



HARMONISE - A Holistic Approach to Resilience and Systematic Actions to make Large Scale Urban Built Infrastructure Secure

Deliverable D1.2 / Stakeholder consultation report Multi-disciplinary engagement

Start date of project: 01/06/2013 Duration: 36 months
Instrument: Collaborative project, Capability project: Security

Document Information	
Lead by:	Bergische Universität Wuppertal
Prepared by:	Dominic Kudlacek, Frank Fiedrich & Tim Lukas
Reviewed by:	FAC, UoW
Security*:	PU
Protocol:	HART_RPT_
Rev.:	V1.0
Due date:	30/11/2013
1st version:	19/11/2013
Last update:	30/11/2013
Annex No.	

Project co-funded by the European Commission within the Seventh Research Framework Programme (2007-2013)

No part may be reproduced, transmitted in any form or by any means electronic, mechanical, photo copying, recording or otherwise, transferred to other documents, disclosed to a third party or used for any other purpose except in accordance with the provisions of European Grant Agreement No. SP1-Cooperation-312013

* **PU** = Public

PP = Restricted to other programme participants (including the Commission Services).

RE = Restricted to a group specified by the consortium (including the Commission Services).

CO = Confidential, only for members of the consortium (including the Commission Services).

SUMMARY:

This Deliverable D1.2 report seeks to augment the findings of a thematic review of the concept and operationalisation of urban resilience from existing key literature completed in Task 1.2 and presented in the Deliverable D1.1 report. It supplements the D1.1 findings by recording and evaluating the transcripts from a series of interviews with professionals from a number of contributory and competing disciplines in the urban environment (including urban management and governance, and representatives of the business community and social/public service providers.

The evolution of the Deliverable D1.2 report has occurred alongside the progress made in Task 1.4 (the output of which is Deliverable D1.3) exploring the gap analysis relating to urban resilience and culminating in a forward plan for the HARMONISE platform development in subsequent Work Packages. Section 4 of this current Deliverable provides a summary of the results that have emerged from the stakeholder consultation exercises, and frames them in the context of their relevance to the development of the HARMONISE platform.

<i>Document Evolution</i>			
Revision	Date	File Reference	Reason of change
V0.1	19/11/2013		
V0.2	25/11/2013		
V1.0	30/11/2013		

Table of Contents

1	Introduction	4
1.1	Project Background	4
1.2	Intent of the Report and Scope	4
2	Engaging Key Stakeholders	5
2.1	Why engage key stakeholders?	5
2.2	Approach to Engaging Stakeholders	5
2.2.1	Identifying relevant key stakeholders	5
2.2.2	Questions and guidelines for the interviews	8
2.2.3	Organisation, implementation and interpretation of the interviews	9
3	Results	10
3.1	Results in national frameworks	10
3.1.1	Results in Finland	10
3.1.2	Results in Germany	13
3.1.3	Results in Italy	16
3.1.4	Results in Ireland	18
3.1.5	Results in United Kingdom	21
3.1.6	Results in Spain	24
4	Summary	28
5	Appendix	30

1 Introduction

1.1 Project Background

The urban environment is becoming more and more complex, not least with regard to security aspects following a decade of continuous threats to our existing and planned large scale urban built infrastructure. Such infrastructures are critical nodes within the intertwined networks of these urban areas, which include not only physical components, but also integrated hardware and software aspects. To date, a comprehensive and holistic (systematic) approach to improve the resilience and security of large scale urban developments against attacks and disruptions has not been developed thoroughly.

The general aim of HARMONISE - *A Holistic Approach to Resilience and Systematic Actions to Make Large Scale Built Infrastructure Secure* - is to develop a comprehensive, multi-faceted, yet mutually reinforcing concept for the enhanced security, resilience and sustainability of urban infrastructure and development. HARMONISE will result in resilience enhancement methods for large scale urban built infrastructure. It will see the development of a concept to improve the security and resilience of this infrastructure, encompassing the design and planning phases of such projects (and thereby leading to robust built infrastructure invulnerable to natural/man-made disasters). HARMONISE will improve the design and planning of urban areas, thereby increasing their security and resilience to new threats.

1.2 Intent of the Report and Scope

The main objective of WP1 is to establish a comprehensive understanding of the current role and position of resilience in urban built infrastructure. A thematic review was undertaken of the concept and operationalisation of urban resilience from existing key literature across multidisciplinary backgrounds. Besides that it seems necessary to harness valuable knowledge that may not be available in the most prominent literature. Therefore, Task 1.2 elicits the current views of professionals from a number of contributory and competing disciplines. To further facilitate the transfer of knowledge and understanding, a broad stakeholder engagement process will be undertaken with professional organisations and industry representative bodies from a broad range of disciplines including urban management and governance and representatives of the business community and social/public service providers.

The results of this engagement process (herein described) will provide the basis for a detailed gap analysis which will be performed between the current resilience position in real terms and the current state-of-the-art, taking into account conditions which may challenge progress in advancing the state-of-the-art of urban resilience, in a holistic fashion.

2 Engaging Key Stakeholders

2.1 Why engage key stakeholders?

Deliverable 1.1 (D1.1) provided a thematic review, outlining how urban resilience is conceptualised and how this concept is in policy and practice to enhance the security, resilience and sustainability of urban infrastructure and development.. It drew on key academic and policy sources from a range of multidisciplinary backgrounds and in particular the practical efforts visible in the six nations represented in the HARMONISE project. The report highlighted that that the urban resilience is of growing interest not only for academic researchers but increasingly for a range of urban actors. Whilst the term urban resilience is not always used to describe activities which aim to improve urban security, the actions taken by policy makers and key stakeholders fit within this framework.

The overall aim of the HARMONISE project is to develop a holistic understanding of resilience. Therefore it was important to establish a clear understanding of how urban resilience is understood by, and incorporated into the activities of, a range of key stakeholders.

2.2 Approach to Engaging Stakeholders

Direct contact was made with a range of key stakeholders who are engaged at a strategic level in developing and implementing resilience strategies and practice in large scale urban built infrastructure. The approach is described in the following sections.

2.2.1 Identifying relevant key stakeholders

The range of possible stakeholders who might be engaged is large and it was important to focus on those stakeholders who could provide a sufficiently strategic overview. Following discussions within the consortium, the following groups of stakeholders were identified:

1. Central Government Officials with responsibility for resilience-type activities

Leading practitioners who transform the basic idea of resilience into an institutional framework.

2. Practitioners at a regional and local level

Architects and planners (and other built environment professionals such as surveyors or civil engineers):

- a. Urban and regional planning, spatial planning, professional bodies, architectural associations (accrediting bodies);
- b. Members of government agencies and organisations with security tasks,

- e.g. members of relief organisations, rescue services, (federal) police, military, river and flood managers etc.;
- c. Insurance companies and risk managers.

Using these criteria, a number of key stakeholders were identified in each of the consortium partner countries. The following table shows the institutional background of the stakeholders who have been interviewed in the different countries. In most cases there is representation from organisations that have similar responsibilities in each country. This has enabled the consortium to compare and contrast approaches to implementing and enhancing urban resilience in different contexts, building on the analysis already presented in D1.1.

