
FP7-SEC project ACRIMAS

(Aftermath Crisis Management System-of-systems Demonstration, Phase I)



Project overview & results



Merle Missoweit

*International Workshop on Emergency Management for
Critical Infrastructures Crises,*

Rome, 04 October 2012

What is ACRIMAS about?



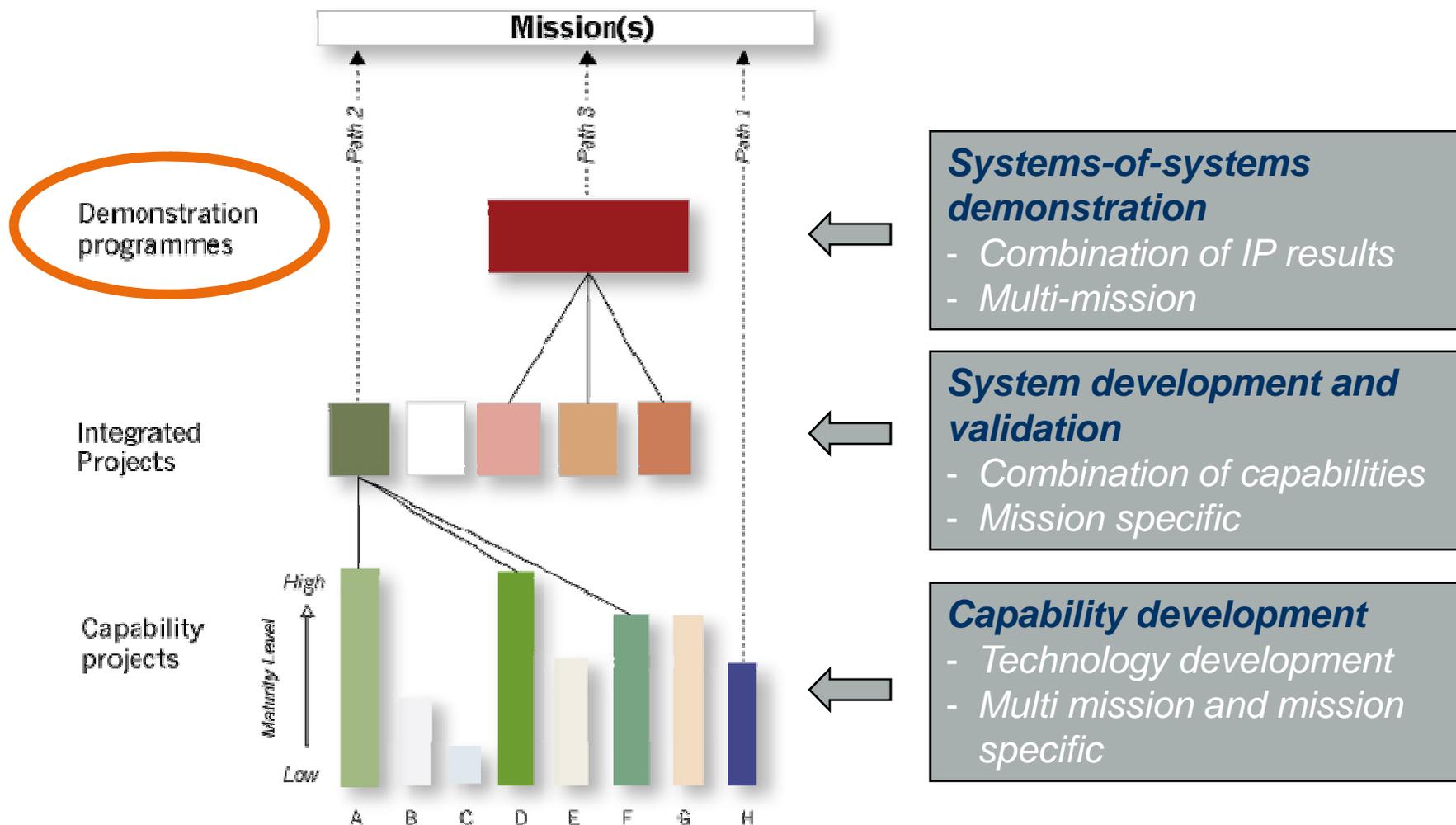
Aim of the European Commission (EC-DG ENTR):

