisation.
- Cooperation and communication:

In order to maintain and strengthen security, cooperation and communication between different stakeholders (e.g., police, social work) are inevitable. If one examines cooperation and communication structures, one discovers a lot of deficiencies. In this context, it is important to sensitise the authorities concerned for the rights and freedoms of all citizens.
- Participation:

Policy making should try to involve all kinds of citizens, including those without voice, in a trusting and effective cooperation of processes. New forms of participations and shareholdings are required. In order to develop and achieve a strong good-neighbor policy there is a demand for studies on coherences between spatial and housing processes, crime data and feelings of (in)security.

- Implementation and evaluation:
Concerning implementation, it is important to consider and accompany the whole process from the beginning until the realisation of a program or measure. Evaluation is essential to spread evidence-based strategies, programs, and measures with regard to an increase or the maintenance of security.

iii. Involvement of end users

- Development of high-quality technologies and products and/or technologies for everyday use by taking in account aspects with respect to ethics, constitutional law, and other laws (e.g., development of helpful conditions between housing industry and police crime data, file processing system, victim surveys, spatial relevant crime data)
- Security impact assessment of enterprises of security and transnational companies
- Prevention measures and programs in labor law
- Education and awareness campaigns: domestic violence, human trafficking, migration

c. Summary (key words and specific topics proposed for the next funding period)

- Law relating to rights and liberties within civil security:
Efforts to increase security – new digital technologies in particular – often affect rights and freedoms of the citizens. Therefore, law and ethics have to be involved to keep the balance between security and freedoms.
- Cooperation:
Not only technology to increase security should be developed, but also communication and management strategies for different stakeholders like the police. The police often has modern equipment but is not able to use it due to a lack of staff. Therefore it seems to be more promising to develop other strategies that involve communication, cooperation and also participation of the population (e.g., trust in the police).
- Best practices:
It is important to learn from national and local approaches. Binational research as applied research means, to respect the national conditions and pick them up where they stand.

A binational consortium will be expected to reinforce the French-German cooperation and especially the current structure of research in the field of global or human security. A pluralism of epistemologies used will be appreciated.

3. Critical Infrastructure (CI), Protection and Resilience

By Corinne Curt, Fereshte Sedehizade, Christian Wietfeld and Monika John-Koch

a - Evaluation of the past: What is good, what is bad in the current F-G research program?

Several F-G projects have addressed very timely and international relevance research issues on CI resilience with interesting solutions considering many technical parts of the puzzle “Resilience”. These are sensors for “Smart-network”, data-evaluation (Big data), cyber security, resilience of cellular networks for CI, simulations and other tools for decision making and so on. The cooperation within the F-G projects was very fruitful and the competence was very high. Key industry (e.g. EDF, Airbus, etc.), end-users (e.g. Berlin water) and research laboratories (e.g. Irstea) have been actively involved. Collaborative pMotvprojects are a good way for F-G cooperation for supporting companies in implementing the results.

Questions are still outstanding (see Section b) and CI’s (e.g. water companies) have now an enhanced awareness that “Resilience” is not only a technical but also an organizational and a sociological issue. Previous projects deal with communication, transport and water infrastructures. It could be interesting to also encourage works on infrastructures such as bank, health, heritage, media, protective works, green infrastructures, interoperable robotics platforms or new technologies such as 5G.

The upcoming research should focus more on cooperation, since there is still a lack in connecting the processes, established in state authorities, the private and the public sector, for an integrated risk and crisis management, which enables the actors harmonizing and coordinating their planning processes and decision making during all management phases.

Bad are the differences in project duration, financing period and reporting requirement of the two ministries. Also, the dissemination of results to state authorities and operators should be improved.

b - Research development in this topic and the chances for improvement by a F-G cooperation

Analyses of the resilience concept in different fields have been proposed in the international literature. Most existing definitions express essential aspects of resilience, though apart from a few rare exceptions, they fail to provide quantitative measures, and definitely lack an operational basis for resilience. Thus, this concept remains difficult to measure and apply in practice. CI’s need now instructions for implementing the results in to their operating system including crisis management (Technology issues) and need support from policy for “Updating” their systems. The research development aims at improving the management of CIs protection and resilience by promoting works on the following issues.

i. Technology

– new technologies or types of critical infrastructures:

- a. prove and optimize the resilience and robustness of future 5G networks and new technologies such as 5G New Radio using mmWAVE and network slicing for hard quality of service guarantees
- b. design and validation of a multi-purpose, interoperable robotics platform, which would become a critical infrastructure of its own
- c. Open IoT (Internet of Things) platform for enhanced security: connect actuators in a secured way; Couple simulation and data analytics tools to the open IoT platform

– approaches and elements of an integrated / holistic risk and crisis management considering interactions between different CIs

– development of operational metrics and practical approaches to support decision considering different (i) risk and crisis management phases (prevention, crisis, recovery), (ii) hazards and cascade effects, (iii) domains (technological, organizational, economic, social, environmental...); (iv) spatial issues (multi-scaling, GIS, transnational approach); and/or (v) dynamic issues (ageing of CIs, global changes, temporal resolution)

– use of new technologies for the protection of critical infrastructures:

- a. tools for reconfiguring the system: (i) dynamic systems vs. static systems, (ii) Intelligent systems (self-learning and self-acting)

- b. heuristic tools to deal with Big data (different types) and transform them to smart data
 - reliable and resilient communication tools between infrastructures and also the authorities
 - improvement of training on decision-making through proposal of procedures, serious games, etc.

ii. Policy making (top-down)

- analysis of multi-level governance, interactions and responsibility – involvement of policy makers in to the research projects for better understanding the social and financial needs
- education for raising public awareness; improvement of risk (resilience) culture
- consideration of spatial and dynamic issues in a context of global changes and human, material, financial constraints; adaptive modelling (temporal resolution), spatial modeling at different scales
- costs /benefits for decisional/operational stakeholders and inhabitants for improving security
- political decision-making for new technologies (e.g. by identifying new harmonized radio frequency bands or mandating the use of 5G communication standards) or types of critical infrastructures (interoperable robotics platform)
- Aims and Concept for minimum supply (cross border) to improve the resilience of CI (e.g. for health care, pharmaceuticals, food supply)
- Conflict of legal interest or objectives in the context of CIP (e.g. freedom of information vs. CI protection, cost-effectively vs. reliable infrastructure...)
- Protection of cultural properties Identifying and managing the operational risk

iii. Involvement of end-users and industry

- information processing: transparency, confidence, quality
- information exchange between end-users
- development of best practices
- establishing trusted cooperation / platforms between state authorities and operators
- Companies developing new solutions (sensors), management tools (decision-support systems, serious games), communication tools, economic analysis and development of 5G.
- End users including local and public authorities, emergency and rescue services, administrations and operators of CI.
- Industry sectors (such as traffic, logistics, energy, medicine, etc.), industry players (infrastructure manufacturers or IoT platform providers), manufacturers of autonomous systems, robotics and robotic platforms (SMEs and start-ups)

c. Summary (key words and specific topics proposed for the next funding period)

- Management (assessment and control including new technological solutions) of resilience through systemic and integrated approaches and Implementing Tool into systems
- Communication and information methodologies and tools for various audiences (operators, emergency services, general public...)
- Policy making – Governance: comparison of practices and governance for best practices; exchange of practices - political and sociological support to implement the Tools

Different types of infrastructures, local and public authorities and administrations should be eligible in the future call: Water, Transport, Energy, Protective infrastructures, emergency and rescue services, Decentralised infrastructures, bank, health, heritage, medias, protective works, green infrastructures.

4. Protection against emerging infections and biological threats

By Emmanuelle Billon-Denis and Iris Hunger

a. Evaluation of the past: What is good, what is bad in the current F-G research program?

Biothreats have been the focus of research in only one of the previous Franco-German cooperation projects on global security / civil security research. This is in marked contrast to the disruptive and destructive potential of outbreaks of disease induced by micro-organisms / toxins, whatever their origin, which is a serious concern that France and Germany share.

Considering the current context of insecurity, France and Germany decided to join forces for the development of new projects in the field of global security / civil security.

