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Deliverable D6.3

Report on the first field exercise and evaluation workshop

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Consortium – List of partners

Partner no.	Short name	Name	Country
1	UIC	UNION INTERNATIONALE DES CHEMINS DE FER (COORDINATOR)	France
2	CBRNE	CBRNE LTD	UK
3	PPI	POPULATION PROTECTION INSTITUTE (MINISTRY OF THE INTERIOR OF THE CZECH REPUBLIC)	Czech Republic
4	DB	DEUTSCHE BAHN AG	Germany
6	UMU	UMEA UNIVERSITET	Sweden
7	DHPOL	DEUTSCHE HOCHSCHULE DER POLIZEI	Germany
8	RINISOFT	RINISOFT LTD	Bulgaria
9	WMP	WEST MIDLANDS POLICE AND CRIME COMMISSIONER	UK
10	ETICAS	ETICAS RESEARCH AND CONSULTING SL	Spain
11	SESU	STATE EMERGENCY SERVICE OF UKRAINE	Ukraine
12	UKHSA	UK HEALTH SECURITY AGENCY (DEPARTMENT OF HEALTH – PUBLIC HEALTH ENGLAND)	UK
13	SPL	STATE POLICE OF LATVIA	Latvia
14	AGS	AN GARDA SÍOCHÁNA – NATIONAL POLICE FORCE IRELAND	Ireland
15	FFI	FORSVARETS FORSKNINGSINSTITUTT	Norway
16	NPH	KOMENDA GŁÓWNA POLICJI	Poland

Supporting organisations

Affiliation	Short name	Name	Country
eNOTICE	FDDO	FIRE DEPARTMENT DORTMUND	Germany
Civil Protection	DRK	DEUTSCHES ROTES KREUZ ORTSVEREIN DORTMUND e.V.	Germany
CSO	AWO	ARBEITERWOHLFAHRT DORTMUND e.V.	Germany
CSO	BSVW	BLINDEN- UND SEHBEHINDERTENVEREIN WESTFALEN e.V.	Germany
CSO	DSB	DEUTSCHER SCHWERHÖRIGENBUND ORTSVEREIN DORTMUND e.V.	Germany
CSO	CARITAS	CARITASVERBAND DORTMUND e.V.	Germany

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List of Acronyms

Acronym	Definition
ABZ	Training Centre of FDDO (Ausbildungszentrum)
CBRNe	Chemical, Biological, Radiological, Nuclear, and explosive
CDP	Communication and Dissemination Plan
CI	Cochlear Implant
CSAB	Civil Society Advisory Board
CSO	Civil Society Organisation
DLRG	German Life Saving Association (Deutsche-LebensRettungs-Gesellschaft)
DoA	Description Of Action
DPO	Data Protection Officer
EDPS	Ethics and Data Protection Supervisor
EEAB	External Ethics Advisory Board
EU	European Union
GDPR	General Data Protection Regulation
IIMARCH	Information, Intention, Method, Administration, Risk assessment, Communication, Human rights, legal and ethical
KPI	Key Performance Indicators
LEA	Law Enforcement Agency/Agent
PEO	Project Ethics Officer
PM	Project Meeting
PPE	Personal Protective Equipment
PSAB	Practitioner Stakeholder Advisory Board
PSNV	Emergency Psychological Care Unit (Psychosoziale Notfallversorgung)
RPE	Respiratory Protective Equipment
SAB	Security Advisory Board
SOP	Standard Operating Procedure
SOR	Specialist Operational Response
TTX	Table Top Exercise
WP	Work Package
WS	Workshop

Executive summary

This Deliverable reports on the findings and lessons learnt from the first project PROACTIVE field exercise. It applies the Work Package 1 recommendations specifically to the German context referring where possible to organisational aspects (e.g. skills, technological capabilities, SOPs, interagency information sharing routines), as well as the regulatory frameworks, and the institutional mandates (e.g. command & control lines).

On 7th May 2020, the first PROACTIVE field exercise took place at the Dortmund Fire Department (FDDO) Training Centre in Dortmund (ABZ), Germany. This was the culmination of three years of work that was severely disrupted by the Covid-19 pandemic. The field exercise was originally scheduled to be the second field exercise and was due to take place in May 2021, following on from the first field exercise that should have taken place in October 2020.

The field exercise was a joint activity with another Horizon 2020 project, eNOTICE, which has within its membership several CBRNe training facilities situated across Europe. The host for the field exercise was the FDDO whose training centre is a member of eNOTICE.

The methodology for planning and delivering the field exercise was established in the previous Deliverable D6.1 (Godwin & Hale 2021), which adopted the IIMARCH framework (see Chapter 2) to fit the requirements of the project.

Extensive contingency planning took place during the Covid-19 pandemic in response to the constantly changing landscape of the waves of infections. As stability began to return it was agreed that Dortmund would become the first field exercise as it fitted well within the schedule of events for both projects.

Strategic and Tactical Objectives for the first exercise were established through consultation with the wider PROACTIVE consortium and were based upon the requirements set out in the Description of Action (DoA). These objectives were shared with eNOTICE and FDDO.

The focus of the PROACTIVE project centres on the involvement of civil society volunteers and in particular vulnerable people, in the training of CBRNe practitioners. Consequently D6.3 details the planning, engagement, recruitment, management, inclusion, protection, and feedback of those civil society members who volunteered to be ‘victims’ in the field exercise. It then identifies the learning from the first field exercise with a view to incorporating that into the second and third field exercises.

A management structure was established within the PROACTIVE consortium to plan and deliver the field exercise. This was led by DHPol and CBRNE, and supported by ETICAS, UKHSA and Rinisoft. The strategic overview and management were provided by UIC. Exercise management was split into three distinct sections to cover Pre-exercise, Exercise and Post-exercise. Timelines, roles and responsibilities, process maps and risk assessments were developed to support the delivery at each stage. Significant time was dedicated to the development of the recruitment process, ethical standards, and the evaluation strategy. Joint planning meetings with FDDO and internal planning meetings were held to develop the exercise plan in a collaborative way. Most of these meetings were held online due to the extensive Covid-19 restrictions that were in place through the planning cycle; this inevitably had a detrimental impact on the important aspects of building close working

relationships and familiarisation with the exercise venue. Both FDDO and PROACTIVE worked hard to alleviate this once travel was permitted.

The scenario for the field exercise was developed in collaboration with FDDO and focused on the Specialist Operational Response (SOR) of decontamination. The scenario replicated a chemical release from a railway tanker that contaminated a group of citizens at a nearby station. The Decontamination Unit was set up prior to the field exercise and the citizens were decontaminated in line with FDDO's Standard Operating Practices (SOP). PROACTIVE identified areas where the SOPs may conflict with the welfare of the volunteers and instigated measures to mitigate the impact; for example, the decontamination procedures required the volunteers' clothing to be removed so to preserve their dignity all volunteers wore swimming costumes under their clothing. PROACTIVE took responsibility for the transportation, registration, Covid-19 testing and welfare of the volunteers. Throughout the field exercise PROACTIVE monitored Health and Safety and Ethical matters.

The recruitment process for the volunteers was coordinated by DHPol. This adopted several approaches, including direct advertising, social media, engagement with the PROACTIVE CSAB and engagement with Civil Society Organisations in Dortmund. This ensured good representation was achieved from across the population and in particular from vulnerable groups despite some absentees on the day of the field exercise due to illness. In total, PROACTIVE recruited and managed 18 civil society volunteers. The gender ratio comprised 5 men and 13 women ranging from the age 21 to 66. 44.4% of volunteers were in the age group 18-30, 27.8% in the age group 31-50, 22.2% in the age group 51-56 and 5.6% above the age of 65. The proportion of women was dominant in all vulnerability groups.

A comprehensive administrative plan was established in line with the IIMARCH methodology; this was supported by a checklist incorporating all aspects of the administrative requirements to ensure all elements were considered and that appropriate actions were identified and scheduled into the exercise timeline.

Risk management

An integral part of the planning processes described earlier was the consideration of risk. This was done in two parts; the first one focussed on things which could cause the field exercise to fail or fail to reach its objectives and the second part focussed on things which could cause injury to those involved in the field exercise. These risk assessments were maintained as living documents during the planning and right up to the start of the field exercise. FDDO and civil society volunteer group input was included during the planning process.

Communications

PROACTIVE put in place dedicated communication strategies for internal communication, external communication, communication with exercise participants and communication about the project during the field exercise. A Communication and Dissemination Plan (CDP) was agreed in conjunction with FDDO.

Communication within the PROACTIVE consortium was managed through official progress meetings and field exercise planning meetings.

Information packs for volunteers and observers were prepared and circulated in advance of the field exercise; this included information about the exercise, travel, access, Covid-19 testing as well as ethical and legal information.

Due to the uncertainty regarding Covid-19 restrictions, all volunteers were regularly contacted through email to keep them informed and up to date.

All PROACTIVE attendees were given a bespoke exercise briefing on the morning of the field exercise by a member of the PROACTIVE planning team, ensuring key elements relating to their role were explained and relevant safety information was shared.

The field exercise was conducted in German so translation services were arranged so that all volunteers could be briefed in their native language. German speaking members of the PROACTIVE consortium were situated around the training ground to facilitate communication. All post exercise evaluation focus groups were conducted in German to ensure that accurate feedback was received.

