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Foresight Security Scenarios for Prepared Response to the Unplanned:

Results from an EU Security Research Project and its Transatlantic Dimension

National Homeland Security Conference 2014,
Philadelphia, PA

Track 1: Responding to Unplanned Events

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Background

- Now: Professor of Homeland Security and Chair of the inter-college Master of Professional Studies Program in Homeland Security (iMPS-HLS), Penn State Harrisburg
- Was: Professor of Security Research at Sigmund Freud University Vienna and Coordinator of EU co-funded security research project FOCUS
- Interested in: Using FOCUS (public) results for curriculum assessment and evolution, and enhancement in iMPS-HLS and education of leaders on an international scale



The FOCUS project (1/1)

- FOCUS (Foresight Security Scenarios: Mapping Research to a Comprehensive Approach to Exogenous EU Roles – <http://www.focusproject.eu>) was active 2011-2013.
- It was based on scenario foresight involving various kinds of stakeholders, including beyond the European Union.
- Scenario foresight in the FOCUS project was done on the level of critical and creative – yet methodologically guided – forward thinking at strategic level in order to increase the ability to cope with relevant alternative futures from the near future until 2035.
- **FOCUS worked on an international scale, including collaboration with U.S. projects, such as FEMA’s Strategic Foresight Initiative (SFI).**
- **The FOCUS project further included transatlantic scenario workshops and a roadmap proposal with a transatlantic research and education agenda to increase capability to comprehensively respond to unplanned events.**



The FOCUS project (2/2)

- The goal of FOCUS was to help shape civil security research to enable the EU to effectively respond to tomorrow's challenges stemming from the globalization of risks, threats and vulnerabilities.
- Emphasis on alternative future EU roles to prevent or respond to incidents situated on the "borderline" between the internal and external dimensions of the security affecting the Union and its citizens.
- **Further emphasis on cross-cutting and transversal issues.**
- **Strong transatlantic component** (following research and policy on transatlantic Homeland Security; Hamilton & Dalgaard-Nielsen 2005; etc.; cf. EU-US Justice and Home Affairs Ministerial Meeting, Nov. 2013)
- **Inter-project relations with FEMA's Strategic Foresight Initiative (SFI)**



FOCUS scenario foresight

- Foresight is a participatory approach to strategic forward thinking to increase the requisite variety to cope with alternative futures in a world to come. The FOCUS project had a 2035 time frame.
- Foresight neither predicts the future, nor is it prescriptive. Foresight is about describing different possible futures. It helps think out of the box to attain a high bandwidth in understanding the future landscape of threat and challenges, based on integration of views from different communities of practice and constituencies of stakeholders, not to delimitation.
- Results and insights of foresight can be presented in different ways.
- One common way is to present foresight results in the form of scenarios, which FOCUS did – finally resulting in a set of plausibility-probed reference scenarios.



FOCUS five Big Themes around which foresight work was centered

- Different tracks regarding the future of the **comprehensive approach** as followed by European institutions, Member States and international strategic actors – including links between the internal and external dimension of security.
- **Natural disasters and environment-related hazards**, with an emphasis on comprehensive risk reduction, civil protection and reconstruction.
- **Critical infrastructure and supply chain protection**, centred on preventing, mitigating and responding to exogenous threats that could have a significant impact on EU citizens.
- The **EU as a global actor**, building on EU-level and Member States instruments and capability processes as well as on effective multilateralism.
- The evolution of the **EU's internal framework** and prerequisites for delivering a comprehensive approach, including strategies for engagement with other international actors as well as ethical acceptability and public acceptance of future security roles of our Union.



FOCUS scenario foresight in figures

- Scenario foresight in FOCUS included a broad number of different types of experts and stakeholders, and a variety of scenario information (such as online and on-site questionnaires, new social media information, workshops, studies, related projects' results, etc.).
- In total (online and on site), FOCUS involved more than **600 external experts and end-users from more than 20 countries**, both within and beyond the EU.
- Experts and end-users were identified in horizon scanning, in scanning of related projects, and by using partners' lists of experts.
- Participating experts and end-users **represented EU bodies, national federal bodies and international bodies, industry, first responder organizations, think tanks, universities, NGOs, and other sectors.**
- As far as its on-site work is concerned, FOCUS held more than **40 external and more than 30 internal foresight workshops.**



Selected FOCUS scenarios

FOCUS developed scenarios for different areas (such as research, policy, etc.). The following is a selection of scenarios for applied security research to respond to unforeseen events.