- **To call for a large demonstration project (Phase II, funding > 20 M€) in EU security research & development (R&D) on aftermath crisis management (CM) in mid 2012**
 - **Management of large-scale disasters (man-made or natural)**

Tasks of ACRIMAS (Phase I):

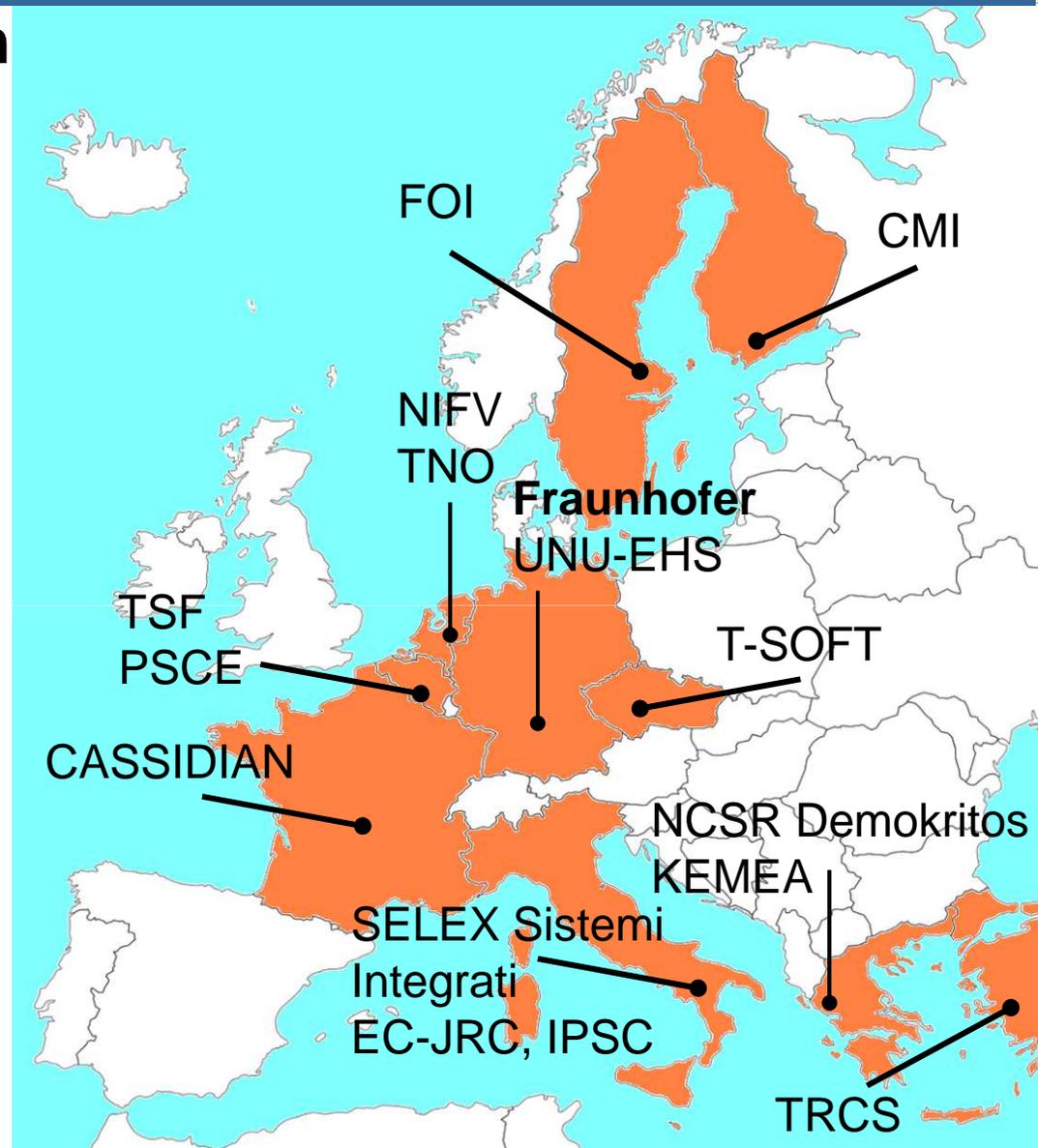
- **To help to prepare for the call (and the demo project) by proposing relevant topics to be executed in Phase II, depicted in a roadmap**
- **To raise awareness among the stakeholder community in crisis management (users, academia, industry, public) about the upcoming Phase II and opportunities for participation**
- **To disseminate its findings**