Table 1 List of stakeholders and their institutions

Country	Institution represented
Finland	The Finnish National Rescue Association
	City of Tampere
	Tampere University of Technology, School of Architecture, Urban Planning and Design
	Ministry of the Interior, Department for Rescue Services
	Police College of Finland
	Safety Investigation Authority
	Ministry of the Interior, Internal Security Programme
	University of Tampere, School of Management (local safety planning and policing research)
Germany	Office of Urban Crime Prevention
	Commission on Civil Protection of the Federal Ministry of the Interior
	Federal Agency for Technical Relief
	Federal office of civil protection and disaster assistance
	Federal office of civil protection and disaster assistance
	Schüßler-Plan, consulting engineering group
	Fraunhofer-Institute High-Speed Dynamics
Italy	Private association of business men
	Telecommunication company
	Change management consulting company
	ICT company

Use, duplication or disclosure of data contained on this sheet is subject to the restrictions on the front sheet of this document.

	Telecommunication company
	Architects and urban plan private office
	Telco company
	Centre of urban designer
	National Institute of ICT research
	Private research centre of renewable energy
	National service of civil protection
Ireland	Private Planning Practice
	Professional Planning Institute/Organisation
	National Government
	University College Dublin (Academic department working on resilience concepts)
	Dublin Chamber of Commerce
	Irish National Planning Appeals Board (An Bord Pleanála)
	Local Authority Planner
Spain	Urbanism Department of Bilbao
	Urban mobility and transport department
	General plan of urban planning and development review office
	Saitec Engineering
	Municipality, Department of Urbanism
	City Government Authority, Department of Regional Planning
United Kingdom	Homes and Communities Agency
	Environment Agency
	Landscape Institute
	MADE - Midlands Architecture and the Designed Environment
	Royal Institute of British Architects
	Royal Town Planning Institute
	Local Resilience Forums
	National Counter Terrorism Security Office/Counter Terrorism Security Advisors

2.2.2 Questions and guidelines for the interviews

The interviews provided an opportunity to further explore the themes addressed in D1.1 and in particular dissect further some of the gaps identified in D1.3 relating to the acceptance and implementation of urban resilience in practice. Furthermore, the interviews provided an opportunity to identify the use of, demand for and requirements for tools and services that could help to enhance the concept of urban resilience, a core aim of the HARMONISE project.

An interview schedule was developed which encompassed these elements. The schedule utilised a series of semi-structured questions which could be used as prompts with the interviewee and enable an interactive discussion to occur.

Five topics were identified (as set out below) and key information was collated which was utilised in deriving the semi-structured questions developed for each of the topic areas:

1. Interviewee details:
 - a. Organisation;
 - b. Position;
 - c. Role in resilience policy and practice.
2. Questions about the term urban resilience:
 - a. What do you understand by the term ‘urban resilience’?
 - b. What sort of things does this cover (give examples)?
 - c. Is “urban resilience” a term that is generally used in the work that you are involved in? (if yes when did it emerge and in what context - i.e. in the UK this was in 2000 around issues of terrorist risk, whilst in other countries it is linked more to climate change adaptation)
 - d. If it is not, are there other terms such as emergency planning, disaster management, secure by design, etc., that are used in place of this to cover the same types of issues/hazards/incidents?
 - e. What risks and threats are related to “urban resilience” (e.g. natural risks and threats, manmade risks and threats, natural disaster, terrorist attacks, social unrest, crime)?
3. Policy and practice uses of the concept of resilience:
 - a. How has the concept of ‘resilience’ been used within your field of expertise?
 - b. Can you identify in your work any examples of locations where ‘urban resilience’ has been incorporated well? Can you identify the impact of this for these places?
 - c. Can you provide any examples of locations where this hasn’t been done and there have been resulting problems (e.g. flood mitigation measures missing from a flood prone area thus resulting in a flooding incident)?
4. Tools and services

- a. What kind of tools (like risk assessment protocols, educational tools, simulation tools...) and services are you currently using to enhance urban security and resilience?
- b. What are the main pros of these tools and services?
- c. What are the main drawbacks of these tools and services?
- d. Can you recall any examples where these tools or services have helped your everyday work?
- e. What kind of new tools or services, not currently available, would best support your work in urban security and resilience?
- f. Which of these tools and services are important (must haves) which of these tools and services would be comfortable but not really necessary (should or could haves)?

5. Stakeholders:

- a. In your experience, which stakeholders are involved in decision making around issues of resilience?
- b. Which stakeholders do you think should be involved in the decision making process?
- c. When should they be involved and what do you feel they can contribute at these stages?

2.2.3 Organisation, implementation and interpretation of the interviews

Responsibility for the organisation and implementation of the interviews was transferred to local consortium partners. An information sheet about the project¹ was sent to the stakeholders when first contacted. In advance of the interview, to conform to the agreed data protection protocol, an informed consent form was sent to the stakeholders. The interviews were conducted either face-to-face or, where time constraints and logistics prevented this, by telephone. In a small number of cases data was derived from interviews undertaken as part of other recent research on the same topic by the consortium partners. The interview engagement process commenced in October 2013 and the latest interview was completed before the end of November 2013.

The interview guideline was translated into the respective local languages and the interviews were conducted in the current local language. To avoid misinterpretations due to the translation, an additional aide memoire was generated for the interviewer. This made it possible for every interviewer to have a consistent (and precise) understanding of the terms of the questions.

To guarantee comparability and to allow a joint interpretation and evaluation, an English proforma was developed having regard to the guidance. The interviewer completed the proformas in English. As a result every interview now is not only documented in the current language but also translated into English. That made a joint evaluation possible.

¹ The document is attached in the appendix of this report.

Use, duplication or disclosure of data contained on this sheet is subject to the restrictions on the front sheet of this document.

3 Results

The results of the Interviews will be first presented in national frameworks as set out below. A structured approach has been adopted in the presentation of the interview results from each country. Chapter four contains a complete summary.

3.1 Results in national frameworks

3.1.1 Results in Finland

In Finland, eight expert interviews were conducted. The interviewees were selected to represent different viewpoints to urban resilience on the national level (i.e. police, rescue services, architects, government officials and researchers). The interview requests were sent to representatives within these organisations, who were known to be interested or involved in urban resilience development in Finland.

Using the term ‘resilience’

All the interviewees were well aware of the term ‘resilience’. Typically, they had first heard the term in an international conference or a seminar a few years ago and learned more of it since. They were also very willing to discuss resilience and considered different aspects of it quite confidently. All the interviewees used the direct Finnish translation ‘resilienssi’ in their speech, and all of them were also ready to admit that there is no better translation of the word in Finnish. There have been some attempts to find a Finnish equivalent, but the results have been weak, as one interviewee said: *“I don’t even try to translate it any more. It has no fluent translation in Finnish, and every attempt to translate it seems to lose one or two important dimensions of it”*. The problem with the word ‘resilienssi’ is that it is difficult to understand and it has only ambiguous definitions in Finnish language, i.e. it does not have a special meaning for a Finn.

Although all the interviewees were comfortable using the term, they also said that it does not belong to their daily vocabulary, as the following quote illustrates: *“you are the first ones who ask me about it...”*. Resilience is considered as an administrative concept, something that is used in policy papers, organisational strategies and academic articles, but not in everyday work. It was not commonly used at the operational level in interviewees’ organisations, albeit several interviewees told how their organisations have established many practices that increase their organisational resilience. They said, for example: *“we have many good practices but we don’t call them resilience”*.