Human Rights, Legal and Ethical Aspects

Civil society's involvement, especially among vulnerable groups, in CBRNe exercises has broken new ground. Consequently, human rights, legal and ethical issues needed to be identified and addressed. Protection of human rights and promoting the inherent dignity of all humankind, including the right to integrity of the person (Art 3 of the EU Charter of Fundamental Rights/CFR))[1] are core aspects to be considered in managing volunteers during fieldwork research. Along these lines, the needs and rights of protected groups involved in PROACTIVE, including people with diverse functional need support, were properly considered in designing and implementing ethics protocols. International standards and requirements for research with human subjects have been followed during the preparation and implementation phase. In particular, ethical principles detailed in the Helsinki Declaration[2] and the Belmont Report[3] have been observed when carrying out research activities. Comprehensive strategies had to be put in place to manage issues such as consent, GDPR, dignity, wellbeing, and insurance. Furthermore, the specific requirements and regulations in place for Covid-19 had to be factored in. This process included five different action domains:

- The gathering and **analysis of all ethical requirements** applicable to the field exercise in 2021, addressing principles, human participants, and protocols
- The **development of execution tools**, including consent and information sheet for our VIP and CSAB/PSAB members who participated during the field exercise, an ethics protocol (detailing measures for information provision, data management, Covid-19, etc.)
- Documentation and instructions ready for the ethics supervisor during the field exercise, recruitment announcement and recruitment dataset

[1] Full text at https://fra.europa.eu/en/eu-charter/article/3-right-integrity-person

[2] Full text at https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/

[3] Full text at https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html

- The collection of dataset templates from partners involved in data processing during the exercise, identification of the data life cycle and establishment of a **data management plan**
- Conducting a 29-variables **ethics risk assessment** for the field exercise, based on the human rights framework
- The design and **implementation of on-site protocols:** Briefing (safety, data protection rights, etc.), safety on-site monitoring, on-site guidance to the video team

Evaluation

To establish the learning from the field exercise a comprehensive evaluation strategy, linked to the agreed Tactical Objectives and Key Performance Indicators (KPIs), was developed, and coordinated by UKHSA. The approach was multifaceted, using pre- and post-exercise surveys, direct observations by trained evaluators and focus group workshops. Interactions with the participants were conducted in German where appropriate to ensure clear and accurate representation of their personal views and experiences of the field exercise.

Observation

Observations from third parties attending the field exercise allowed for further understanding. This ensured that members of the CSAB and PSAB, who were extensively consulted in the planning process, were able to add their observations during the field exercise using the Observer Guide. There was only limited access to the Exercise Area, so most observers were required to view from a distance and on a drone feed relayed to television screens in the Observation Room.

Key Takeaway and Learning for the Future

The Key Takeaway from the evaluation process and lessons learnt from delivering the field exercise are set out in detail within this report. The evaluation process included pre-exercise questionnaires, direct observations from trained evaluators, observer questionnaires, focus groups and post-exercise questionnaires. The pre- and post-exercise questionnaires examined changes in participants' confidence and knowledge, perceived responder legitimacy, expectancy of help, helping others, identification with responders, and identification with volunteers. The focus groups explored participants' views and feelings about their experience including accessibility, anxiety, value of pre-incident information, communication with responders, the decontamination process, compliance, difficulties faced by vulnerable groups, responder's preparedness for managing vulnerable groups. The volunteers also made several suggestions for ways in which responders could improve the way they manage members of vulnerable groups, for example the provision of an identified responder to lead them through decontamination, better sharing of information about the vulnerable groups present, use of signage or hand signals for instructions, and more field exercises with vulnerable groups to assist responder training.

The field exercise was also observed by a member of the PROACTIVE External Ethics Advisory Board (EEAB). Feedback was provided on the issues of privacy, exchanges between vulnerable groups and responders, awareness, safety, communications, and coordination of activity.

During the planning and delivery of the joint activity exercise, some aspects worked very well. Those Best Practice will be considered in future field exercises and are detailed within the report. They include: the need for an adaptable and flexible plan, timeline planning, resource planning, process mapping, contingency planning, volunteer handling and welfare, vulnerable volunteer recruitment and levels of representation, collaboration with local Civil Society Organisations, evaluator training and involvement in the field exercise, focus group management, translation arrangements, the provision of clothing for volunteers, and filming and photography.

Based on the challenges faced during the exercise planning and execution phase, several Key Takeaways have been identified. Adaptation and mitigation strategies have been proposed in relation to these challenges to be considered in future field exercises. Challenges included amongst other things the limitation of on-site observations and the intense bureaucracy regarding the registration process. Adaption strategies include: broader exercise scope to make scenario more elaborate, early engagement with exercise host teams to address identified challenges early on, exercise start times to allow for travel, registration and preparation of volunteers, define formal start and finish of the exercise day, earlier communication and negotiation among all involved partners on number of guests to be invited, dedicated evaluation strategy for ethical observations, better physical involvement for observers, simplify registration process, clearly define the registration process of all tripartite parties in advance to plan time for necessary steps e.g., Covid-19 testing, use spare items for high value property of volunteers, engage in early exchange with exercise host to ensure sufficiently trained first responders are training during the PROACTIVE exercise, early release and test the PROACTIVE App, clearly define the sharing of information and dissemination between all tripartite parties, and involve external translators if the host team can't offer enough translators and assign at least one evaluator speaking the local language.

Further Lessons Learned have been identified in the report that reflect the findings of the Dortmund Exercise evaluation. Topics addressed: Pre-incident information, decontamination measures, communication, vulnerable groups, and ethical needs. The Key Takeaways further included previous developed recommendations to facilitate an inclusive CBRNe management of the Deliverables D2.5 (Study with CBRNe practitioners) and D3.4 (Study with Civil Society Organisations).

The Best Practice, Key Takeaways and Lessons Learned will also influence the content of the Aide Memoir (PROACTIVE Deliverable D3.2) that is being developed to assist the organisers of exercises to include civil society and vulnerable groups.

In conclusion the field exercise was planned and delivered in challenging times as Europe began to emerge from the Covid-19 pandemic. The Strategic and Tactical Objectives were generally achieved. Civil society, including those from vulnerable groups, were incorporated into the field exercise in an immersive way that introduced new operational dimensions for first responders and gave citizens the opportunity to witness first-hand the procedures involved in decontamination. Considerable data was gathered in respect of the thoughts, feelings and ideas expressed by the civil society volunteers. The feedback from the FDDO head of training was positive and it was generally accepted by all parties that the inclusion of civil society in CBRNe training brought immediate tangible benefits to all involved in the field exercise. This knowledge and experience will now be built upon and developed to deliver the second and third field exercises.

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1. INTRODUCTION

For the end of 2021, the German Federal Statistical Office reported that approximately 7.8 million people with an officially recorded severe impairment live in Germany (Destatis 2022). It can be assumed, however, that the actual share of severe disabilities within the public is higher as there is no obligation to register severe disabilities. Individuals are considered severely impaired if they are officially recognised as having a minimum impairment level of 50%. Besides severe impairments, people with lower levels of impairment may still be at increased risk during CBRNe incidents. In addition to physical and mental impairments, people with language and cultural barriers must also be given special consideration in emergency response as they may be unable to understand or take recommended actions. In the case of major emergencies involving civilians, emergency responders will need to support citizens with a variety of different needs, many of whom may require adaptive response management to preserve the overall operational workflow.

The PROACTIVE Deliverable D2.5 “Final Report on Common Approaches of CBRNe practitioners” (Arnold et. al. 2021) revealed that European first responders usually do not train their procedures with civilians in general, and even less often with vulnerable civilians, with some vulnerable groups included less often than others. Only 27.3% of 245 respondents (firefighters, police officers, medical personnel, civil protection, etc.) from all over Europe and beyond stated that their organisation had "always" or "frequently" taken part in CBRNe training with the public in the last 10 years. This was even less common for training with vulnerable groups (8.7%). Common practice during training exercises appears to be to use off-duty first responders, nurses, actors, or mannequins, instead of non-actor, non-expert civilian volunteers. However, there is a risk that a) the behaviour of those affected is unrealistically portrayed, b) that only a stereotypical citizen is portrayed who reacts only in a standard behavioural manner and c) that responders that simulate victims help their comrades out of comradeship, if necessary, instead of confronting them with possible difficulties. The involvement of real civilians a) confronts first responders with the behaviour of actual civilians, albeit during a simulated rather than real life emergency, b) encourages an adaptiveness in response to a diverse set of unique expectations and requests of those affected and c) prevents simulating responders from falling out of character and cheating. In summary, such an inclusive exercise can eventually initiate new holistic response measures that strengthen an overall inclusive CBRNe management in face of a significant share of vulnerabilities within the overall population.

To give firefighters in Germany the opportunity to train their CBRNe procedures with the local population (including particularly vulnerable groups), the EU-funded projects PROACTIVE and eNOTICE organised a joint field exercise in Dortmund. The exercise was hosted and carried out by the Dortmund Fire Department (FDDO) (an eNOTICE partner), whose firefighters were trained as part of the exercise. On the PROACTIVE side, the exercise was coordinated by the PROACTIVE team of German Police University (DHPol) and CBRNE Ltd in cooperation with FDDO.

This Deliverable reports on the findings and lessons learnt from this first field exercise. It applies the Work Package (WP) 1 recommendations specifically to the German context. In the report, the exercise preparations as well as the Key Takeaways of the exercise are presented. The IIMARCH framework developed by PROACTIVE and set out in D6.1 serves as the structure for the report, which is described in more detail in the following chapter.

2. THE IIMARCH FRAMEWORK

The structure of the exercise planning followed the IIMARCH framework presented in the preceding Deliverable D6.1 (Godwin & Hale 2021) 'The PROACTIVE Methodology for the Field Exercises'. It comprises the planning areas **I**nformation, **I**ntention, **M**ethod, **A**dministration, **R**isk assessment, **C**ommunication, **H**uman rights, legal and ethical aspects. Accordingly, the following chapters of the Deliverable will each cover relevant aspects of the framework.

3. INFORMATION

The following sections outline the exercise and introduces the key players involved, the date and location.

3.1. Field exercise

The Field Exercise in Dortmund aimed to put into practice the theoretical knowledge gained from previous PROACTIVE studies.