Project “hierarchy” in FP7 security theme

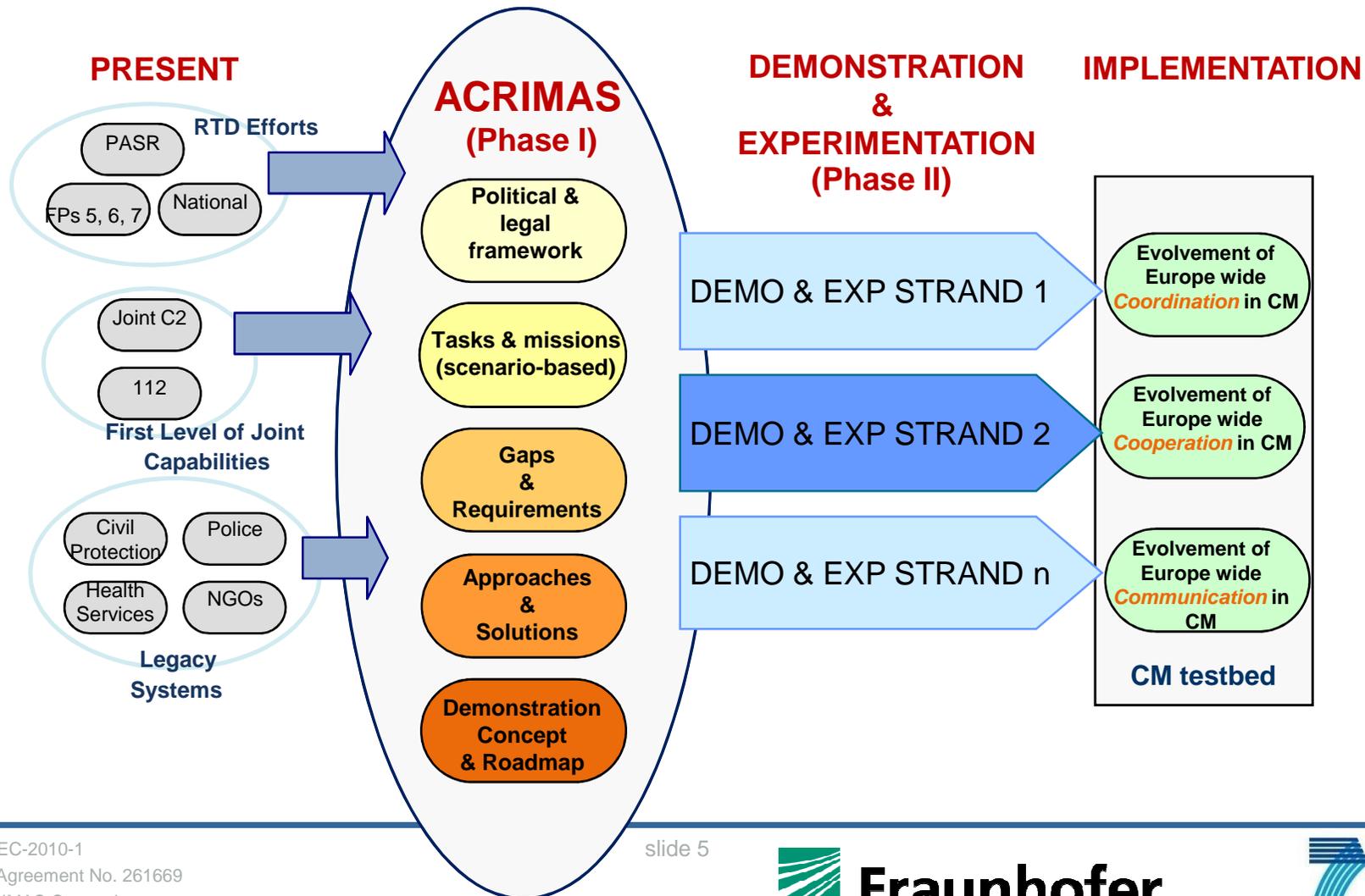


ACRIMAS consortium

- 15 partners
- 9 EU MS plus Turkey
- Budget ~ 1.1 M€
- Duration 15 months
- project start: 1st Feb 2011
- Partners include:
 - 4 RTOs
 - 4 Users*
 - 2 Industries
 - 1 SME
 - 3 NGOs, Think Tanks*
 - 1 EC & 1 UN org.



Scope & vision of ACRIMAS



ACRIMAS outcome



1. Deliver the **roadmap** of what to do in the Phase II Demonstration Project, including further R&D needs
2. Elaborate the **demonstration concept**
3. Assure EU wide **awareness and dissemination** of the preparation of the Phase II Demonstration Programme

Understanding the context



Analysis of the political & legal framework of CM in Europe:

- EU level (EC/MIC, Council/CCA, EEAS/CSDP)
 - Including relation to and role of UN & NATO (EADRCC)
- Member State (MS) level (four exemplary case studies: DE, IT, SE, EL)
- Societal aspects

Analysis of relevant scenarios and related missions & tasks of CM in Europe:

Natural Disasters				Major technical incidents						Terrorism	EU-Ext.	Oth							
Geophysical		Meteorological/Climatological		Hydrological	Biological		Industrial accidents		Miscellaneous		Transport		Complex emergencies						
Earthquake																			
Vulcano																			
Mass movement (dry)																			
Storm																			
Extreme temperature																			
Drought																			
Wildfire																			
Extreme rainfall																			
Flood																			
Mass movement (wet)																			
Epidemic																			
Insect infestation																			
Animal stampede																			
Chemical incident with combustible or explosive materials - E																			
Chemical incident with toxic materials - C																			
Nuclear incident - R/N																			
Poisoning																			
Tunnel or mining incident																			
Large building fire																			
Collapse of buildings																			
Critical infrastructure failure: drinking water, food supply, sanitation																			
Critical infrastructure failure: energy, telecom, ICT																			
Critical infrastructure failure: transport																			
Air crash																			
Accident on water																			
Rail accident																			