Urban resilience defined

The Finnish interviewees approached urban security from two different perspectives. Some say that it refers to sustainable urban infrastructure, while others refer to security-driven urban resilience. The prior group highlighted sustainable and persevering urban planning and regeneration of urban structures, taking into consideration the linkages between urban planning, politics and local

economics. One interviewee said that *“I don’t approach urban resilience first and foremost from the security perspective. For me, security is only one aspect of it.”*

The group of the interviewees, who connects the term with sustainable urban infrastructure, understood good urban and residential environment and public space with rational traffic systems. In contrast, the group that referred to a security-driven understanding of urban resilience emphasise society’s preparedness for potentially harmful events and its ability to survive and bounce forward from all events and conditions that will occur. This was illustrated as follows: *“Resilient built infrastructure does not promote accidents and crime, but boosts safety and security so that potentially harmful events are unlikely to happen.”* According to this group of interviewees, people feel safe and secure in resilient urban infrastructure, people feel safe and secure. Living, housing, moving and accessing services in cities are made easy.

According to the interviews, the need for urban resilience is boosted by increasingly complex and continually changing environments, where all potential changes (positive or negative) cannot be anticipated and mitigated in advance. Resilient thinking provides new solutions to risk management in networked and interdependent societies, where the traditional, mechanical ways to solve problems are not adequate any more. One interviewee explained: *“We are more and more dependent on electricity and ICT-networks in all areas of our society. Therefore, our ability to recover depends on how fast we can normalise these functions after the incident”*. The other interviewee used the volcanic eruption in Iceland in 2010 as an example of an incident where the traditional risk management mechanisms were not adequate due to the wide-scale consequences and lack of previous experiences on this kind of situations. A third interviewee referred to large-scale cyber-attacks, recovering from which might be difficult with the current practices. Thus, resilience is seen to hold potential for a new, more proactive and adaptive approach with an ability to meet the needs of the modern societies. One interviewee reminded that recovery cannot get too much attention in urban resilience, however, since we must do our best to prevent severe security incidents and terrorist attacks from happening and not only prepare ourselves to recover from them. Also the need for better social resilience was highlighted, as the following quote exemplifies: *“Finns are good at technical recovery, but we could be better in social, sociological and psychological recovery”*.

According to the Finnish interviewees, the most relevant risks that urban resilience should cover are fires, natural hazards (severe storms and large floods) and large-scale violent attacks. When considering fires, the emphasis was put on evacuating large buildings in case of fire. Large events often have few staff members in relation to the amount of attendees, who may be children, mobility impaired and elderly. Another concern was the accessibility of the large buildings with rescue vehicles and ambulances. With regard to severe storms, the biggest concern is a large-scale power cut, a few of which occur in Finland every year. This is mostly a problem in rural areas, though, where the electricity network consists mainly of overhead lines. Urban floods caused by heavy rains occur yearly, but their consequences are more restricted and short-term than of storms. Nevertheless, when asked about the real life examples of urban resilience, many interviewees first mentioned the recent violent attacks (i.e. shootings and bombings) in Finnish schools and shopping malls. Many interviewees highlighted social segregation, exclusion and marginalisation as key factors behind these attacks, the effects of which are often the biggest in large cities.

Restricting the talk on resilience into urban environments was slightly difficult for the interviewees. Finland is a large and sparsely populated country with only a small number of cities, of which only Helsinki has more than 500 000 citizens. Therefore, some interviewees were more concerned with rural resilience and talked about availability of emergency rescue services and police services in rural areas. They also discussed aspects of social resilience in small Finnish towns, where one single fire in a local factory may take jobs from tens of people and cause severe financial problems to the commune.

Current activities and key stakeholders in urban resilience

Although the term ‘urban resilience’ does not belong to the Finnish vocabulary and Finland has not determined specific activities with regard to urban resilience, the interviewees mentioned several well-established activities in the field of security preparedness and recovery in Finnish cities, which together cover quite well the different aspects of urban resilience. These are as follows:

- **Internal Security Programme and local security planning**

The Internal Security Programme is issued by the *Ministry of Interior*, prepared by the *Secretariat of Internal Security* and ratified by the *national government*. The current programme consists of 64 specific goals and several thematic strategies for preventing violent extremism, the safety and security of businesses and companies and the safety and security of the elderly, for example. The Internal Security Programme is implemented in local safety planning by *cities* and *municipalities*.

- **Preparedness and contingency planning**

Many interviewees said that civil defence preparedness and contingency planning are the closest equivalent to the concept of urban resilience. According to them, Finnish society is well-prepared for various different risks and emergencies, but more attention should be put on how the society will recover from severe large-scale incidents, such as nuclear accidents. Key actors in this process are the *Ministry of Interior*, *rescue authorities*, *police*, *third sector organisations* and *households*.

- **Urban planning and design**

The interviewees talked about how strategic and sustainable urban planning should take into consideration societal changes, i.e. changes in demographics. This will result in densely built urban areas and effective land-use. The city centres should be perceived as comfortable and attractive environments, which provide good housing, workplaces and services. Key actors in this process are *designers and architects*, *construction companies*, *investors*, *property owners*, *insurance companies*, *communal decision-makers* and *politicians*.

- **Event safety and security**

The interviewees emphasised that the urban resilience is also a matter of *private companies*, which work and/or organise different kinds of events in large-scale urban buildings. *Event organisers* must consider both safety and security issues, duty-holders and emergency plans and send the safety and security plan to *local police* and *emergency rescue ser-*

vices. In large public events, it is often the *third sector organisations* and *volunteers* (sport clubs and other registered associations), who take care of crowd control and security tasks.

Expectations of urban resilience

The interviewees had two different attitudes towards resilience. On one hand, resilience is considered an interesting and topical concept. In this regard, the interviewees feel that they need to follow the trend and understand different aspects of prospects for resilient societies. On the other hand, resilience is considered somewhat unnecessary and superimposed concept, without which Finland has managed quite well so far. Behind this attitude is a thought that Finnish society is very well prepared to different types of hazardous events and circumstances and capable of recovering from them.

Nevertheless, there are some expectations and wishes to urban resilience. The interviewees say that putting more emphasis on resilient urban planning might bring along more networked security governance. This was illustrated in the interviews as follows: *“I hope that the doubts about each other would diminish and resilience could become a bridge between authorities, businesses, associations and citizens. It would be a good solution under all these uncertainties.”* In addition, more proactive security communication and co-operation was requested. Safety and security authorities’ expertise could be used more proactively in urban planning and design, for example in planning and locating chemical plants in urban areas and making emergency rescue plans for large-scale urban buildings. Local safety planning could be extended from local police and rescue services to cover local businesses, third sector organisations, local districts and private citizens. Finns have high confidence in security and safety authorities already, but a more discursive co-operation would give people new ways to participate in security planning and development. Scenario work could be utilised more effectively in urban design to identify risks and to take safety and security into consideration in the early phases of the design process.

Overall, the Finnish interviewees share different dualistic views to urban resilience. For them, urban resilience is both proactive and reactive, starting either from sustainability or security. It involves both preparedness and recovery, covering both safety and security, and both technical and social aspects. It is seen both as a promising new concept and as an unnecessary and theoreticalism. The interviewees feel that resilience needs more empirical evidence and substance, as one interviewee stated: *“We need real life stories and good examples, so that people start to notice it in their everyday life and become more aware of it.”* One interviewee summarised his thoughts as *“resilient urban planning requires slow thinking, perseverance and future-oriented approach”*.