As part of WP1, D1.3 (Hall et al. 2021a) provided important baseline information (e.g. factors that affect public willingness to comply with recommended preventative and protective measures for CBRNe terrorism) that was used to develop the evaluation and observation strategy for the exercise in Dortmund (see Chapter 4.4).

In the context of WP3, D3.1 (Strand & Johansson 2021) helped to define the categories of vulnerable people to be included in the exercise (see Chapter 3.4.). Furthermore, the CSAB formed as part of WP3 was highly relevant to the exercise. Through the CSAB, people could be recruited as observers for the exercise. In addition, the exercise was advertised via the CSAB (see Chapter 5.3.2.). During the planning phase, a new member (AWO Dortmund) was recruited for the CSAB. In addition, the exercise contributed to the recruitment of a new PSAB member (German Red Cross Dortmund, DRK) in the context of WP2.

Based on D3.3 (Nicholson et al. 2021b), in which feedback was collected from the CSAB regarding the exercise scenarios, the needs of many different groups (including vulnerable groups) could be considered in developing the scenario for Dortmund. Furthermore, CSAB feedback was collected during a TTX and focus groups.

In the context of WP4 and WP5, Deliverable D4.1 (Kolev, Markarian & Polushkina 2021) and D5.3 (Kolev, Markarian & Polushkina 2020) laid the foundations for the development of the PROACTIVE App, which was ultimately tested during the exercise (see Chapter 5.3.2.). Furthermore, the baseline for the Pre-Incident Information for CBRNe incidents was developed as part of Deliverable D5.1 (Nicholson et al. 2021a). These information materials were distributed to the volunteers before the exercise (see Chapter 6.4.3).

As part of WP6, the exercise could further build upon the methodological framework for the PROACTIVE exercises developed in Deliverable D6.1 (Godwin & Hale 2021) (see Chapter 4.4.) and the Scenario Development and Evaluation Methodology of Deliverable D6.2 (Hall et al. 2021c) (see Chapter 2 & 4.4.).

Deliverables D8.1 (Clavell et al. 2021), D8.2 (Zamorano, Gonzalo & Clavell 2021), and D8.3 (Marsh et al. 2021) laid the groundwork for the information sheet and consent form for the exercise in Dortmund (see Chapter 9.1.-9.3.). In Deliverable D8.2, there was also a special focus on the use of the PROACTIVE App, addressing its acceptability and data protection requirements. Based on Deliverable D8.3, it was also possible to design the participant recruitment process for the exercise (Criteria for identification and recruitment of research participants / Guidelines for selecting volunteers to 'role play' disaster victims / Ethical principles guiding the recruitment of the research participants). In addition, the Deliverable provided important starting points for the aspects of Insurance, Health and Safety, Ethics Supervision during the Field Exercise and Welfare of the participants.

On this comprehensive basis, PROACTIVE was able to develop a detailed planning structure to sufficiently fulfil all objectives and tasks within the scope of the exercise.

3.2. PROACTIVE/eNOTICE Joint Activity

The exercise was organised as a joint activity between two Horizon2020 projects; PROACTIVE and eNOTICE. The eNOTICE partner in charge of the joint exercise was the Dortmund Fire Department (FDDO) as the additional partner in the tripartite arrangement (see Figure 1). Whereas eNOTICE provided the interface for the joint activity, contributed to the activity schedule, and agreed to involve their consortium members as exercise observers, PROACTIVE and FDDO were responsible for the active planning process of the exercise. During more than a year of planning both parties harmonised their objectives to guarantee both the annual obligatory training of FDDO firefighters and the handling of (vulnerable) civilians within the exercise.

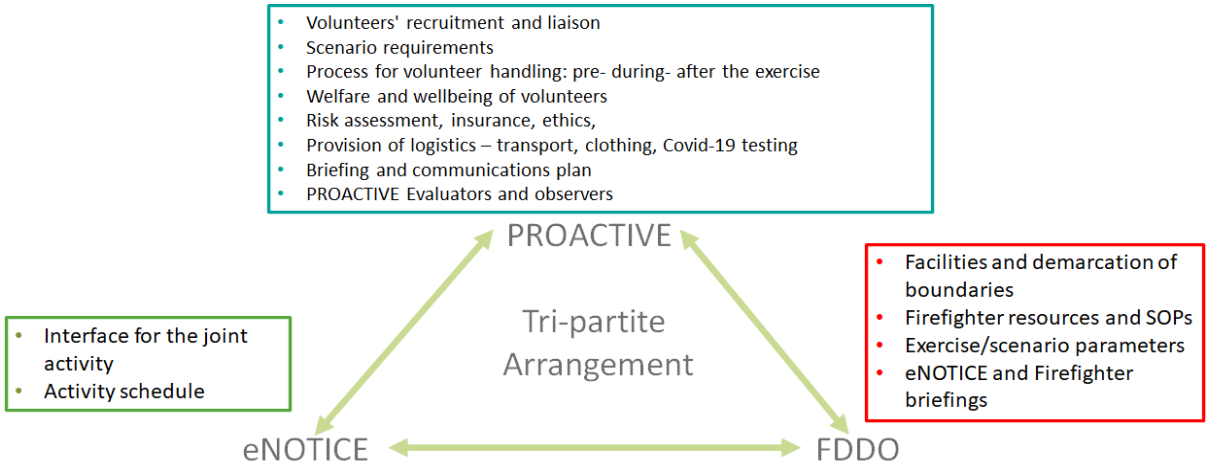


Figure 1: Clarification of responsibilities and objectives at the joint exercise of PROACTIVE, eNOTICE and FDDO

Since all three stakeholders are situated in the field of CBRNe management, the overall scenario was based on a CBRNe response situation that would involve the FDDO Firefighter Units and a certain number of civil volunteers recruited by PROACTIVE. The engagement between both parties was observed and evaluated throughout the exercise to identify valuable lessons learned for the next two joint exercises.

The role of PROACTIVE was to recruit the civil volunteers, including members of the vulnerable civil society. Consequently, PROACTIVE was responsible for their handling pre, during and after the exercise and for their welfare and wellbeing. As part of this, PROACTIVE undertook the risk assessment of the exercise as well as the insurance, human rights, ethics, and data protection aspects as well as the briefing of all its guests. Furthermore, all logistics related to the exercise fell in the responsibility of the project. This included the transportation and accommodation of all PROACTIVE guests and the handling of personal property. The scientific evaluation of the exercise was another key responsibility of PROACTIVE including the development of the evaluation methodology and its performance, which included the use of observations as well as social science and humanities methodologies of data collection. FDDO was responsible for providing the location and demarcating the identified areas of risk. Furthermore, FDDO managed the involved Firefighter Units and Standard Operating Procedures (SOPs). As host of the exercise, FDDO dictated the exercise parameters and set the administrative framework including the essential registration data to be collected, the vaccination requirements and Covid-19 rules. In addition, FDDO was responsible for the briefing of the eNOTICE and FDDO guests including their Firefighter Units.

As a partner within the tripartite arrangement, PROACTIVE's role was clearly defined throughout the planning process. Therefore, the project could only influence the responsibilities of their partners to a limited extent based on negotiation between all parties. During the planning process, PROACTIVE additionally agreed to take over the responsibility for the common catering at the day of the exercise as well as the Covid-19 testing. In return, FDDO agreed to increase the number of volunteers and PROACTIVE guests involved and made adaptations to the scenario. Communication was handled as a joint approach led by PROACTIVE. Based on the overall set number of external guests, negotiations between PROACTIVE and eNOTICE took place to allocate the available places among each other in the best possible way. However, the following points could not be influenced directly by PROACTIVE: time, date, location, duration including milestones of the exercise, overall number of guests, details of the scenario, volunteer categories to be involved (no children or guide dogs allowed), number and profile of involved responders, applied SOPs, set up of the Exercise Area, inclusion of additional Response Units and active players. Furthermore, the project was not in charge of the eNOTICE observers and had no influence on their profile. PROACTIVE negotiated with eNOTICE that their observers would be asked to fill in the PROACTIVE Observer Guide (see Chapter 4.4.3).

3.3. Involving civil society

The heart of the joint exercise was the involvement of civilian volunteers from the local community. Over the course of the planning process, the number of volunteers that FDDO would allow to participate fluctuated. In the end, it was agreed on to be no more than 30 volunteers. The number was determined by FDDO's set requirements for such a joint exercise, which considered the size of the Training Area, the logistical and personnel capacity of FDDO's Decontamination Units, as well as the personnel restrictions during the Covid-19 pandemic. As described in the next subsection, the

goal of PROACTIVE was to include vulnerable groups as part of the civil society involvement. If included in CBRNe exercises at all, vulnerable people are often portrayed by actors (see Deliverable D2.5.). However, to capture the true needs of vulnerable groups in the event of a CBRNe situation, vulnerable people should be included directly in CBRNe exercises. This approach was followed by PROACTIVE.

3.4. Vulnerable groups

PROACTIVE aimed to not only include civilians, but to provide an opportunity for members of the vulnerable civil society to report their experiences from within the exercise as volunteers and from outside as CSAB observers. In the first exercise in Dortmund, PROACTIVE and FDDO agreed to involve at least 15% of vulnerable civilians in the volunteer sample (see Chapter 4.2.; Tactical Objective 1). Due to restrictions concerning the overall number of volunteers involved in the decontamination exercise, set by FDDO, PROACTIVE was requested to focus on no more than five different vulnerabilities represented by the volunteers and to only include volunteers above the age of 18. FDDO also requested that guide dogs were also excluded. PROACTIVE and FDDO planning teams agreed on the following five categories of vulnerability:

- Mobility restrictions, namely wheelchair users
- Hearing restrictions, namely complete loss of hearing
- Visual restrictions, namely complete blindness
- Older people, namely volunteers aged 65 plus
- Lack of language proficiency, namely non-German speaking foreigners

PROACTIVE aimed to recruit at least two volunteers from each vulnerable category to allow the representation of diversity within the category (e.g. congenital and developed deafness, etc.) and allow comparisons regarding their experiences afterwards (see Chapter 4.4.).