Traffic accident																			
Terrorist action - CBERN																			
Terrorist action - E																			
Cyber attack / cyber crime																			
Organised crime																			
Warfare																			
Civil disturbance																			
Large-scale movements of people																			
Incident abroad with EU citizens																			
Economic failure																			

- All-hazard view
- Scenarios & CM missions and tasks; capabilities & tasks and service providers; scenarios & incident characteristics

Improvement needs – overview



Group	Category	Identified and validated needs
Preparatory efforts	Policy making and Capacity building	Analytic support to capacity building
		Capability and capacity mapping
		Better ability of donors to assess the impact of their funds
	Training and Exercises	Joint and harmonized training
		Effective exercises
	Evaluation	Strategic evaluation and performance assessment
		Sharing and implementing lessons and best practices
	Prepare civil-military co-operation	Agreed interaction procedures with military organisations
	Doctrine/ Procedures development	Certification and vetting of skills and competencies
		Harmonization of language and terminology
	Community awareness raising	Better understanding of disaster relief among the public

Improvement needs – overview II



Group	Category	Identified & validated needs
Supporting activities	I) Coordination, Command and Control	Efficient tools for tasking and resource management
		Volunteer management
	II) Situation assessment	Early warning capabilities
		Understanding specific crisis dynamics
		Understanding the relief effort as a whole
		Tools for predicting demand at the outset of a disaster - include use of the local population
	III) Information management	Inter-agency information sharing
		Retention and warehousing of information
	IV) Monitoring/ Information gathering	Acquisition of information from external sources
		Efficient ways to gather data from responders
	VI) Logistics	Procurement and stockpiling strategy
		Access to strategic transport
	V) Supply basic services to enable CM	Responder communications in remote areas
Provision of energy to responder activities		
Task-level activities	E) Inform and Involve public	Evolved management of information to the media and the public