- “Security to respond” – Security incident management research
- “Security to sell” – Security economics research system
- “Security to save” – Public health research system
- “Stranger, bear word to the Spartans” – Research driven by societal factors
- “Technology to protect” – Technology-driven research
- “Not over my border” – Cross-border security incident response system research
- “Treading data” – Comprehensive risk assessment/management research
- “Hands across the ocean” – Using multilateralized technologies to countering cyber threats
- “Every nation is an island” – Only national policy drives the CBRNe agenda
- “Guarding the guardians” – Technology and security governance





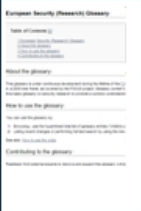



FOCUS output structure



FOCUS major output

- FOCUS provided studies, security scenarios, roadmaps, and an IT-based Knowledge Platform for scenario foresight, with the latter offering a large number of practical tools such as scenario wikis, reference wikis, and a curriculum matrix for educating future civil security researchers and leaders in home affairs (EU)/homeland security (U.S.).
- Products include open-source tools for curriculum development (curriculum matrix); roadmap for scenario research and scenario-based teaching (including transatlantic track), etc.


Studies	Roadmap "Security Research 2035"	Website and New Social Media sites	IT-based Know- ledge Platform	... with wikis and tools, to be opened for external contributions	Journal special issue
					





FOCUS IT-based knowledge platform (example)


FOCUS Scenario Workbench Natural Disasters and Global Environmental Change **Critical Infrastructure and Supply Chain Protection** EU as a Global Actor based on Wider Petersberg Tasks EU Internal

Critical Infrastructure and Supply Chain Protection


 **News Feeds/Aggregator [CRITICAL INFRA]** ?
Under continuous construction and refinement


 **Shared Bookmarks [CRITICAL INFRA]** ?
Shared Bookmarks as a facility to collect and share bookmarks/URLs/documents that are of interest for the domain. The bookmarks selected are tagged and structured in folders.

 **Scenario Wiki [CRITICAL INFRA]** ?
Scenario Wiki as a collaborative environment to share/externalize information on the scenario development approach in the domain.

 **Questionnaires [CRITICAL INFRA]** ?
Collection of feedback questionnaires based upon the FOCUS questions repository. Target group: Experts in the scenario area

INITIAL EXPERT FEEDBACK FOCUS ETHICS ASPECTS FOCUS CHANGES TO THE CONCEPT OF EU SECURITY

 **Scenario Reference Processes [CRITICAL INFRA]** ?
Under continuous construction and refinement

 **Scenario Chat [CRITICAL INFRA]** ?
Under continuous construction and refinement



U.S. HSE and SR functions

The first Quadrennial Homeland Security Review (2010) and previous work established the Homeland Security Enterprise (HSE) as an, “Enterprise with a shared responsibility of federal, state, local, tribal, territorial, nongovernmental, and private-sector partners—as well as individuals, families, and communities. Diverse and widely distributed, spanning the country and including international partners, the homeland security enterprise jointly builds capabilities and carries out **homeland security functions**”.

The European Security Research Advisory Board (ESRAB) defined Security Research as “research activities that aim at identifying, preventing, deterring, preparing and protecting against unlawful or intentional malicious acts harming European societies; human beings, organisations or structures, material and immaterial goods and infrastructures, including mitigation and operational continuity after such an attack (also applicable after natural/industrial disasters).”

(ESRAB Report: Meeting the Challenge: the European Security Research Agenda - A report from the European Security Research Advisory Board, September 2006, p. 20)



Emerging European Union homeland security system

- Since the Lisbon Treaty (2009), the European Union has the legal power to “encourage cooperation between Member States in order to improve the effectiveness of systems for preventing and protecting against natural or man-made disasters.” (Article 196 Treaty on the Functioning of the European Union)
- This includes preparing civil-protection personnel, promoting effective operational cooperation between national civil protection services, and promoting “consistency in international civil-protection work.”
- The European Union’s initiative for a designation process of “European Critical Infrastructure” (ECI) as well as its initiative for an integrated risk assessment method adds to the challenges for future graduate studies and academic training.