During the recruitment process, an ideal sample was aimed for, which, in addition to the five vulnerability categories, also considered the distribution of age and gender (see Table 1).

Table 1: Ideal distribution of volunteer sample in Dortmund exercise according to age, gender and vulnerabilities

Vulnerability	Age group	Gender	
		Male	Female
None	**18-30**	4	4
None	**31-50**	3	3
None	**51-65**	3	3
Age	**65+**	1	1
Tourist		1	1
Blind		1	1
Deaf		1	1
Wheelchair user		1	1

TOTAL		15 men	15 women
		30 participants	

3.5. Date and place

Early joint planning with FDDO started one year prior to the exercise. During various planning meetings, the date and place were discussed. Due to Covid-19, the initial first joint PROACTIVE/eNOTICE exercise in Rieti had to be postponed resulting in the Dortmund exercise being the first joint exercise for both projects. Due to this change, the overall time schedule of both projects had to be updated and harmonised, eventually resulting in a significant extension of both projects that would enable three joint exercises to take place. During this amendment phase, the time of the Dortmund exercise was agreed for Spring 2022.

In late January 2022, FDDO announced the date of the exercise to be May 7 of the same year. Although the scenario was still not clearly defined at this point, the preparation of the information documents for the registration process (including the information sheet and the consent form) started.

FDDO announced their Training Centre (ABZ) as the exercise location. For a description of the site, see Chapter 6.5.1.

4. INTENTION

This section describes the PROACTIVE objectives, introduces the scenario, the evaluation strategies and involved tools of the exercise. All PROACTIVE objectives and KPIs were regularly exchanged with FDDO.

4.1. Strategic Objectives

The Strategic Objective of the exercise was to test combinations of selected tools and evolving procedures in response to a CBRNe incident incorporating the direct participation of members of civil society that includes vulnerable citizens and non-trained staff. This included the following aspects:

- Understanding citizen perceptions of the processes and procedures used by practitioners.
- Evaluating the usefulness of tools used by practitioners for managing the public and vulnerable citizens.
- Evaluating the effectiveness of tools developed within the project
- Introducing lessons learned and new ideas to the 2nd and 3rd field exercise.

4.2. Tactical Objectives and KPIs

To meet those Strategic Objectives, Tactical Objectives were formulated and in turn the Key Performance Indicators (KPIs) to measure success at meeting the objectives (see Table 2).

Table 2: Tactical Objectives and Key Performance Indicators for PROACTIVE field exercises

No	Objective	Key Performance Indicator
1	To involve and engage with civil society (members of the public as volunteers) in CBRNe exercises with at least 15% of these representing vulnerable groups.	This was assessed by evaluating the number of individuals with vulnerabilities in the final volunteer sample.
2	To evaluate the effectiveness of first responders to recognise vulnerable people during a CBRNe incident.	This was evaluated in the focus groups through asking questions and prompts around volunteers' perceptions of how effective they felt responders were in recognising vulnerabilities.
3	To evaluate the effectiveness of first responders in supporting and assisting vulnerable people during the CBRNe incident phases, through response measures (e.g. tools, equipment, procedures) which are adapted to the needs of vulnerable people.	The objective was evaluated in a multi-method approach. First, questions in the post-exercise questionnaire on the potential impact of accessibility on interactions with responders and on undergoing the decontamination shower were included. In the focus groups, the perception of the volunteers on how they felt their vulnerability needs were, or were not, met was explored. Furthermore, observational data was collected on interactions between the responders and volunteers, particularly revolving around the assistance and support provided to volunteers.
4	To evaluate the effectiveness of PROACTIVE pre-incident information and awareness during emergency communication with the public.	This was assessed mainly through measures included in the pre- and post-exercise questionnaire. Six questions were included in both the pre- and post-exercise questionnaire assessing perceptions of the pre-incident information: how able, effective, embarrassed, confident, and willing volunteers were to take the actions in the pre-incident information and if they would seek further treatment after the actions. This provided descriptive data on perceptions and allowed the comparison of perceptions before and after the exercise.
5	To evaluate if communication with the public during the incident is pitched at an appropriate level in terms of language, complexity, and channels.	This was assessed through measures on the post-exercise questionnaire. In the post-exercise questionnaire two measures were included on responder communication: perceptions of communication and perceptions of practical information. In addition, the focus groups included questions around volunteers' perceptions of responder communication and observational data focused on the interaction between responders and volunteers.
6	To test the technical aspects of the PROACTIVE App in a live exercise environment.	It was agreed in advance with the PROACTIVE consortium partners and the eNOTICE project that the Mobile App would not be the focal point of the exercise. However, to ensure valuable feedback was still received, it was agreed that the observers would test the Mobile App according to Usability and features, allowing KPIs to be set for Tactical Objectives 6-8. For objective 6, the number of observers able to register, view incidents and download the provided CBRNe information was assessed. Objective 7 used self-report questionnaires for CSAB observers to evaluate the
7	To evaluate the effectiveness of the PROACTIVE App in supporting the needs of civil society (e.g. communication needs, better information exchange).	

No	Objective	Key Performance Indicator
8	To evaluate the effectiveness of the PROACTIVE App in supporting the needs of first responders (e.g. communication needs, better information exchange).	Mobile App usability and features whereas objective 8 evaluated the Mobile App usability and features.
9	To develop the understanding of factors that influence public compliance during CBRNe incidents.	This was assessed through several measures in the pre- and post-exercise questionnaire to assess the impact of the exercise. In the pre-exercise questionnaire the following aspects were measured: confidence and knowledge of actions to take in an emergency, expectancy of receiving help from other volunteers, helping other volunteers, perceived responder legitimacy, identification with volunteers, and identification with responders. In the post-exercise questionnaires additional measures were included: confidence and knowledge of actions to take in an emergency, expectancy of receiving help from other volunteers, helping other volunteers, perceived responder legitimacy, identification with volunteers, identification with responders, perceptions of responder communication, perceptions of practical information, perceptions of privacy, collective action (the belief other members of a group will support the pursuit of a shared goal, which in the instance of the exercise may be decontamination), levels of anxiety during the exercise, and perceived responder competence. Expected compliance was also assessed within the post-exercise questionnaire. These measures were included as previous research shows that shared social identity (identification with volunteers; identification with responders; collective agency), responder communication (perception of responder communication; perceptions of practical information), perceptions of responders (perceptions of responder legitimacy; perceptions of responder competence) and perceptions of privacy all predict compliance (Carter et al., 2015).

4.3. PROACTIVE tools

4.3.1. Development of the PROACTIVE pre-incident information material

As described previously, one objective of PROACTIVE is to examine the effectiveness of CBRNe Pre-Incident Information (see Chapter 4.2.; Tactical Objective 4). The CBRNe Pre-Incident Information developed specifically for PROACTIVE is being developed through a multi-step process and will continue to be updated throughout the project (based in part on the use of the materials during the three PROACTIVE field exercises).

The aim of the pre-Incident Information is to provide the public with actions to take in the event of a CBRNe incident, prior to an incident occurring. The pre-incident information was developed in Deliverable D5.1 (Nicholson et al. 2021a). Based on the results from D5.1, pictograms were developed alongside the pre-incident information. The pictograms and pre-incident information were then assessed through focus groups with the PROACTIVE Civil Society Advisory Board (CSAB) which led to further modifications including brighter contaminant in pictograms, removal of pictogram about waiting at the scene for first responders, changing the decontamination pictogram from a sink to tissue, and finally to not add anything about helping other victims. The full details of the pre-incident information development will be in PROACTIVE Deliverable D5.2 ‘Final: Pre-Incident Public Information Materials for CBRNe terrorism’.

For Dortmund, FDDO approved that the pre-incident information was in line with FDDO Standard Operating Procedures (SOPs). DHPol then translated the pre-incident information into German. Finally, German speaking members of the PROACTIVE Practitioner Stakeholder Advisory Board (PSAB) were sent the German pre-incident information for feedback.

4.3.2. PROACTIVE web platform and mobile app development for the Dortmund Exercise

Designing and developing the PROACTIVE Web Platform and Mobile Applications (App) for LEAs and security policy makers is predominantly the responsibility of WP4, further details can therefore be found in PROACTIVE Deliverable D4.1. Input has been taken from WP1, WP2, WP3 and WP8 to determine the needs and gaps of the users in terms of current public perceptions relating to CBRNe incidents. Due to the pandemic and the delay of the field exercises, multiple workshops were held to feed into the iterative development cycle, as detailed here:

Pre-exercise Workshops

- 19 March 2020 - online PSAB workshop with 40 participants from 17 countries
- 1st October 2020 - online CSAB workshop with 40 participants from 14 countries

Mobile App Workshops

- 25th February 2021 – online PSAB workshop with 18 participants representing all categories of CBRNe
- 26th February 2021 – online CSAB workshop with 10 participants representing mainly experts/ researchers