Main needs for action in the DP



preparedness

EU-internal

Improving societal resilience

- Understanding of DM among public
- Understanding specific crisis dynamics
 - Strategic evaluation & performance assessment
 - Management of information to public & media
 - Volunteer management
 - Early warning capabilities

Learning across borders

- Analytic support to capacity building
- Sharing & implementing LL & best practices
- Cross-border & harmonised training
- Effective exercises

EU-external

Improving coordination

- Inter-agency information sharing
- Harmonisation of language & terminology
- Certification & vetting of skills & competences
- Agreed interaction procedures with military
- PPDR communications in remote areas
- Donor impact assessment

response

Strengthen common operations

- Inter-agency information sharing
- Harmonisation of language & terminology
- Understanding the DM effort as a whole
- Tools for tasking & resource management
- Capability & capacity mapping

Needs assessment

- Relief demand & needs assessment
- Inter-agency information sharing
- Efficient ways to gather data from PPDR
- Early warning capabilities

Logistics

- Logistics strategy
- Access to strategic transport
- Provision of energy to PPDR activities

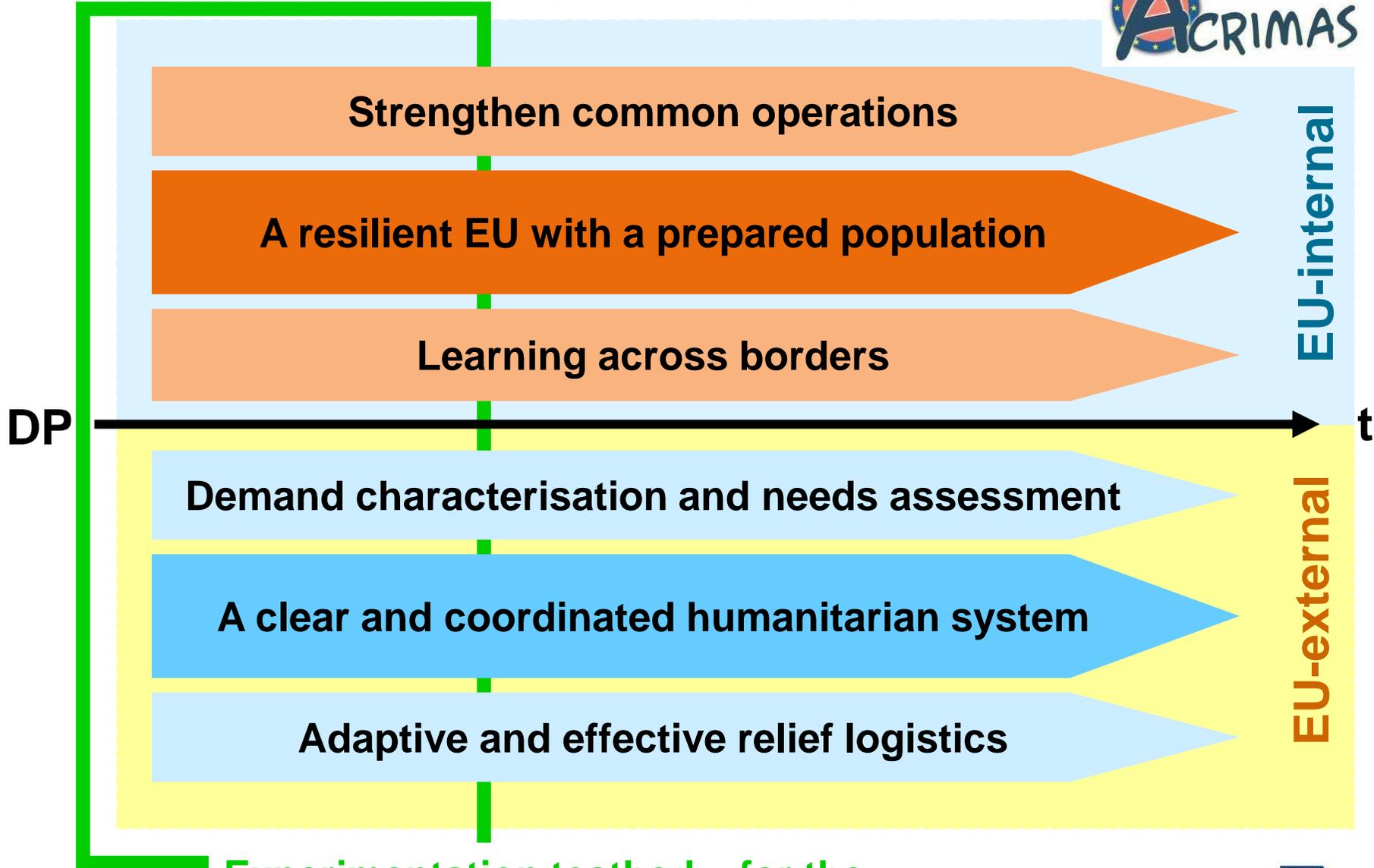
infra

Tools & infrastructure for the DP

- Capability & capacity mapping
- Analytic support to capacity building
- Strategic evaluation & performance assessment
- Effective exercises



Recommended demonstration strands



Strengthen common operations

A resilient EU with a prepared population

Learning across borders

EU-internal

DP

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Demand characterisation and needs assessment

A clear and coordinated humanitarian system

Adaptive and effective relief logistics

EU-external

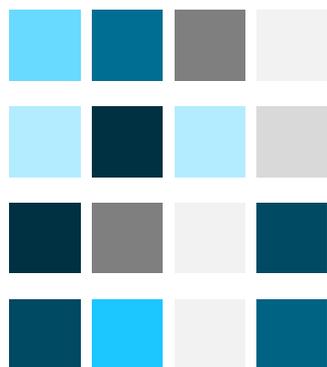
Experimentation testbed – for the Demo Phase and for the future