3.1.2 Results in Germany

The term urban resilience

In Germany eight interviews were conducted. Overall the answers concerning the term ‘urban resilience and the use of the term have been very heterogeneous.

Three stakeholders had a very precise idea what is behind the term. For them, urban resilience is the ability of citizens in an urban area to handle unexpected situations with malfunctions in the infrastructure (like failure in water supply, blackouts or traffic breakdowns). Some stakeholders pointed out, that resilience can only show up in situations that are unexpected.

For most stakeholders urban resilience is the ability of citizens as well as the ability of infrastructure, processes, and constructions to respond to or resist threats, disturbances and shocks. Only for one interviewee resilience was (exclusively) an ability of material to resist or respond. He defined resilience in a very classic way, as the ability of a material or construction to recover quickly from a shock or as the property of material to resume its original shape or position after “*being bent, stretched, or compressed like*” (elasticity). Two stakeholders who are involved in police activities focused a criminological perspective. For them resilience is also the ability of the community to shoulder responsibility and to take care of each other, especially, when it comes to local crime prevention.

Two stakeholders (both with technical background) encountered the term ‘urban resilience’ with some reservation. For them, the term resilience is just a new word for everything that has something to do with security. They also pointed out, that the term seems to be a temporary fashion or a passing fad. One stakeholder noted that the term is increasingly co-opted by many different disciplines and groups. As a consequence the term seems to lose a certain meaning. Another stakeholder expressed similar concerns, suggesting that more time is needed for a more precise meaning to be developed for use in Germany.

As pointed out before, for the vast majority of the stakeholders, the term has got a sociological meaning and a technical meaning.

Policy and practice uses of the concept of resilience

- Technical arrangements

Asked for a clarification of that technical aspect, the interviewees often mentioned the resilience of infrastructure. Two stakeholders named here technical systems that avoid cascades-effect in case of electricity blackouts. Another example that was termed here several times was flood-prevention-constructions that avoid that a flood is coming too high or too fast to a certain area. One interviewee named here a technical system that undertakes the energy supply of radio cells in case of malfunction.

- Technical arrangements combined with sociological aspects

Three stakeholders mentioned here projects that are related with local crime prevention strategies. These projects contained technical and sociological aspects like the ideas from the defensible space strategies (combining ideas of constructions with projects that aim an increase of social cohesion).

- Projects with a focus on sociological aspects

Finally three stakeholders mentioned here projects that aim a rise in the self-help abilities. With enlightenment and informing, citizens can be enabled to more self-responsibility.

Tools used

Similar to the questions concerning the term resilience, the questions dealing with tools and services also evoked very varying answers. Asked for tools that are in use, several stakeholders mentioned toolkits, containing lists and description of measures. Asked for more details about the measures, technical aspects (like advice for construction) were mentioned very often. Also by those interviewees who had a more sociological understanding of urban resilience, three stakeholders mentioned the guidelines from the Federal Office of Civil Protection and Disaster Assistance, the National Strategy for the Protection of the Population in Germany. The document describes the framework for protection concept that is also based on the concept of resilience.

Besides that, the current and ongoing risk analysis that is connected with the national strategy was listed several times. One interviewee mentioned the exceptional and remarkable idea that calls for research proposals are also a tool that provides not only scientists but also government officials and leading practitioners to deal and reflect about the concept of resilience. Furthermore software simulation tools (dealing with the simulation of detonations, car traffic, and the water movement in context of flood prevention) were mentioned.

An overall summary of the answers here, shows that the tools and services dealing with resilience are in Germany very much related with the protection of critical infrastructure (electricity and water supply, lines of communication, transport routes, food supply chain etc.). Measures concerning single buildings or single constructions were mentioned very rarely.

Tools needed by stakeholders

Comparable to the results in Spain, the stakeholders accentuated an improvement of already existing tools rather than the development of new things. One interviewee suggested here the combination of two software simulation tools. Another three interviewees suggested the improvement of existing toolkits and especially the publication and distribution to stakeholders and practitioners on local level.

Which Stakeholders should be involved?

All the interviewees knew the term urban resilience and overall, they described the term as (often) used in their field of experience and at their level. But nearly all the interviewees mentioned that the term is less used or not even known on lower levels. Neither local police officers, nor members of the volunteer fire brigade or volunteers of the federal Agency for Technical Relief will know or use the term resilience in the opinion of the interviewed stakeholders. The interviewees were doubtful when answering the question if it would be useful or necessary for local agents or stakeholders to know or use the term.

One Interviewee mentioned the idea to change the law in that way, that the principle law should demand a resilient society. In the consequence the state and its intuitions would have the obligation to implement resilience in all kind of security activities. En passant the term and the concept of resilience could be discussed in the wider population. That could – in the opinion of that stakeholder – automatically lead to more self-respond, self-determination and autonomy.

3.1.3 Results in Italy

The term urban resilience

In Italy twelve interviews could be realised. The entire group of the interviewed did know the term ‘urban resilience’ and could associate something with it. However, not one of the stakeholders said that the term is generally used in the field of work. The interviewees described urban resilience always as ability. Mainly as ability of a city to respond positively to the effects of changes (environmental, social or economic). The terms ‘reaction’, ‘adaption’ and ‘absorption’ were frequently used to describe resilience. Only a few stakeholders expressed a more sophisticated definition:

“We mean the ability of a community to secure its territory, the functionality of infrastructure and the ability of citizens to help themselves in front of a hazardous event (natural or manmade). This ability is about a variety of activities (which can be classified in the design, implementation and control), aimed at achieving a better resilience to adverse events that may affect an urban community.”

Another stakeholder pointed out that resilience is related with a proactive moment:

“Resilience is the ability of citizens and of the city (community and institutions) to deal with critical situations in a proactive manner, to come out stronger through a process of events.”

Two interviewees expressed a more widespread understanding of urban resilience:

“All actions about ecological, civil and safety measures that ensure a low environmental impact and that obtain the natural resources, regeneration, risk disasters reduction with the aim of a good quality of life are connected with resilience”

“Resilience is the sustainability of all urban systems and / or the wider community. That is the capacity at managerial level, functional, organizational and technological to support all the transformations induced by the rapid changes taking place in key areas of the building, energy, mobility, safety, environment and emergency management (Smart City and Communities).”

Policy and practice uses of the concept of resilience

As already pointed out, the stakeholders said that the term is not really used in their field of work. Therefore it was less surprising, that the question for examples (where the concept of resilience has

been used in the field of the expertise of the respective interviewee) evoked poor responses. One stakeholder said it very precisely: *“In my work I never used this word.”*

However some interviewed mentioned here the redundancy and adaption of security systems and of infrastructure.

“Our industry provides the concept of resilience mainly with regard of preventing attacks on the security of applications and data. Or in the monitoring of crisis situations that can have an echo in the web and especially in social networks”

Furthermore traffic regulation; street lighting, emergency management and green energy were named in this context.