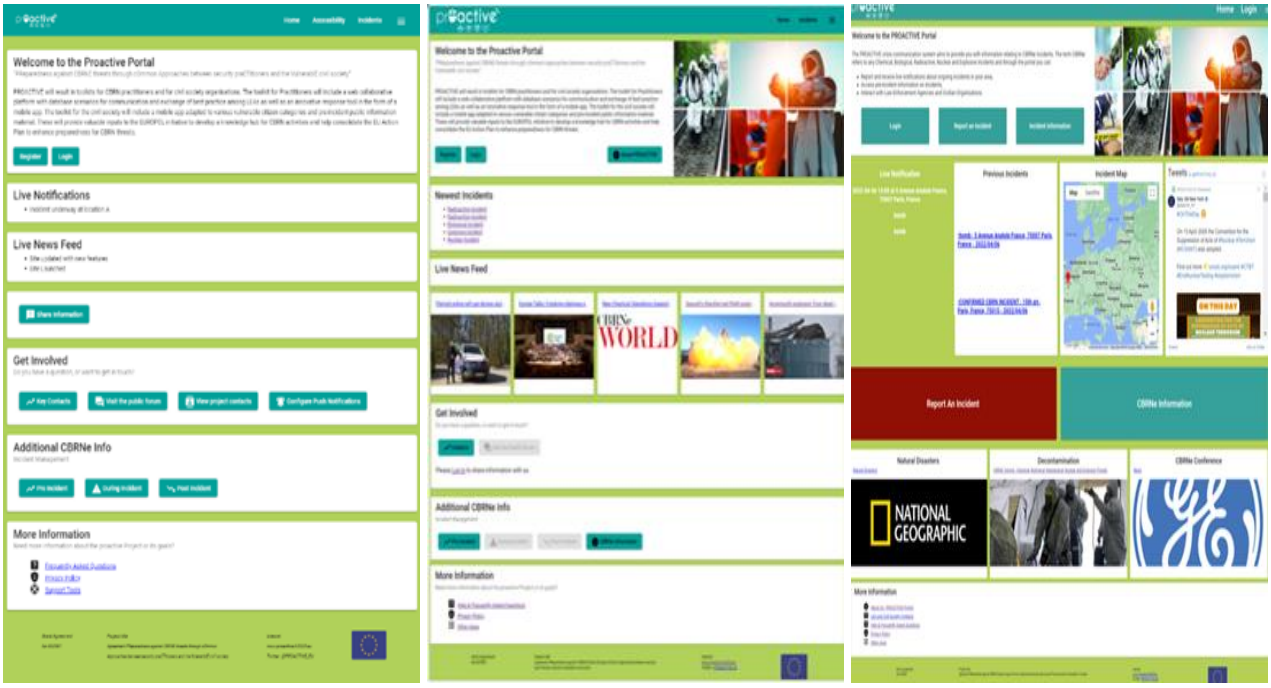
Additional CSAB Workshops

- 12th May 2021 – online CSAB workshop with 4 participants
- 26th May 2021 – online CSAB workshop with 9 participants
- 8th June 2021 – online CSAB workshop with 6 participants

Combined PSAB/ CSAB workshop

- 6th April 2022 – In person Interactive App Workshop for around 30 PSAB and CSAB participants

The outcome of the workshops was the evolution of the Web Platform and Mobile Apps in terms of design, useability and potential features as shown in Figure 2.1, 2.2 and 2.3, which captures the development of the Web Platform from October 2019 to May 2022:



2.1. 2.2 2.3

Figure 2: User interface overview of the PROACTIVE website

The Mobile App was developed based on the initial designs of the Web Platform and then validated through the workshops; Figure 3 shows the latest version of the Mobile App Development:

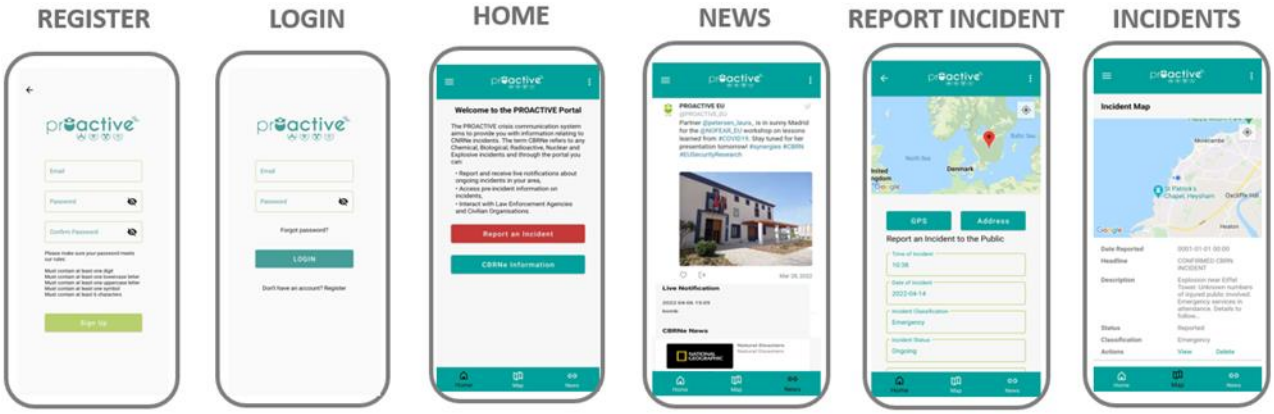


Figure 3: User interface overview of the PROACTIVE App

To enable the Objectives and KPIs to be achieved, a significant level of technical development was required. This included:

- Increasing the size of the server to ensure >40 people could use the Web Platform and Mobile Apps at any one time
- Implementation of the translations. This was completed manually by extracting a CSV/ Excel file from the back-end server listing all static phrases in the Web Platform and Mobile App. DHPol and DB then translated the phrases before they were then uploaded back to the server.
- Deleting all prior incidents listed in the app
- Uploading the relevant Pre-Incident Information to the CBRNe library in both English and German
- Preparing a list of live notifications to be pushed out through the Web Platform and Mobile Apps at pre-agreed times during the live exercise (Appendix 26)

4.4. Evaluation methodology

PROACTIVE planned to evaluate the Strategic Objectives, KPIs and PROACTIVE tools during the exercise through a mixed-method design including:

- pre- and post-exercise questionnaires
- focus groups, and
- observational data

The **pre- and post-exercise questionnaires** were intended to be completed on the day of the exercise, one immediately before the exercise and one immediately after the exercise. The self-report questionnaires were developed by PROACTIVE partner UKHSA based on their previous findings in PROACTIVE WP 1 (see Chapter 4.4.1. & 4.4.2.).

4.4.1. Pre-exercise questionnaire

The pre-exercise questionnaire (Appendix 2) contained measures of volunteers': confidence and knowledge in actions to take during this type of incident; perceived responder legitimacy; expectations of help from other volunteers; willingness to help others; identification with other volunteers; identification with responders; level of anxiety about the exercise; perceptions of pre-incident information. All items were rated on a scale from 1 (Strongly agree) to 7 (Strongly disagree) and all measures had high reliability (α=0.77-0.97).

The scales of confidence and knowledge (e.g. "If a real incident of this type were to occur, I would know what actions to take to protect myself.", 4-items, α=0.97), perceived responder legitimacy ("I think that the emergency services will behave in a respectful way during the decontamination process today." 2-items, α=0.77), expectancy of help ("If a real incident of this type were to occur, I

would expect emotional support from other members of the public who were involved.", 2-items, α=0.89), and expectancy of helping others ("If a real incident of this type were to occur, I would be willing to help other members of the public.", 1-item) were derived from Carter et al. (2019).

The scales of identification with other volunteers ("I feel a sense of unity with the other volunteers who are taking part in the exercise today"; 2-items, α=0.92), identification with emergency responders (e.g. "I feel a sense of unity with the emergency responders who will be taking part in the exercise today"; 2-items, α=0.77), and levels of anxiety ("If a real incident of this type were to occur, I would feel nervous.", 3-items, α=0.90) were adapted from Carter et al. (2013).

The questions about pre-incident information started with the question "Did you read the pre-incident information for CBRNe incidents?" to which volunteers responded with 'Yes' or 'No'. These were then followed by questions about the pre-incident information taken from Deliverable D5.1 (Nicholson et al. 2021a). Six aspects covered the actions in the pre-incident information, each with one item, and each starting with the stem "If a real incident of this type were to occur". The six items included comfort ("I would feel comfortable taking the actions recommended in the pre-incident information sheet."), embarrassment (I would feel embarrassed taking the actions recommended in the pre-incident information sheet."), willingness ("I would be willing to taking the actions recommended in the pre-incident information sheet."), ease ("I think I would find it easy to take the actions recommended in the pre-incident information sheet."), effectiveness ("I think that taking the actions recommended in the pre-incident information sheet would be an effective way to remove a contaminant from my skin."), and further treatment ("I would feel the need to seek further treatment after taking the actions recommended in the pre-incident information sheet.").

4.4.2. Post-exercise questionnaire

The post-exercise questionnaire (Appendix 3) contained measures in the following order: confidence and knowledge in actions to take during this type of incident; accessibility; perceived responder legitimacy; expectancy of help from other volunteers; willingness to help others; levels of anxiety; identification with other volunteers; identification with responders; perceptions of the pre-incident information; collective agency; perceptions of responder communication; perceptions of communication messages; perceptions of practical information; perceived responder competence; perceptions of privacy; perceptions of co-operative behaviour among volunteers; engagement in the exercise; and expectations of compliance. All items were rated on a scale from 1 (Strongly agree) to 7 (Strongly disagree) and all measures had high reliability (α=0.64-0.98).

No changes were made to the scales of confidence and knowledge (α=0.98), expectancy of help (α=0.80) or the pre-incident information questions (α=0.65) for the post-exercise questionnaire. The perceived responder legitimacy (α=0.96), identification with volunteers (α=0.68), and identification with responders (α=0.94) scales were adapted to the past tense for the post-exercise questionnaire, for example "I think that the emergency services behaved in a fair way during the decontamination process.". The levels of anxiety scale (overall α=0.94) were adapted from Carter et al. (2014) to include 6-items, 3-items focused on the decontamination process (e.g. "I felt nervous during the decontamination process.") and 3-items focused on the whole exercise (e.g. "I felt nervous during the exercise."). The exercise and decontamination scales items were summated together as one anxiety score.