Drivers of change to “Security 2035”

- **Crises** resulting from scarcity of resources
- **Need for societal resilience and preparedness:** Certain risks cannot be catered to, nor avoided - societies must prepare to face shocks and have the ability to recover
- **Changing borderlines between internal and external security**
- **Technological change**, including new technologies driving or changing security needs
- **Mass migration flows**, e.g. due to economic disparity and global environmental change
- New potentials and profiles of **international conflicts** with main leverages like cyber; energy; scarce resources; etc.
- **Diffusion of power** within and among nation-states
- **Dependency on information and communication technology**, and technology in general (with risk of cascading breakdown of systems)
- **Demographic shifts** with pressure on resources
- **Increased reliance on critical infrastructures that are vulnerable and have little spare capacity**, operate at the edges of performance and loads, are critically depending on other infrastructures



Selected FOCUS conclusions for “Security Research 2035” (1/2)

- Security is a collective good that in the first place relates to citizens and society → **Concept of civil security**
- Technology not only can contribute to security or by itself create new vulnerabilities. It also has the potential to change human behavior and to drive the evolution of security cultures.
- A comprehensive approach to civil security needs to see and address citizens in an inclusive way, integrating citizens’ perspectives into programming processes.
- Programming for civil security research and policy should consider social, cultural, and ethical, and legal aspects of security from the very beginning, not only in the implementation perspective.



Selected FOCUS conclusions for “Security Research 2035” (2/2)

- There is more than the societal dimension of security: the societal creation of security. There are no effective technological solutions without acceptance and public participation.
- At the same time, the further development of civil security is inconceivable without technology, and technology will contribute to increase social resilience.
- Not only a comprehensive approach that unifies efforts will be needed in the future, but also a holistic approach comprises technology, society, culture and change.



The challenge of security technology governance

- Assets such as satellite-based surveillance and communications as well as cyber security capabilities will, by design, be shared by civilian and military actors and evolve from public-private cooperation. This makes it difficult to reach case-by-case consensus on their use.
- Common methodologies and databases for threat assessments will inform policies and facilitate new policy objectives such as a comprehensive cataloguing of critical supplies, along with the factors that could disrupt supply. This will provide the ground for the development of common policies to address societal consequences of critical infrastructure and supply chain breakdown.
- Progressive standards and codes of conduct will be critical for responsible technology governance.
- At the same time, multidisciplinary mapping of fundamental rights enforcement and the acceptability of security technologies will be paramount.



Curriculum-related findings

<ul style="list-style-type: none"> • Comparative studies of the governance of homeland security and emergency management, including analyzing citizens' needs • Social science/humanities aspects in designation of critical infrastructure (e.g., securitization and cultural selection of risks) • Vulnerability studies and supply chain/essential services management • Civil-military "dual use" systems (e.g., in the surveillance sector) • Monitoring of new social media and other open information sources 	Discipline-related
<ul style="list-style-type: none"> • Implementation perspective, with indicators for effectiveness of a comprehensive approach • Multi-disciplinary scenarios of maximum credible natural events • Ethics aspects, such as unintended reproduction of inequality or creation of uneven distribution of security in society 	Transversal
<ul style="list-style-type: none"> • Training schemes for use of relevant technology • Training schemes for use of new social network technologies, to coordinate response and for empowerment of victims, and of first responders including volunteers 	Skills



Curriculum matrix as part of the FOCUS roadmap

Education & training curriculum aspects

Deliverable 9.5: Syllabus of FOCUS modules for curricula

Highlight required curriculum content for:

Curriculum level: BA
 Curriculum level: Executive training
 Implementation perspective: Short-term
 Implementation perspective: Mid-term
 Implementation perspective: Long-term
 Teaching requirements towards reference scenario: "No Land is an Island"
 Teaching requirements towards reference scenario: "Policy Drives All in a Have/Have-Not Wo