Tools used

Asked for tools and services that are in use to enhance urban security and resilience, the majority of the interviews mentioned simulation tools, risk assessment and training courses. While the simulation tools were described as a tool with a dual purpose of testing and optimizing all relevant actors and institutions, the training courses were described as a service with the purpose of standardization of the various procedures and protocols.

Furthermore the use of new analysis tools (BigData, heuristics etc.) combined with extrapolation of historical data was listed as a tool that is already in use. Besides that, one stakeholder named citizens referendum (about the public spaces use) and citizen round tables, workshops with stakeholders etc. as tool to enhance resilience.

Space for improvement

The questions for space of improvement concerning tools and services evoked two different types of answers: One (smaller) group of the interviewed mentioned a demand for new tools. Here seems to be a special demand for tools dealing with energy management, cybercrime, riot events and flood prevention. Then again, another (bigger) group of stakeholders mentioned a demand for the improvement of already existing tools.

“More than just new tools I would say that we need a continuous work of improving existing ones.”

One stakeholder suggested an assemblage of different information about urban security. Another interviewee mentioned a similar idea and described the need for an *“integrated platform”* with a collection of standardized information about existing tools.

Which Stakeholders should be involved?

Asked for stakeholders that should be involved in resilience activities in Italy, the interviewees gave very heterogeneous answers that focuses their own background: representatives of the internal affairs department, public associations, businessmen networks were listed here as well as first aid teams and first responders in general, civil protection officers and IT service suppliers.

3.1.4 Results in Ireland

Seven interviews were conducted in Ireland. The questions concerning the term urban resilience evoked sometimes answers that were quite similar to the responses that were given in the other countries. However some of the interviewed stakeholders in Ireland gave very unique answers.

Urban resilience was once described as the capacity to prepare and respond to threats, disruptions and attacks. One Stakeholder (with a background in the private sector of planning) was uncertain about the term:

“It is a bit like the EIA (Environment Impact Assessment) process when it was first introduced - there is a mystical element to it. You would really need to be in a built environment profession to understand it.

It’s so broad - it really could include anything from designing out crime/secured by design to Tsunamis to hurricanes. My understanding of the term is that it is related to the design and security of urban space. However you could consider it in terms of resilience for the individual or resilience for the masses - and these are different.”

Another stakeholder called resilience the ability of an area to prepare, withstand and recover from disaster. One interviewee mentioned the relationship between the terms resilience and risk management or “future proofing”. These answers were given in other countries as well.

As already mentioned, some stakeholders provided answers that were new and unique for the project or sometimes similar to those found in the UK: For one stakeholder the term is about the ability of urban places and their associated focal points or major buildings to cope with major events - and particularly the process of planning for this, in terms of place making, design etc.

“This is particularly important given how quickly urban areas are growing. Obviously it’s so broad - you could also talk about economic resilience for cities - in terms of trying to enhance competitiveness in times of crisis etc.”

The economic perspective was mentioned more than once in Ireland. Another interviewee pointed out that the term encompassed two aspects: Firstly, the ability of a city to maintain functionality and to persist (future orientated). *“For example Detroit collapsed because it didn’t move with the times (artificially created).”* Secondly, the community perspective - this relates to the ability of a community to come together and to create a city that is sustainable across all levels.

A local planner who participated in the study said that the concept seemed to be more developed in the UK (based on his experiences of working in both the UK and Ireland. First experiences with

the concept in Ireland was made within flood risk assessment - in this case resistance and resilience were considered differently. Resistance refers broadly to areas of susceptibility to flooding whereas resilience tended to be considered as a characteristic or approach following a flood event (*“What mechanisms were put in place to deal with it?”*).

The question *“What sort of things does [urban resilience] cover?”* also generated some unique answers, compared to the responses in other countries. For one interviewee resilience has a strong cultural underpinning - *“In a broad sense, the cultural underpinning can be seen as the local authority culture. Cities must also be intellectually functioning. In some new Chinese cities, the population has almost zero education on the matter and no contingency built in?”*

Another Stakeholder was identifying two general aspects here:

- Resilience in the area of security

Areas affected by crime would be mapped and policy would be influenced by this. But generally, policy reflected fear of crime rather than actual crime trends.

- Resilience in the area of economy

The idea of ‘bouncing back’ economically was referred to during one interview. In the UK it was mentioned that the South East is the principal economic driver of the country and resilience in this sense involved fostering innovation and developing strategies to ensure that areas are making the most of their potential. The challenge in this is trying to future proof these strategies. But in terms of economic resiliency, it is very context-specific (*“When developing policy you must be aware of your demographic profile”*).

Besides these very specific answers, most stakeholders also mentioned in their answers infrastructure (such as transport, capacity building etc.), major disasters (like flooding), emergency management, terrorist attacks, social unrest and crime.

Policy and practice uses of the concept of resilience

Comparable to the findings in Germany, the term and the concept of resilience seems to be known among stakeholders working on higher levels. Although, the term is not always used explicitly but the themes behind it are used – for example risk assessment.

“It hasn’t been directly used but indirectly it is used in the appeals assessment process and ultimately in refusals. Particular in cases involving issues like flooding. In planning generally, resilience is used indirectly in project and plan assessment processes.”

Asked for examples where the concept of resilience has not been incorporated but where it should have been considered, the stakeholders often mentioned the Clontarf ‘debacle’ and other flooding events in the South East of Ireland (particularly in County Carlow). Clontarf is a coastal suburb of Dublin where plans to build a flood defence wall were met with huge local opposition. The design of the flood wall was a particular area of concern, with local residents fearing that such a wall

would obstruct views of the coast path (a popular pathway for walking and jogging) and lead to an insecure environment for such activity to take place. Furthermore the housing policies in County Limerick were mentioned here. Another example that was named here is the amount of estates and new shopping centres built in the Midland counties like Longford and Roscommon during the boom years. One Stakeholder gave a very distinct answer here:

“Planning in Ireland in the last 10-20 years can’t be considered resilient. Development was largely not plan led – planning became reactionary. Resilience of the planning system and the planning process is an interesting thing to consider – in Ireland the process failed. However in response to these difficulties a lot of improvements have been made – for example, the flooding guidelines; and the introduction of core strategies to ensure greater consistency in plans and guidelines.”

Tools used

Asked for tools and services that are in use to enhance urban security and resilience, hazard mapping systems and risk based modelling tools were named. Furthermore design tools, scenario tools, the MOLAND tool and the S28 ministerial guidelines were referred to. The MOLAND tool (Monitoring Urban Land Cover Dynamics) assesses land cover change and can act as a decision support tool within urban planning. S28 of the Planning and Development Act, 2000 allows for the Minister to issues guidelines to planning authorities regarding any of their functions. Once these guidelines are issued, planning authorities must adhere to them. This seeks to ensure that local planning is consistent with more strategic, national planning and that practice promotes proper planning and sustainable development.

Space for improvement

Similar to the findings in Germany and Spain, there seem to be no lack of a certain tool, but issues around the use and implementation of tools:

“Policy is only as good as its implementation – there is no point in introducing new resilience policy if it won’t be implemented. This is where education and skills come in – are planners adequately equipped to implement resilience policy? Strong leadership is required – change will only come about when it is necessitated by new legislation or guidance from government or the EU. Otherwise it will be viewed as just another thing to do that has a cost.

Development viability assessment is something which has been introduced in the UK and Scotland and its introduction is currently being championed here in Ireland.”