The expectancy of helping others question remained the same but a separate question was added to assess helping behaviour during the exercise ("I was willing to help other members of the public during the decontamination process today"). These questions were assessed separately. Two aspects of accessibility were measured: impact on communication with responders and impact on decontamination shower. One item measured the degree to which vulnerabilities impacted interactions with responders ("My disability/condition/vulnerability impacted my interaction with the first responders"). The other item focused on the degree to which vulnerabilities impacted decontamination ("My disability/condition/vulnerability impacted my ability to undergo a decontamination shower").

The measures of collective agency ("If this situation had been real, I would have felt able to work with others to take appropriate actions to reduce the danger we were in."; 1-item), perceptions of privacy ("I had sufficient privacy during the decontamination process"; 1-item), cooperation among volunteers ("I saw volunteers cooperating with each other during the decontamination process."; 1-item), courteousness among volunteers ("Volunteers were courteous to each other during the decontamination process."; 1-item), volunteers needing help ("Sometimes volunteers needed other volunteers to help during the decontamination process."; 1-item), emotional engagement ("I felt emotionally engaged during this exercise."; 1-item), and seriousness of exercise ("I took this exercise seriously."; 1-item) were adapted from Carter et al. (2014).

The measure of perceptions of responder communication (e.g. "Emergency responders explained clearly what was happening during the decontamination process.", 5-items, α=0.91), was adapted from Carter et al. (2013; 2014). The measures of perceptions of practical information (e.g. "Emergency responders provided sufficient practical information about what we were supposed to do during the decontamination process.", 2-items, α=0.95), and perceived responder competence ("Emergency responders took appropriate actions to manage this incident.", 2-items, α=0.64) were adapted from Carter et al. (2013). The measure of expectations of compliance ("If this situation had been real, I would have complied with the instructions of the emergency responders", 2-items, α=0.62) was adapted from Carter et al. (2015).

The questionnaire included three yes or no questions in the post-exercise questionnaire: "I went through decontamination in the exercise"; "Did you use the pre-incident information during the exercise?". It also included a series of open-ended questions covering accessibility, levels of anxiety, perceptions of the pre-incident information, perceptions of responder communication, and compliance.

The questionnaires were internally reviewed during and following the PROACTIVE planning meeting in Paris on April 5 involving feedback from the project consortium.

Focus groups with the volunteers were carried out immediately after they completed the post-exercise questionnaire. Each focus group included 4 – 8 participants and lasted between 30 minutes and 1 hour. A focus group schedule was developed by the UKHSA evaluation team prior to the exercise to guide focus group discussions. The focus group schedule was internally reviewed by PROACTIVE consortium members prior to the exercise to ensure that all topics of relevance were included. The Focus Group Guide (Appendix 4) contained questions relating to participants' experiences during the exercise, including volunteers' perceptions of: responders' ability to understand and respond to vulnerabilities; responders' ability to manage the decontamination

process; responders' interactions with volunteers; and the decontamination process in general. Focus groups were carried out in German, to ensure all volunteers could share their experiences, and were then transcribed and translated.

Observational data - evaluators was collected during the exercise. During the exercise, four evaluators collected data at three different locations: 1) at the incident site (prior to decontamination); 2) in the Disrobe Area (one observer stationed inside the Disrobe Area of the Decontamination Unit); 3) in the decontamination shower (one evaluator observed decontamination processes in each side of the Decontamination Unit). To facilitate observational data collection, an observation framework including behaviours of interest was developed by the UKHSA evaluation team. This framework captured all behaviours of interest, including a) responder to volunteer interactions (physical assistance, manhandling, interaction between responders and volunteers, and identification and assistance of vulnerable people) and b) volunteer to volunteer interactions (physical assistance to and/or from other volunteers, interaction between volunteers, washing behaviour, non-compliance, identification, and assistance to vulnerable people). These behaviours were recorded by evaluators at each exercise location. The framework enabled behaviours of interest to be captured in a more standardised way by the evaluators who were capturing observational data. Start and finish times of decontamination were also recorded. Observational data was analysed using the framework approach, a type of thematic analysis which is commonly used in research which has implications for policy (Pope et al. 2000). This analysis facilitated the identification of key themes within the observational data.

4.4.3. Observer guide methodology

To gain a further level of understanding of the exercise, invited observers from the PROACTIVE PSAB, CSAB, and consortium as well as eNOTICE observers were asked to also self-report their observations. As such, an Observer Guide with 43 questions was developed that covered 4 sections to fill in (Appendix 5):

- Information about the **observer**
- Questions about the **field exercise**
- Questions about the **PROACTIVE App**
- Questions about the **organisation of the event**

Each section was composed of closed and open questions. The answers to the closed questions were provided on Likert-type scales and were accompanied by open questions which gave the observers the possibility to explain their answers and to give examples.

The Observer Guide was developed by UIC and was refined with feedback from the PROACTIVE partners and PSAB and CSAB members. The initial version was pre-tested during the Paris joint workshop with Advisory Board members.

4.5. Scenario overview

The scenario set the framework that combined the Tactical Objectives, their KPIs, the intended toolkits to be involved and the evaluation strategies applied for this exercise.

4.5.1. Scenario discussions

From the onset, FDDO let their intention to train the decontamination aspects of a CBRNe event be known. While several discussions were held as to the merits of including the building of the Decontamination Tents as part of the exercise play (e.g. allowing more realism as volunteers must wait before being decontaminated), in the end FDDO chose to set up the tents the day before and exclude this from the training.

While it would have been advantageous for PROACTIVE to include other first responder organisations in the exercise play, to keep the exercise simple, costs low on their side and respect pandemic restrictions, FDDO did not choose to invite other blue-light organisations to be part of the exercise.

Concerning the development of the scenario, PROACTIVE proposed the inclusion of terrorist elements in the scenario but without the inclusion of LEAs, this would not be possible and would have prevented FDDO from training the decontamination aspects with their firefighters. As such, this element was excluded. The cause of the incident leading to decontamination was also discussed and evolved over time. At first, FDDO had described the incident as a collision between a bus and a freight train, but in the end a leakage of hazardous materials from a freight train was used.

FDDO informed PROACTIVE that they would involve 10 actors from the German Life Saving Association (Deutsche-LebensRettungs-Gesellschaft) (DLRG) to train with the Emergency Psychological Care Unit (PSNV Unit) of FDDO. The DLRG participants were outside the scope of PROACTIVE's control. The actors displayed psychological stress symptoms during the exercise.

4.5.2. Final scenario

The final iteration of the exercise focused on the specialist operational response (SOR) of decontamination of civilians following a chemical incident of a leaked freight wagon near a Public Train Station. The unknown chemical substance was simulated with a machine generated fog. The decontamination was carried out by a specialist unit from FDDO using local operating procedures for mass decontamination.

PROACTIVE, eNOTICE, and FDDO were able to satisfactorily implement the requirements/objectives of all involved stakeholders with respect to the exercise with the selected scenario.

5. METHOD

This chapter presents the details of the exercise including the specifications of tasks and functions involved. It explains the exercise management, the timelines, the participants involved and their roles. Furthermore, the recruitment of and the engagement with volunteers will be presented. The chapter also addresses the eventual use of the previously described evaluation strategies and tools. The key elements of translation and recording will be described as well as subsequent ethical requirements. The final key element to the Method is the identification of required contingencies in place that address any potential disruption to the exercise.

5.1. Exercise management

In the following chapter, the exercise management is described, divided into three central phases (pre-exercise, exercise, post-exercise) of the exercise in Dortmund.

5.1.1. Pre-exercise

A PROACTIVE exercise planning team was established consisting of members from DHPol, CBRNE, UIC, Rinisoft and UKHSA. DHPol, CBRNE and UIC attended all meetings, and Rinisoft and UKHSA attended as required. This team was responsible for the coordination and planning of all aspects of the exercise. Internal meetings were arranged at regular intervals, increasing in frequency in the lead up to the exercise. These internal meetings were interspersed with joint planning meetings with the host organisation, FDDO. Most of these meetings were held online due to Covid-19 pandemic restrictions in place at the time. It was however possible to arrange one physical meeting in Dortmund at the exercise site in February 2022; this was attended by team members from DHPol, CBRNE and FDDO and was the first and only opportunity to conduct a site visit prior to the exercise. To ensure effective communication and dissemination of information within the PROACTIVE consortium, quarterly progress meetings were used to update and consult in respect of the Dortmund field exercise planning; these meetings were also used to apportion exercise roles and responsibilities to consortium partners; the details of these are covered in Chapter 5.3.1. & 6.1.

The IIMARCH methodology was utilised to conduct internal planning meetings, with an IIMARCH checklist adopted to ensure all aspects of exercise planning were considered. Notes and action points were recorded at planning meetings with responsible members providing updates. Notes and actions were recorded by DHPol. The joint meetings with FDDO were attended by either the core planning team or DHPol alone if the meeting was in German. A scaled down version of IIMARCH was adopted for these meetings; notes and actions were recorded by DHPol. The outputs from these meetings, including the exercise timeline, process maps and spreadsheets are detailed later within this report.

As outlined above, the requirement to conduct most meetings remotely was detrimental to optimising the planning of the exercise. However, the positive attitude of the operational staff from FDDO ensured that we were able to agree on the fundamental exercise requirements, delineate the areas and buildings available for use, and develop the various processes and procedures in advance. This

ensured that the foundations were in place in advance of the exercise day and that the management structure established was prepared and able to make last minute adaptations to

The pre-exercise management responsibilities constantly evolved through the disruption caused by Covid-19. Exercise timelines and venues were in a constant state of flux due to changing restrictions as Covid-19 waves came and went. Multiple contingency plans were developed and additional activities such as a CSAB/PSAB Table Top Exercise (TTX) were organised to maintain people's interest. Despite the challenges and uncertainty around exercise-parameters, a flexible and adaptable approach to exercise management ensured that collaboration between FDDO and PROACTIVE successfully delivered the exercise during a difficult operational period.