Modules	Learning outcomes/teaching objectives	Specific teaching/course themes
<p>Module 1: Basic trends in EU security</p>	<p>a. To be able to understand the definition and principles of the internal and external dimension of security of the/in the EU, and its drivers b. To be able to analyze trends in security and changes to the concept of security c. To be able to assess the components of comprehensive security and its various subject-matter relations, such as nature, environment, energy, etc. f. To be able to understand, analyse and describe conceptual convergences and divergences of security, safety, emergency management, crisis management, disaster research/management, and civil protection in relation to the security of the EU</p>	<p>Relations between the internal and external dimension of security as mirrored by institutions and structures Member States security strategies vs. EU security strategies Embeddedness of EU security and security policies in global security and security governance EU security roles emerging from geopolitical and global trends Multinational security cooperation within the EU Multilateral security cooperation of the EU with external actors EU coherence in security affairs, including relations between Common Security and Defence Policy (CSDP) and Justice and Home Affairs (JHA) The disciplinary fields of Security Research, emergency management, disaster</p>



Modules of the curriculum matrix

- Module 1: Basic trends in civil security;
- Module 2: Key uncertainties;
- Module 3: New functions of Security Research in the scenario space 2035;
- Module 4: Security governance at EU and national levels;
- Module 5: Meeting main research needs;
- Module 6: Scenario foresight methods;
- Module 7: Ethics guidelines for Security Research and innovation;
- Module 8: Security technology;
- Module 9: Personal skills.



Cross-cutting teaching requirements

- “Whole of community” approach to policies, resources and missions/operations;
- Civil-military interaction in the crisis management cycle;
- Civil-military “dual use” systems (e.g., in the surveillance sector);
- Critical thinking and historical awareness;
- Foresighting and creative thinking;
- Expanded ethics aspects, such as unintended reproduction of inequality or creation of uneven distribution of security in society;
- Understanding strategic needs;
- Scenario planning skills;
- Omni-directional knowledge management;
- Awareness of emerging technologies;
- Engaging the private sector;
- Training schemes for use of relevant technology;
- Excellence in oral/written communications to address different stakeholder communities.



iMPS-HLS mission

- “The intercollege Master of Professional Studies in Homeland Security (*iMPS-HLS*) degree program is designed to prepare professionals and develop leaders for the field of homeland security by providing exceptional graduate education that includes an integrated curriculum, expert faculty, and student interaction.”



Program fundamentals

- Provides select graduate students with an integrated, cross-disciplinary curriculum that is focused on a set of unified educational goals to help them understand and manage the complexities of homeland security in a global environment.
- Is based on an all-hazards approach.
- Comprised of courses from several Penn State colleges.
- Delivered via distance education through the Penn State World Campus to accommodate the needs and careers of professionals who are already active in homeland security and related fields of civil security, or those interested in transitioning into the field.



Study plans

- 33 credits, 9-credit common core curriculum
- In addition to the common core curriculum, students choose:
 - the Base Program in Homeland Security, or
 - one of currently four Options:
 - Public Health Preparedness
 - Geospatial Intelligence
 - Information Security and Forensics
 - Agricultural Biosecurity and Food Defense



Unifying goals and objectives

- Understand major policies and legislation that shapes homeland security in a globalized society.
- Become familiar with organizations that play a key role in the implementation of homeland security policies and administration, and recognize the interactions among them.
- Understand the way in which a person or group responds to a set of conditions so as to prevent and respond to incidents and catastrophic events when needed.
- Recognize the impact that catastrophic events, both natural and man-made, have on society and the domestic and global economy.
- Identify and assess potential threats, vulnerabilities, and consequences.
- Apply leadership skills and principles that are necessary for producing and acting on information of value within a collaborative setting.
- Communicate effectively in the context of particular institutional cultures.
- Use, conduct, and interpret research and data effectively in decision-making.
- Practice ethics and integrity as a foundation for analytical debate and conclusion.
- Develop an appreciation of the cultural, social, psychological, political, and legal aspects of terrorism and counterterrorism.



Possible uses of FOCUS in iMPS- HLS curriculum evolution

- Curriculum matrix geared to mission-critical jobs of the future, focused on the challenge of the “cross” (cross-agency, cross-jurisdiction, cross-tier, cross-border, etc.)
- Scenario-based teaching, competencies to address alternative futures
- Critical thinking on “securitization” of key uncertainties
- ELSI (ethics, legal, and social issues) beyond SARI (scholarship and research integrity) requirements
- Addressing of key uncertainties in addition to key certainties (“imperishable truths of homeland security”)
- Security governance and alternative future concepts of security
- Security technology and security cultures, including increase of vulnerability by security-enhancing technology



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