Another point that was mentioned here was a lack of competency in handling the existent tools. In the opinion of one interviewee planners often don’t have the necessary skills to adequately assess risks. The development of viability is not something that is properly “covered in planning schools”.

One stakeholder pointed out that resilience is a very context specific concept so it will always be difficult to develop one ‘catch all’ tool. For him more mapping of hazards and risks would be useful, along with seeking to provide a stronger evidence base for decision making in this area. Building consensus among stakeholders is also important, along with more immediate reporting of issues.

Which Stakeholders should be involved?

The answers that were given here couldn’t be more heterogeneous. On the one hand the concept of resilience seems to be so widespread (albeit indirectly) that everybody seems to be involved already:

“There are so many [stakeholders involved]. But often, there can be conflicts in thinking. For example the Gardai (Irish police force) hate connectivity in public spaces, they love cul de sacs – which is completely different to the way a planner thinks. Areas that are highly permeable can be very difficult. You need to find a balance. So for example, planning for routes which are generally open but that can be closed off (or opened up depending on what is needed) – designing for areas that are both permeable and defensible.”

On the other hand, some interviewees said that more local authorities should be involved. Then again one stakeholder mentioned that planners can be dictated by statutory guidance while another one pointed out that there is a need for better leadership.

3.1.5 Results in United Kingdom

The term urban resilience

The interviews have shown that the term ‘resilience’ is widespread among stakeholders in the UK and it’s connected and associated with various different ideas and concepts. For one stakeholder (with background in urban planning) resilience is about durability and aims to the quality of the built environment. Another interviewee regards ‘urban resilience’ as a term to describe the ways in which towns and cities are prepared for threats that are perhaps unique in the urban context.

“This would include the impacts of a changing climate, water management and flood risk and also counter terrorism measures. Though we haven’t been using the term in this context, it could be inferred that we may also use it to describe social unrest too, particularly as the organisation develops its work on public health. A new area of work for the Landscape Institute will be undertaking in the near future will be based on the concept of liveability, as we feel this is a useful way to collate many of our messages on green infrastructure, climate change, landscape planning, housing, public health and water management. It will be important that resilience is considered as part of this work.”

Some interviewed stakeholders pointed out that resilience is not only an ability of a community but also of businesses.

Comparable to the answers from the Irish stakeholders, besides these specific answers, many interviewees also mentioned energy efficiency, climate resilience – against future climate change, social resilience, flood prevention, good quality design, future proofing and resilience against terrorism. Noticeable is that some stakeholders mentioned the resilience against riots. This association was only made in the UK.

In spite of the fact the term urban resilience is known by the interviewed, the majority of them pointed out that the term is not often used in their field of experience. It is not a term in general use in the civil engineering or stream planner's community. *"Although it is known – the mantra is still more geared around 'sustainable development'."*

An exception can be seen in the community of counter-terrorism advisors. They know and use the term quite often, especially after the 7/7 attack in London.

Policy and practice uses of the concept of resilience

Asked for examples where the concept of resilience has been used in the field of the expertise of the respective interviewee, some of them repeated their answer and pointed out that resilience is not really a concept which is considered or dealt with directly. One Stakeholder (with a relationship to security services) refused to name examples because of concealment. The majority of the interviewees could name various examples here: numerous flood defence schemes across England where named several times.

"In Nottingham the EA has recently completed its largest ever inland defence, known as the Nottingham Left Bank; this £45 million scheme reduces the risk of flooding to 16,000 homes and businesses along a 27 kilometre stretch of the River Trent, from Sawley to Colwick. It also provides additional protection to key infrastructure at the heart of the communities along the Trent. The new scheme reduces the risk of flooding to one per cent (1 in 100 chance) in any given year."

One stakeholder said that the concept has been important in the development of 'whole life cycle' of projects such as the Titanic Quarter. It is less surprising that members of the local resilience forums said that all of their work is about resilience.

"All the LRFs are connected to the Civil Contingencies secretariat the department of the British Cabinet Office responsible for emergency planning in the UK. The role of the secretariat is to ensure the United Kingdom's resilience against disruptive challenge, and to do this by working with others to anticipate, assess, prevent, prepare, respond and recover. Until its creation in 2001, emergency planning in Britain was the responsibility of the Home Office."

Asked for examples where the concept should have been used but may not have been; the climate change agenda, increased incidence and severity of flood events, higher temperatures, and threats to biodiversity, social unrest and terrorism were listed. One stakeholder named the redevelopment of a Nottinghamshire Colliery, another one a small housing scheme in Loughborough which is

subsequently flooded. The interviewee mentioned that the environment agency were not consulted by the local authority and thus was not able to offer advice on suitable risk reduction measures.

Tools used

The interviews have shown that there are a broad range of risk assessment tools in use that are very focussed on risk identification and management. Besides that, modelling tools were named several times. These tools are designed to test the performance of infrastructure in a variety of ‘what if’ scenarios. Stakeholders from the Environment Agency listed a number of tools dealing with fluvial and pluvial flood modeling and air quality modelling. These are used to produce flood map. They also operate “flood alerts” which make subscribers in flood prone areas aware of potential flood incidents. Landscape architects mentioned environmental impact assessments tools. One Interviewee said that are no real tools in general use beyond mainstream master planning tools.

“There are numerous initiatives, such as Belfast Healthy Cities Programme, Secure by design and no doubt tools being used by Environmental Health, Building Control etc, but not by the planning teams or by the development industry. Design of developments such as TQ has been driven by a desire to maintain important views and vistas, to link the scheme well to the city centre and to produce an economically, socially and environmentally viable and vibrant location. Issues such as blast propagation, establishment of standoff distances, monitoring of pedestrians and vehicles etc. are not practices routinely undertaken. Issues such as evacuation etc. are assumed to be dealt with by an expectation of architectural excellence and fire safety engineering competence as opposed to being major master planning considerations. Whilst this does not mean that such issues are not being professionally assessed, it does mean that there is a lack of holistic, early stage consideration and a lack of communication amongst relevant stakeholders.”

Space for improvement

A criticism of the limited focus of some of the tools that are in use was mentioned more than once. Another stakeholder criticised that tools and models are sadly lacking in other key areas such as transport.

Overall, there seems to be a need for tools that can integrate the thinking of a range of stakeholders at the right time in the development process. One Interviewee said the issue is more one of resources rather than of tools. Different partners would have different requirements. Nevertheless this stakeholder mentioned that a single platform, providing information of various tools would be useful. Another one sees a need for smart city type systems that monitor a whole range of performance criteria and that allow intervention and optimisation. Besides that he said no tool will ever be able to give the ‘right answer’ as many decisions about resource allocation are political in nature.

“No tool will answer the question – ‘more road bypasses or more heart bypasses’, but a ‘trade off tool’ which allowed the relative merits of different options to be assessed would have value. Tools which allowed subject specialists to better communicate with politicians,

by demonstrating the pros and cons of different policy, planning and design decisions would be valuable – such tools may also be used to inform / educate clients and ensure a holistic overview – like a ‘shortlisting tool’ for scheme options.”

Which Stakeholders should be involved?