5.1.2. Exercise

During the exercise a clearly defined command structure was established within the PROACTIVE team ensuring there was an exercise director and two deputies. These were supported by task leaders assigned to identified exercise functions which are set out below (see Chapter 5.3.1.). The exercise director took overall command of the PROACTIVE staff and tasks whilst one of the deputies coordinated the Exercise Area and the other oversaw the transition of resources and volunteers between areas and provided the liaison with the FDDO exercise director. This ensured that spontaneous changes to exercise parameters could be factored in, and the exercise plan amended accordingly, e.g. there were some delays in setting up the Decontamination Tents which pushed back the start of the exercise by thirty minutes. Early identification of this meant that the volunteer processes were adapted to ensure their welfare was supported.

All PROACTIVE partners with active roles were provided with orange tabards so that those with responsibilities could be easily identified (see Chapter 6.3.3.). The tabards also allowed wearers unfettered access to the exercise site to support the management of volunteers and their journey through the decontamination process. This proved valuable on several occasions when PROACTIVE staff had to interact directly with exercise players; examples of this include securing valuable property that was discarded by the decontamination team in line with their normal CBRN SOPs and diverting volunteers back to re-robing that had initially been taken away by the FDDO psychological testing team for assessment whilst still wet from decontamination. Having German speaking directing staff on the Exercise Area proved invaluable when a real medical emergency was declared; quick intervention from paramedics and liaison with the PROACTIVE deputy director ensured rapid and proportionate response that prioritised the wellbeing of the casualty whilst minimising the impact on the exercise.

5.1.3. Post-exercise

Post-exercise the command structure remained in place whilst the site activities were scaled down. The exercise director was responsible for ensuring the arrangements for the focus groups were in place and that the volunteers' welfare needs were met. The deputies were responsible for ensuring food and refreshments were in place, and for supervising the dismantling of the physical assets on the Exercise Area; this meant all property and equipment was accounted for. Once all the activities were completed the exercise directors liaised with FDDO management to coordinate a joint clear up, securing the help of FDDO staff to return the site to its normal function and storing all equipment in its rightful place. No PROACTIVE staff were permitted to stand down from their role until authorised

by the exercise directors. The exercise directors finished with a site inspection before formally handing it back to FDDO.

Exercise management responsibilities continued after the exercise incorporating both logistics and wellbeing. There was ongoing engagement with the videographer to create the dissemination videos, and follow-up with the civil society volunteers and organisations to check on their welfare and wellbeing and establish if there were any ongoing issues that needed to be addressed. The exercise management team also coordinated the gathering of material for PROACTIVE Deliverable D6.3 and was responsible for contributing to and overseeing the production of the report.

5.2. Exercise timeline and processes

Exercise planning commenced in general in 2020 with the initial planning for the Rieti exercise. Following the numerous re-starts and rescheduling due to Covid-19 restrictions, exercise planning commenced early 2021. As part of the process, the joint framework of the exercise was established among PROACTIVE and FDDO including the milestones 'start of exercise' and 'end of exercise'. This framework initially included two separate exercise phases but during discussions with FDDO it became clear that only one phase would be feasible; this necessitated an early start of the day (see Chapter 4.5.). The final joint exercise timescale for the exercise day can be seen in Figure 4.

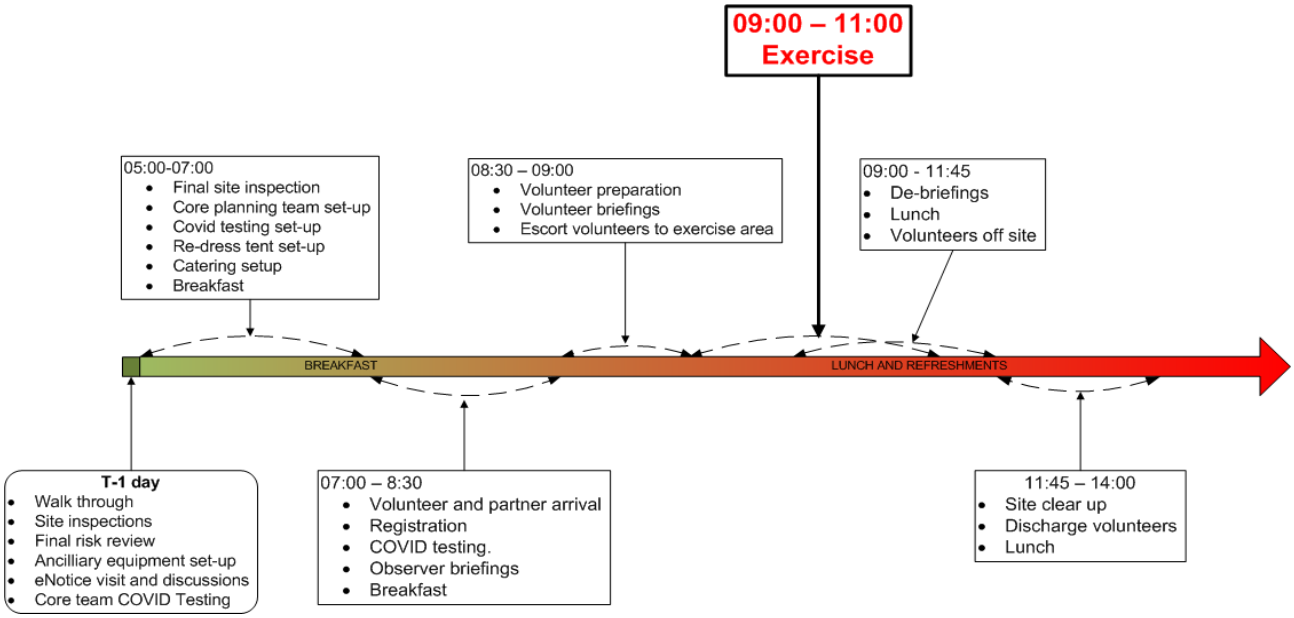


Figure 4: Joint Exercise Framework with milestones of the day

To plan and coordinate the individual PROACTIVE activities and their respective responsibilities around the exercise day, the planning team of PROACTIVE developed a detailed PROACTIVE exercise timeline. The timeline was built on the six areas of activities and responsibilities described in Chapter 5.3.1. and addressed the 21 individual sub activities (e.g. food, media and dissemination, observer liaison, etc.). A comprehensive version commenced with a detailed overview of all tasks with responsible partners that had to be completed by the time of the exercise beginning the Monday prior to the exercise (Appendix 17). This included final online planning meetings between DHPol and

FDDO, but also final procurements in Dortmund and the pick-up of spare clothes donated by the Caritas Dortmund. References between different sub-activities were drawn if they were linked. For example, while the partners for Civil Society Volunteer Coordination had to survey the transportation of volunteers to certain locations, this was carried out by the PROACTIVE partners in charge of the sub activity 'transportation'.

A reduced version of the timeline, which was later printed out and provided to all PROACTIVE partners in active roles during the registration process, focused on the day of the exercise. Even though some activities were postponed and shifted following the final joint briefing between PROACTIVE and FDDO the day before the exercise, the overall structure was maintained.

To provide the responsible partners with a clear overview of the individual processes involved, differentiated process maps and checklists were created. These served as information aids both during the briefing on their roles and on the day of the exercise (example of process map Appendix 18):

- A PROACTIVE process map for transportation covered the logistic details for all PROACTIVE guests and volunteers throughout the day.
- A PROACTIVE check list for registration included all steps of the registration, the Covid-19 testing and the dress-code check. Furthermore, the document listed all materials handed out to the individual groups of guests (e.g. bags for volunteers and observers, tabards for partners in active roles and the video team, etc.).
- A PROACTIVE process map for briefing of partners, observers and volunteers presented the communication of briefing information the days prior to and at the day of the exercise. The document further provided an overview of the briefing topics to be addressed within the briefings as well as the responsible PROACTIVE partner in charge of the presentations.
- A PROACTIVE process map for catering covered all related processes starting with the final check up with the catering company the day prior to the event until its departure. It additionally showed the individual time slots foreseen for all joint exercise guests for breakfast, refreshments, and lunch.
- A PROACTIVE process map for dressing included the agreed briefing of the firefighters regarding the handling of property on the morning of the exercise. It moreover defined the steps of the individual undressing process, the securing of personal property and the match-up process.

Some process maps had to be adapted the night before the exercise addressing the changes mentioned above.

In addition to the process maps, programs of the day were designed that covered the milestone activities for observers and volunteers. The documents were shared in advance with the target groups via email as part of the pre-exercise briefing process (see Chapter 6.4.2.).

The timelines, process maps, checklists and programmes of the day ensured that every PROACTIVE partner in an active role, every observer and all volunteers were informed about the processes they were involved with and that these could be coordinated accordingly.

5.3. Exercise participants and their roles and responsibilities

The exercise, as described earlier, involved numerous participants with different roles and responsibilities. The following subsections describe the individual roles and responsibilities in more detail.

5.3.1. Exercise planning, management, and support team roles

The exercise planning, management and support was carried out by two separate groups. The first group consisted of active PROACTIVE consortium partners which planned and organised the exercise and were supported by the second group of external partners in support function.

Planners/Organisers

The command structure of the exercise was divided into commanders, tasks leaders and task leader assistants (Appendix 8). The three commanders of the exercise were called ‘exercise directors’. They included one leading exercise director on top which is a representative of the Task 6.3 leading organisation DHPol. The exercise director was supported by an additional colleague of DHPol in an assistant position and one representative of the overall WP6 package leader, CBRNE. External negotiations with FDDO and eNOTICE were also conducted at this commander level. The project coordinator of PROACTIVE was in charge of the whole exercise and above all the commanders.

The planning of all PROACTIVE related tasks and activities was the responsibility of the above-mentioned PROACTIVE planning team alongside their colleagues at DHPol, CBRNE and UIC. The team assigned all PROACTIVE partners an active role as organisers of the exercise, sometimes even several roles, to ensure an effective workflow.