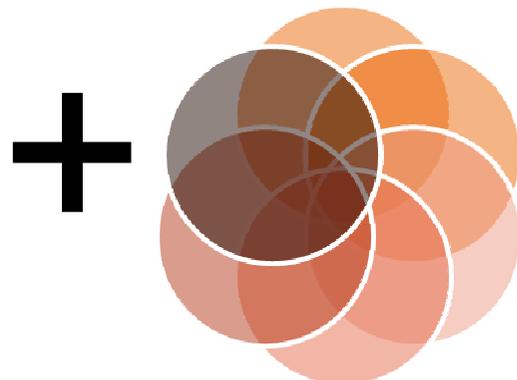
ACRIMAS Project Logic



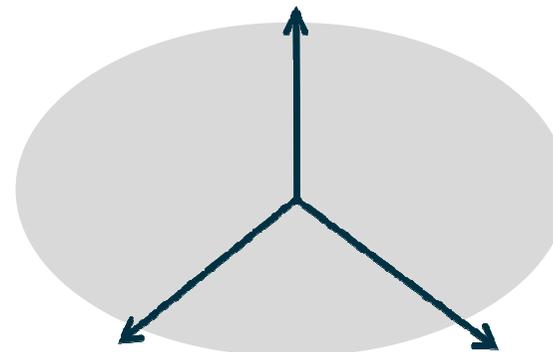
Improvement needs



Promising solutions and approaches

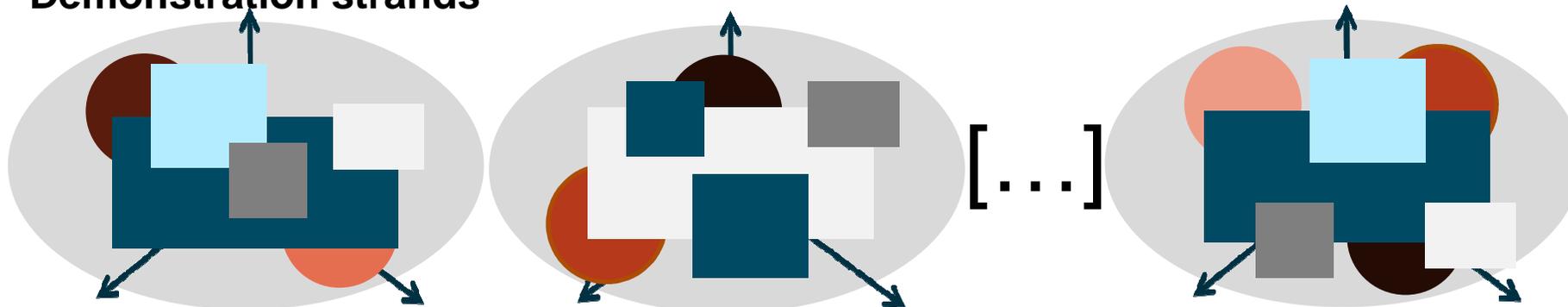


Demonstration concept



Prioritization, synthesis, and contextualization

Demonstration strands



The role of the demonstration programme



We do not know how the **crisis environment will change**
– we need **to improve the adaptivity** of systems and concepts

The good way – DPs as innovation

- The DP should create **space for experimentation**, allowing for
 - **Operationalization** of promising solutions towards more adaptability
 - **Exploring innovative concepts** and approaches in a safe environment

The bad ways – DPs as validation

- A DP just to prove that solutions from previous projects are functioning
- A DP to integrate one monolithic technical system
- A DP just as an exercise

DP: demonstration programme

The Crisis Management DP in context



The CM DP is unique

Likely the largest single investment into crisis management R&D ever

Unique in terms of visibility and stakeholder attention

Building on the results and infrastructure of an R&D community established throughout FP7-SEC

And not so unique...

Demonstration-type activities are common in FP7-SEC, e.g. validation is part of many projects at CP and IP level

How to harvest the unique features, while avoiding duplication?

Harvesting the opportunity – Three main principles



Make use of the size –

Tackle complex, systemic issues

Leverage on previous work –

Build on promising, near-mature solutions

Respect the expectations of stakeholders –

Deliver immediate operational benefit

Consequences for the DP design



Operational benefit comes out of actual use

Activities allowing practitioners to develop or share approaches or concepts of use are crucial

New phenomena and constraints emerge in realistic environments

Identify shortcomings and refine solutions – requires time and resources

At the systemic level, there is no such thing as a "validated" solution

Performances, constraints and cost depend too much on the context of use

Need to allow stakeholders themselves to assess benefits and gain trust in new solutions