Similar to the findings in the other countries more ‘higher level’ stakeholders seem to be involved in decision making around resilience. Some stakeholders expressed that a full range of competent authorities need to contribute in decision making processes early on to provide the appropriate resilience context. Ideally, as many protagonists as possible and at a much earlier stage should be involved. Certainly it seems sensible that additional steps are added to the ‘approval’ process, with a co-ordinating role being played by authorities, who may require widening their thought processes and undertaking much wider assessment of the resilience perspective as part of planning and urban regeneration planning.

3.1.6 Results in Spain

The term urban resilience

Six interviews were conducted with seven stakeholders in Spain. Overall, urban resilience is a term which is not widely used and the majority of those interviewed viewed the term with some reservation and scepticism. Three interviewees said that the concept of ‘urban’ resilience was totally new for them. The term is not widely used in the normal activities of the interviewed stakeholders and as such it is not well-understood. Only two stakeholders were able to define urban resilience:

- For one it was the capacity of a system to absorb a threat (natural or man-made) and to come back to normal functionally in time and under effective concepts.
- For the other resilience is the capacity of a human being to absorb a risk or threat and the capacity to recover from an attack or hit. Consequently, urban resilience is the attitude of inhabitants not only to wait for the administration to solve their problems in case of a disaster but the intention and the ability to recover by themselves.

When asked about the types of activities that urban resilience covers only a few stakeholders were able to provide examples and these focussed on relations with emergency services and other key agents. When asked for other terms that are used in place of the word resilience to cover the same types of issues, the stakeholders mentioned many different things. The diversity of the answers shows how many aspects are associated with the term resilience. The stakeholders named

- Engineering and designing aspects
e.g. material property, fire-, impact-, seismic-, flooding-, vibrations- and structural resistance
- Criminological aspects
e.g. crime prevention, perceived security, crime reaction and repercussion

- Emergency services
e.g. emergency protocols, evacuation plans and areas,
- Strategic aspects
e.g. development of protection strategies, reaction concepts
- Diverse other aspects
flood disaster, traffic redirection in case of hazards

The variety of the associations listed above indicates that resilience is a term which is implicitly understood by stakeholders in Spain but it lacks an explicit meaning or practical definition to them. Consequently the answers to the question “*What risks and threats are related to urban resilience?*” evoked similar heterogeneous answers: Natural hazards, especially flooding or fractures in quarries, were named as often as man-made risks such as terrorist attacks, large road traffic accidents and accidents in the chemical industry. One stakeholder also identified social risks such as crime and the disappearance of people (older people mainly). However, it was also noted that despite events in recent history, an assessment of terrorist threats has not been included in urban design.

Policy and practice uses of the concept of resilience

Against the background of these results it is not surprising that the stakeholders could not name many examples where the concept of resilience has been used in practice. Three stakeholders answered the question very directly:

“The concept is not really used”. “We can say that we focused on the prevention of the risk mainly and mitigation in a minor way. So we do not cover the aspects covering in the term Resilience. In addition, no much multi-disciplinary work is done”.

Two stakeholders from the city government said also that “*The concept of resilience is not really used in the practice*” but both pointed out that they took “*part of a multi-disciplinary team and we have good relation with different key agents from Bilbao city. Thus, we work a lot with civil protection, health department, and other governmental department from the Basque country for the sake of minimizing some potential threats.*”

Another interviewee said that some projects phase the idea of the concept of resilience but not in a holistic way. He also mentioned in the context of this question a lack of communication with other institutions about the term resilience. One of the stakeholders who provided information about concrete projects mentioned that the activities are focused on three phases:

- Preventive concepts:

In terms of providing the road and public traffic with enough information about the road situation and potential incidents to notify drivers

- Mitigation concepts:

Once an incident is happening, to put in contact the police department/civil protection authorities as appropriate to carry out a common strategy. However in this sense, effective communication techniques and above all, clear competence is needed.

- Recovery concepts

In terms of, once the incident has happened, how to come back to normality

Another Interviewee indicated that resilience *“is focused on citizens”*. *“We do not apply this concept in our daily activity. However, if we make reference to how we work, we are in the anticipation, prevention and preparedness phases and when a risk appears we are in the response phase. We are not really in the recovery phase.”*

In response to questions about places where the concept of resilience has not yet been incorporated stakeholders in Bilbao identified two places in particular:

- The new football stadium was identified as an example in which different signal or road equipment are in places in which they will block or make difficulties in case of an hazard or in case of an evacuation.
- Another building in Bilbao was mentioned as a “worst-practice” example. After the construction some *“black points”* showed up where criminals hide often to attack citizens. The missing of service lanes on highway was mentioned here as well.

Simulation tools are very common, including traffic simulation and the simulation of flooding, and modelling tools for understanding structural behaviour and the modelling of fire in road tunnels. Besides that, the stakeholders named checklists and communication protocols with other key agents (like police departments, regional mobility departments etc.) in that context. Two stakeholders revealed a tool that should detect crime tendencies (software that should give a forecast of crime trends). Risk assessment tools were named in Spain only twice. It seems that two different types of tools are in use: tools for a preventive analysis and tools preventing information that should help in hazard situations.

In the context of the question concerning the main pros und drawbacks of the tools the interviewees expressed more than once concerns that the results of the security strategies that are in use (based on this tools as well as in common sense) cannot be measured. Due to that the real impact of these strategies cannot be documented. It will always miss evidence, proving the use of the tool. *“Of course we can check the yearly statics about crime in Bilbao and see its tendency. But our question is which part of this decreasing tendency is due to our activity?”*

Another position was expressed by one of the interviews in the following way:

“The drawbacks of these tools are not the tools itself but the approach doing with them. We focus on preventive strategies and not solutions considering the risk has already happened. Despite that, always that we use an advance modelling tools the question is: Is this tool reliable in this case? Are the results coherent and we can trust them for obtaining solutions?”

The problem to apply resilience concept is that the way to proceed and the issues to take into account are not standardized and finally it turns into subjective strategies difficult to justify for the technical agent. It is necessary more standardized protocols that can support technician decisions under a less subjective approach as mentioned above.”

The interviewees mentioned that the ability of the tools to detect problems in advance is seen as a major advantage. But only a few stakeholders expressed the need for further (new) tools.

“We have a lot of tools and of course, with time, they will get improved. In our opinion, the capacity of existing tools are really good for carrying out our job, however, what we need is to have well-experienced staff that can judge effectively and efficiently the results of the tools. It is important not to accept every given results.”

In addition to that, it seemed for some stakeholders it is more necessary that existing tools take into account that resilience is related to human perception and mentality. Due to that the tools should focus on the human interaction. One interviewee mentioned the idea to provide an open source platform that offers companies and institutions data of already existing tools.

Which Stakeholders should be involved?

Responses to questions concerning which stakeholders to involve in resilience practice were mixed. Some interviewees expressed the wish that the whole governmental administration should attend with the general concept of resilience. Besides that the wish was expressed that all the relevant stakeholders come together:

“The entire government departments trying to carry out a resilience project (civil protection – police department, mobility, education, culture) should come together with engineers, architect as well as with citizens. Special attention must be paid when relevant key agents (high level architects) are in the project due to normally innovative design buildings or urban areas are contradictory to security. Special attention must also be paid to the legal representative since municipality department has to deal with many different legal regulations.”

Two interviewees remarked the importance of education and media reports. Stakeholders should be educated that resilience is depending on the psych, that resilience is a general concept not only to ask for help from somebody else. Furthermore media should generate a more self-assurance in hazard situations. Reports should show that the same situation could be more dramatic or even more out of control.