The European Centre for Disease Prevention and Control (ECDC) has indexed four different types of biological threats:

- Known knowns: antimicrobial resistance and vaccine hesitation
- Known unknowns: pandemic influenza viruses
- Unknown knowns: zoonotic and vector borne diseases
- Unknown unknowns: new viruses

Recent international health crises of natural origin came from emerging or re-emerging pathogens (Ebola virus, Zika virus, Chikungunya virus, MERS and SARS corona viruses, avian influenza viruses). In the context of globalization, it is essential to be able to anticipate the next emerging pathogens and to protect the population against them. The study of the vectors (e.g. mosquitos, ticks) responsible for the transmission of many diseases is a key point, especially if we consider their geographical expansion with global warming.

In addition to naturally occurring health threats, the threat of intentional use of biological agents, in particular biological toxins, is increasing (e.g. ricin letters in USA 2013). Scientific breakthrough / technology developments also increase the risk of biological agent misuse (e.g. chemical synthesis of horsepox virus 2018).

b. Research development in this topic and the chances for improvement by a F-G cooperation

While considerable research on “tools” has taken place over the last 10 years – on detection, identification, protection, decontamination and medical countermeasures (MedCM) - serious gaps remain in these areas and – in addition – the integration of available tools into a coherent process of vulnerability reduction, outbreak prevention and crisis management needs much more attention (“process optimization”). Besides generic approaches, targeted solutions have to be found for different classes of bio-threat agents (pathogens vs. biological toxins).

For reinforcing prevention, preparedness, detection, response and recovery against biological threats, be they of natural or intentional origin, several priority research themes are recommended.

i. Technology

- Existing gaps in knowledge on high consequence infectious diseases and toxins (pathogenesis, lethality, stability, medical countermeasure effectiveness) need to be closed.

- Besides closing such gaps in knowledge, there is a need to prepare a task force ready to answer to an outbreak which has the capability for ad hoc research at the very beginning of the epidemic curve. Reactivity would be the key point, but this needs to be prepared before the crisis. It needs to develop a strategy to provide rapidly antivirals, antibiotics and a vaccine platform. Vaccines have proven to be efficient to fight an outbreak (recently Ebola) and eradicate smallpox and control infections (measles, poliomyelitis and most diseases preventable by vaccine). Vaccine shortage is currently critical for example for yellow fever control. In that sense, vaccines are critical for global health security.

- Concerning other medical countermeasures France and Germany have already active molecules in their portfolio (like antibodies, small therapeutic molecules) targeting several pathogens and some toxins. It is important to evaluate their safety, efficacy and how it would be possible to scale up from research labs to clinical development (in the absence of market incentives and support from pharmaceutical companies) and to share these molecules between the two countries.

- For the improvement and the validation of medical countermeasures, the utilization of animal models is required. Unfortunately, there is still an important lack of pertinent model for many emerging diseases or biological toxins. It appears crucial to develop this aspect of clinical trials in order to test efficiently the new molecules developed. With the current bioethical European rules about animal experimentation, the use of alternatives to animal model has to be considered.

- Molecular forensics and procedures to clearly track the origin of highly pathogenic agents is decisive in finding perpetrators in the case of intentional use of bio threat agents. Procedures and databases to identify the “molecular signature” of suspect sample material need to be developed (purity, functional activity/viability, subtyping, trace contaminants, overall sample composition).

ii. Policy making (top-down)

- For many scenarios, we’re lacking evidence for an optimal crisis management. Therefore, modelling / simulation and exercises have to be used to assess risks, calculate quantities and types of MedCM necessary, and evaluate effectiveness of management procedures and the like.

- Further development is also needed in relation to the optimal management of a crime scene in the case of bio threats (e.g. sampling techniques, management of contaminated evidence).

- France and Germany have different approaches on interdepartmental communication (sharing of information between services). There are also differences on sample collection and forensics. It would be interesting to homogenize the procedures for bilateral collaborations and to define new procedures in common between the two countries. NATO Standardisation Agreements (STANAGS) should also be considered as most of the topics have already been covered.

- Outbreaks of diseases due to highly pathogenic agents create a number of challenges that go beyond the routine crisis management of the health services:

- . Quarantine measures and limitations on the movement of people might be necessary in such scenarios. Knowledge on the level of acceptance in the population, the effectiveness of such measures and social, legal and procedural hurdles is very limited.

- . Managing limited resources and coordinating resource allocation across regions remains a challenge that is only partly solved. The provision and distribution of MCM is just one example.