The ACRIMAS Demonstration concept – *Create space for experimentation*



Empower practitioners, researchers and policy-makers to jointly

Refine promising solutions into fieldable solutions

Explore new approaches

Assess cost-effectiveness of potential solutions

By iteratively

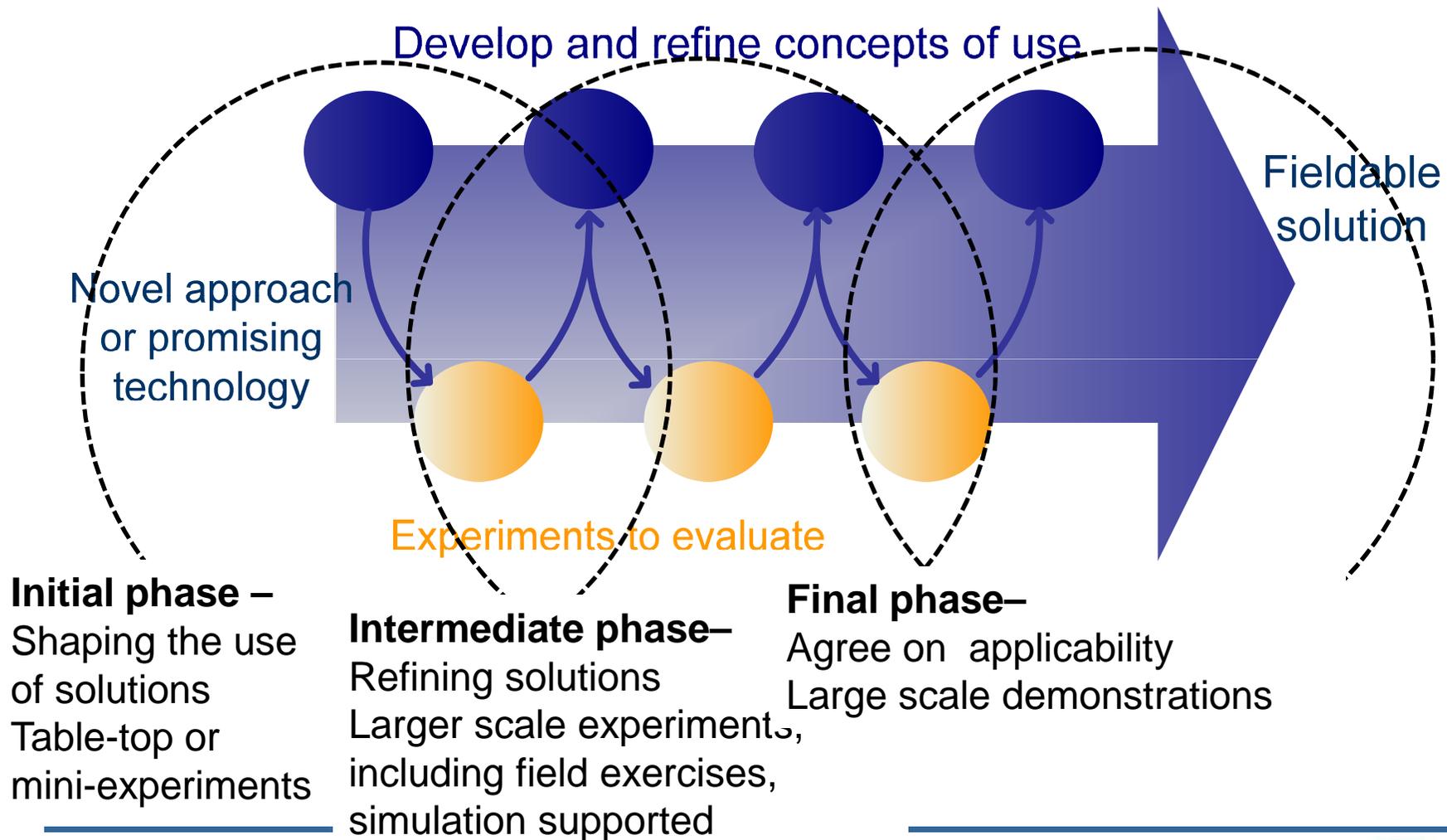
Developing approaches and concepts of use

Using experiments to evaluate...

...refining concepts and solutions based on the outcome

Experimentation campaigns

- a phased, iterative approach



Different types of experiment campaigns



Operationalization of solutions

- Starts with a potential solution
- Identifying refinement needs
- Assessing effectiveness
- Creating acceptance for their use
- Ends with a fieldable solution

- Engaging different communities
- Transferring knowledge
- Assessing applicability in new contexts

- Jointly exploring new approaches
- Suitable for issues related to organisation and doctrine
- Typically practitioner-driven

Transfer of best practices

Discovery and exploration

Experimentation prerequisites



Effective experimentation requires infrastructure

Tested methodologies for evaluation and performance assessment

Schemes and technology for data gathering

Tools for distributed experiments

Modelling and simulation in support of experimentation

Exercise grounds and facilities

Building on available resources in Europe, the DP should gather, complement and integrate these to form

a test-bed for crisis management experimentation

for the benefit of the DP, and as a sustainable platform for future CM innovation

Summary



An effective ACM DP should consist of campaigns of iterated experiments

- Concretely, start experimentation within a year!
- Go from the simple, generic or small to the complex and realistic

Different experiments for different problems

- Exploration – generating new approaches
- Operationalization – measuring cost-effectiveness and refining solutions
- Transfer – Facilitating exchange of knowledge and best practices

Experiments require infrastructure

- Build a crisis-management test-bed – for the DP and for the future



Thank you for your attention!

www.acrimas.eu

Kontakt:

**Dr. Merle Missoweit
Fraunhofer INT**

**+49 2251-18315
merle.missoweit@int.fraunhofer.de**