4 Summary

Area of Inquiry	Findings	Relevance for HARMONISE
<p>The Concept of Urban Resilience</p>	<ul style="list-style-type: none"> • Most interviewed stakeholders are aware of the term ‘urban resilience’ but indicate that it is not used as part of their daily vocabulary. • Definitions of the concept vary across disciplines. • Some stakeholders expressed the opinion that the definition of urban resilience will also vary depending on what spatial scale it is applied to. • The range of risks and vulnerabilities facing urban areas also tend to impact on differing conceptualisations of ‘resilience’ - Resilience is seen as very much a context specific concept. • Urban resilience is seen as almost a parent concept; integrating a number of sub-concepts in the area of resilience. For example urban resilience is seen to incorporate issues around economic resilience, social resilience, environmental resilience and built environment resilience while also considering security and safety issues. The resilience of urban planning in terms of policy and practice was also raised. • The concept faces translation issues – particularly in light of how broad the concept is and the many elements it is considered to incorporate. • Resilience thinking is considered important in providing new solutions for risk management in networked and interdependent societies, where the traditional, mechanical ways to solve problems are often not adequate for modern urban environments. • Many stakeholders expressed doubts over the usefulness of the concept; asking - how is it different from policy already in place? What does it add? How does it apply to ‘real life’ practice? 	<ul style="list-style-type: none"> ➤ Need for a strong, holistic definition of ‘urban resilience’ ➤ Need for strong definitions of the various sub-concepts underpinning ‘urban resilience’ and an understanding of how these different conceptualisations complement or contradict each other. ➤ Need for mechanisms to illustrate the practical, ‘every day’ use of the concept within urban planning, design and management
<p>Policy and Practice Uses of Urban Resilience</p>	<p>Most stakeholders agreed that the concept of ‘resilience’ is typically not considered explicitly in policy or practice. Rather, it is indirectly incorporated through a number of disparate policy / practice approaches in the areas of:</p> <ul style="list-style-type: none"> • Security / Emergency Planning • Preparedness and Contingency Planning • Urban planning and design • Event Safety and Security • Climate Change • Sustainable Development <p>Some stakeholders expressed a difficulty in comprehending</p>	<ul style="list-style-type: none"> ➤ Need for a more integrated, holistic approach to urban resilience enhancement

	<p>whether the concept has stemmed from an urban security agenda or a sustainable development agenda.</p>	
<p>Tools and Services</p>	<p>The existing tools and services most frequently referred to by stakeholders were:</p> <ul style="list-style-type: none"> • Simulation tools; • Risk assessment; • Guidance documents; • Legislation; • Modelling tools; • Communication protocols; • Self assessment checklists • Community engagement processes <p>In terms of new tools which may be required – many stakeholders expressed the view that upgrading of existing tools may be more useful than the development of entirely new tools.</p> <p>Many stakeholders also expressed a difficulty with a lack of mechanisms to assess the usefulness of existing tools - Often results cannot be measured so it can be difficult to generate support for their use without this evidence base.</p> <p>Many stakeholders were also concerned that built environment professionals are not always adequately equipped to maximise use of existing tools – there is sometimes a gap in their skill set.</p> <p>Another key area of concern for stakeholders was a feeling that a lack of tools is often not the problem; rather it is a lack of implementation of resilience related policy and tools. It was considered that stronger leadership for resilience is required.</p>	<ul style="list-style-type: none"> ➤ Need for greater awareness and understanding of the resilience concept among stakeholders – need for more educational tools (eg. CPD events; workshops, guidance documents etc) ➤ Need for further guidance in the use of existing tools ➤ Need for mechanisms to assess the performance of resilience enhancement tools / approaches.
<p>Stakeholders</p>	<p>Currently ‘resilience’ is seen as a concept more familiar to stakeholders at a higher level. Local level stakeholders such as the police force or other emergency response actors are generally considered to be less aware of the concept.</p> <p>It was considered that a large number of stakeholders including built environment professionals; politicians; national and local government; the local community; and emergency response actors should be involved in decision making around resilience.</p> <p>However the involvement of such a large range of actors can be problematic due to their differing and often conflicting ideas of ‘best practice’. One stakeholder spoke of the desire for less permeable public space among police forces – a desire not generally shared by urban planners, who often favour high connectivity in urban areas.</p>	<ul style="list-style-type: none"> ➤ Need for more integrated approaches to decision making

5 Appendix

General Information about the EU-Project HARMONISE - A Holistic Approach to Resilience and Systematic Actions to Make Large Scale Urban Built Infrastructure Secure

1. Overall purpose of this Research Study

You are being asked to participate in a research study conducted as part of the HARMONISE project. The purpose of the study is to ascertain the views of stakeholders involved in developing resilience in large scale urban built infrastructure. Stakeholders may include planning department in civil authorities/municipalities, urban security policy-makers, urban-design teams, engineering and construction professionals, building management and security service providers, together with the public users of large scale urban built infrastructure.

Large scale urban built infrastructure is a critical component within the intertwined networks of urban areas, which include not only physical components, but also integrated hardware and software aspects. To date, a comprehensive and holistic approach to improve the resilience and security of large scale urban developments (i.e. shopping centres/areas, sports venues or business centres with underground transportation nodes) against attacks and disruptions, has not been developed thoroughly.

The HARMONISE project is grounded in a holistic view of innovation, and advocates synergies with, and augmentation of, relevant existing, past or ongoing projects (or initiatives). The project recognises the necessity to improve the design of urban areas and increase their security against, and resilience, to new threats. Specifically, HARMONISE is seeking to deliver a holistic concept for urban resilience, to include: (a) a holistic urban resilience integrated information platform; (b) a suite of innovative tools (toolkit hosted within the HARMONISE platform); (c) greater understanding and awareness of urban resilience and security *vis-a-vis* dissemination activities; and, (d) commercialisation opportunities among emerging new markets in this field. HARMONISE will result in significant resilience enhancement methods for large scale urban built infrastructure.

2. Procedures

Your participation in this study involves being interviewed about urban resilience and specifically the resilience of **large scale urban built infrastructure** as a distinct feature of the urban milieu. Specific aspects that may be raised in this consultation session might include current approaches to urban resilience and information on the state of the art in urban resilience from a design and planning, technology, engineering and/or societal perspective.

The initial interview will take approximately 30 minutes. Because we aim to ensure that the results of the study guide the evolution of project development, matched to the needs of end users, you may be asked to participate in a follow-up interview or validation workshop at a later stage of the research.

As part of your participation in this research study you may be asked to complete questionnaires and/or participate in semi-structured interviews. Consultation may also be facilitated via an electronic based consultation exercise.

By participating in this research, you will be making an important contribution to the development of exciting and innovative approaches for safer, more resilient urban infrastructure. You may also gain knowledge and insight on innovative approaches that are being developed for more resilient urban environments.

3. Further Information

Project Title: HARMONISE

A Holistic Approach to Resilience and Systematic Actions to Make Large Scale Urban Built Infrastructure Secure

Further Information: <http://www.harmonise.eu/>

Project Number: No 312013

Project Duration: 2013-2016

Coordinator: Dr. William Hynes, Future Analytics Consulting (Ireland)