- . Challenges remain also in term of decontamination (especially for toxins) and waste management (especially for high risk pathogens).

iii. Involvement of end-users and industry

- Different networks of labs have already been organised and trained in case of biological attacks or large epidemics. The organisation of simulation exercises at large scale would be useful for the improvement and the optimization of the protocols. These networks should be strengthened and trained to maintain a high level of efficiency.

- In case of a biological attack, the first responders would be the first people exposed and involved in managing victims/exposed persons, managing the scene and collecting samples. Detection at the level of first responders needs to be improved. Sampling techniques and management of contaminated evidences must be optimized for increased speed and accuracy of response. The integration of different diagnostic tools into a coherent detection and alert procedure is of prime importance here.

For all the topics, public sector as well as private sector, where appropriate, should be part of the projects. End-users should always be involved.

c. Summary (key words and specific topics proposed for the next funding period)

Detection and medical counter measures (including diagnostics), biological collections sharing, molecular forensics, risk assessment research, infection prevention and control, molecular screening, limited resources management, training and situational exercises are the key words of this topic.

5. Education and Information towards a shared culture on global and civil security

By Bernard Claverie, Horst W. Hamacher, Hervé Le Guyader

a. Evaluation of the past: What is good, what is bad in the current F-G research program?

Current and past research programs have contributed in France as well as in Germany valuable solutions to numerous challenges in the area of civil security. The results are well documented and available for specialists in this area.

The public and, to some degree, institutions including administrations, are, however, not sufficiently informed and aware about this particular domain and its consequences for every citizen, every institution in case of an actual emergency, partial or global crisis. Recommendations derived from research in civil security are often largely misinterpreted, implemented in a wrong way by institutions and emotionalized by people, media and politicians. Possible reasons for this situation are the increasing role of post-factual culture and a severe lack of knowledge. Furthermore, this phenomenon is intensified by a growing difficulty faced by all actors of the society. It is more and more difficult for their own situation awareness to keep pace with the evolution of a society where technology allows for and yields an exponential growth (i) in data production, (ii) in information (real or fake) production and availability, but also (iii) in terms of complexity and gamut of associated risks.

In order to compensate this imbalance between achievements in the GS/CS research and its underrated importance in the public it is not enough to treat the issues of education and information in GS/CS as a side issue: It should be established as an important research topic in its own right.

b - Research development in this topic and the chances for improvement by a F-G cooperation

i. Technology

French and German researcher should be encouraged to submit proposals, which are specifically geared at increasing the information level on GS/CS. Particular emphasis should be given to research leading to sustainable increase in the information level of the population.

- Research proposals to enhance the civil security literacy of the Franco-German populations and administrations.
- Research proposals to integrate GS/CS in all stages of education (from schools to universities, continuing education, (E-)learning and teaching material). In this context, integration means that GS/CS topics could/should be used as real-world applications for current curricula.
- Research proposals demonstrating the complexity of decisions, which have to be made by decision makers in GS/CS scenarios. It should become clear where and how GS/CS research can help in these decisions by designing computer-based decision support systems which are useable without any special knowledge in computer science.
- The potential and limits of GS/CS research should be clearly worked out to avoid false expectations.

ii. Policy making (top-down), knowledge based

Most GS/CS research is cross-disciplinary. This is in particular true for the research projects in Theme #5, where

- Enhance cooperation between GS/CS researchers, users, educators and policy makers.
- Emphasize the role of GS/CS as a cross-disciplinary research framework.
- Evaluate roles, influence and bearing of different cultural, industrial and legal backgrounds.

iii. Involvement of end-users and industry

The topic requests a close co-operation between researchers who are specialists in GS/CS with specialists in information and education. Organizations who are involved include primary schools up to universities, continuing education institutions, and public administrations. Commercial partners include continuing education agencies, the (electronic) media industry, relevant industry sectors representatives and managers of public events, each of them providing their respective contextual keys for understanding what's at stake.

c. Summary (key words and specific topics proposed for the next funding period)

Education concepts for GS/CS on all levels of education without extending time and subject tables
Work out of education material in print and electronic forms, including unbiased video clips.
Information concepts for the general public about GS/CS research and recommendations derived thereof.

Education material tailored for the job market (job seekers and job centers staff), for in-house training, for entrepreneurs.