The exercise planning and management was divided into six separate main activities that comprised certain roles and responsibilities to fulfil those activities. They addressed the areas:

- **Exercise Coordination and Command** including the umpires, Covid-19 compliance, ethics and data protection, health & safety, risks and insurance
- **Logistics** including transport and accommodation, site coordination, food, and clothing and personal property
- **Communication** including translation, translators and interpretation, media and dissemination and the PROACTIVE App
- **Evaluation and coding** including evaluation and coding and the focus group leaders
- **Observer liaison** including the liaison with VIPs, PSAB and CSAB members
- **Civil Society Volunteers Coordination**

For each of the main activities, one activity leader was in charge, supported by different leaders for all related sub-activities. For the sub-activities further partners were assigned to support as

assistants. Moreover, members of PROACTIVE supported each other in a flexible manner beyond their activities if their assigned role and responsibility allowed them to do so.

This command structure was defined for the period before the exercise, during the exercise and after the exercise. This means that some partners were involved in certain activities as planners, but on the day of the exercise these activities were organised by another responsible partner or followed up by another partner afterwards. Especially regarding the language barriers, this approach was introduced because DHPol as exercise director alongside FDDO was in direct contact with the involved third parties (see next section). As a result, DHPol planned many activities prior to the exercise while the allocated responsible PROACTIVE partners eventually organised those activities on the day of the exercise.

Support functions

Third parties including the DRK, a videographer team and a catering company supported the PROACTIVE team in conducting Covid-19 tests, the collection of data material for research and dissemination purposes and the catering of all exercise guests.

5.3.2. Exercise players

The exercise players included the civil society non-vulnerable and vulnerable volunteers of PROACTIVE, the responders of FDDO and the FDDO actors. PROACTIVE was only in charge of the volunteers whereas the responders and actors were embedded in the command structure of FDDO.

Civil society non-vulnerable and vulnerable volunteers

Alongside the responders provided by FDDO, PROACTIVE involved members of the civil society as those affected by the simulated CBRNe incident (see Chapter 3.3. & 3.4.).

The general volunteer sample consisted of members of the civil society that were largely unfamiliar with firefighting in general and CBRNe and decontamination in particular. FDDO decided in advance that the training firefighters should not be informed that the volunteers were not actors. Unlike actors usually involved by FDDO, the civilian volunteers were not biased with respect to their responsive behaviour towards the Decontamination Unit. Thus, the volunteers were asked to behave as naturally as possible. During the briefing (see Chapter 6.4.3.) it was pointed out several times that they should communicate to the firefighters if something does not work, as they would do in a real scenario, especially issues related to their respective vulnerabilities and that they should challenge the firefighters to adapt their response measures to the specific conditions. This included, among other things, dealing with a wheelchair, as well as the communication restrictions in relation to hearing and visual impairments.

Recruitment of civil society volunteers

To recruit participants representing the agreed sample (see Chapter 3.4.) for the exercise in Dortmund, the project team applied a variety of approaches.

First, the event was advertised in two newspapers in the Dortmund area. The event was promoted via the local newspaper "Wir in Dortmund" in the "City West" area (16,000 copies). In addition, an online banner was placed on the associated website for 4 weeks. Furthermore, the event was advertised in the "Stadtanzeiger" throughout Dortmund and in Schwerte (310,000 copies).

The responsible PROACTIVE partner for communication and dissemination, UIC, promoted the recruitment via the project's social media channels (website, LinkedIn, Twitter). Project partners further retweeted and linked the announcements via their private social media channels.

In addition, the event was promoted via the social media channels of DHPol. The exercise was also advertised internally at DHPol via email (72 research assistants) as well as via an online meeting with fellow researchers.

To attract young people to the exercise, the universities in Dortmund, Bochum, Witten, Unna (German University of Health and Sport) and Hagen were contacted. Approximately 160,000 people study at the universities.

In addition to universities, political parties (mainstream parties) and their youth organisations in Dortmund were contacted.

In the civil society sector, the exercise was advertised via volunteer agencies in Dortmund, Bochum, Hagen, Unna, and Recklinghausen. In addition, a total of 21 sports clubs (gymnastics, swimming, canoeing, soccer, etc.) were contacted in Dortmund, Bochum, Hagen, Recklinghausen, Witten, and Unna. The clubs also include clubs with a focus on disabled sports and clubs with senior sports departments. These were selected to attract participants in the 65+ category. Furthermore, the exercise was advertised through Amnesty International in Dortmund, Bochum, Recklinghausen, and Hagen.

As another recruiting source, the station manager of the Dortmund Central Station was contacted. The manager advertised the event internally (station employees). A public advertisement within the Central Station was not possible.

Unfortunately, it was not possible to recruit participants through FDDO via their internal and external channels. After consultation with FDDO, the exercise host expressed the wish that PROACTIVE refrain from contacting the City of Dortmund to find participants for the exercise. From FDDO's point of view, this would have generated too much attention for the exercise. PROACTIVE complied with this request.

To recruit particularly vulnerable people for the exercise, DHPol contacted several Civil Society Organisations (CSOs) representing vulnerable groups in and around Dortmund. In Dortmund more detailed discussions were held with the Christliche Jugenddorfwerk Dortmund, the Caritas Dortmund, an association for the promotion of disabled migrants, and the Social Association VdK Dortmund. DHPol further presented the project, the exercise and the CSAB within a network meeting

of various German CSOs related to Dortmund. Local refugee organisations and language schools were contacted to recruit people who understand the German language only to a limited extent or not at all.

In the end, two volunteers with a hearing impairment (Cochlea Implant wearers) could be recruited via the German Hearing Impairment Association (Deutscher Schwerhörigenbund). Through the Blind and Visually Impaired Association of Westphalia (Blinden- und Sehbehindertenverein Westfalen), two blind volunteers could be recruited for the exercise. In addition, the Arbeiterwohlfahrt (AWO) advised and supported DHPol in the recruitment of a wheelchair user and two volunteers with autism. Unfortunately, the volunteers with autism had to cancel their participation shortly before the exercise due to illness.

Several online meetings as well as an on-site meeting in Dortmund were held with the above-mentioned organisations to discuss the details of the exercise and how the recruitment process should be further managed to properly address the needs of the interested civilians.

To provide all interested civilians with an overview of the exercise, a recruitment website was set up. After consultation with the CSAB, the website was designed with an eye towards e-accessibility and provided in German and English (https://uic.org/events/do22). Interested civilians could send an initial email of interest to a dedicated registration email address hosted by. After a basic selection process, which considered, among other things, the distance to the exercise location, everyone received a registration email with the consent form (Appendix 9). Once the consent form was signed, the registration was completed with the official registration form (Appendix 13). The registration form was provided by FDDO and was uniform for all exercise guests. For more information on the detailed briefing of volunteers, see Chapter 6.4.3.

To increase the number of participants for the exercise, all contacted organisations were reminded several times by email and telephone. In addition, the contacted organisations were asked to spread the information within their networks. This principle was further adapted with the recruited volunteers.

Ultimately, PROACTIVE was successful in recruiting the number of volunteers agreed upon with FDDO. The target sample of 15% vulnerable volunteers was greatly surpassed as the final sample included close to 50% vulnerable volunteers (for final sample see Chapter 6.2.)

Responders

The selection of the responders involved in the exercise was FDDO's responsibility.

The Decontamination Unit of FDDO managed the direct command of the operation. Around 150 firefighters trained under this unit.

In addition to the Decontamination Unit, a PSNV Unit of FDDO was actively involved in the exercise. The PSNV Unit oversaw handling the actors of the DLRG, who simulated psychological stress behaviour (see next point). This included the identification of a suitable location on-site for their operations centre, as well as the removal of the actors from the Exercise Area and the subsequent psychological care outside the view of the operation. The unit also provided emergency support for PROACTIVE volunteers (see Chapter 7).

FDDO actors

To create a more realistic atmosphere in the Training Area and to train the PSNV Unit (see previous point), the DLRG provided ten members who simulated stress-related behaviour. These actors were not taken through decontamination alongside the volunteers but were handed over directly by the firefighters to the PSNV Unit and removed from the Exercise Area early in the exercise timeline. PROACTIVE was not involved in the recruitment, command, or handling of these actors.

5.3.3. Evaluators and observers

PROACTIVE invited third-party participants to attend the exercise as observers. The role of observer was also held by certain PROACTIVE consortium members. The eNOTICE consortium partners and guests at the exercise were also invited by PROACTIVE to fill in the Observer Guide. The evaluators, however, were part of the PROACTIVE organogram (Appendix 8).

Evaluators

Four PROACTIVE evaluators from UKHSA collected observational data relating to responder and volunteer behaviour within the Exercise Area (see Chapter 4.4.). The four evaluators did not speak German and thus observations are based on what evaluators could see, rather than on anything they could hear. All four evaluators were trained to the PhD level in psychology and have previous experience in collecting observational data.

In addition to the evaluators, three German-speaking PROACTIVE focus group Leaders conducted the focus groups. Prior to the exercise, the focus group leaders were trained by the responsible PROACTIVE partner UKHSA in how to run a focus group and were given the Focus Group Guide in advance so they could familiarise themselves with the questions and prompts.

Observers

Various CSAB members were invited as observers by UIC in cooperation with the CSAB responsible partner, UMU. The total number of observers was based on the agreed total number of PROACTIVE guests. This limitation resulted from regulations set by FDDO to minimise the number of guests at the ABZ in the context of the ongoing pandemic crisis.

Observers were expected to self-report based on what they were able to observe (see Chapter 4.4.). Furthermore, they were asked to provide first-hand experience with the PROACTIVE App used during the exercise. Consequently, observers performed two supplementary tasks:

1. To fill out the Observer Guide (see Chapter 4.4.3.)
2. To follow the App notifications and use the App (see Chapter 4.2.; Tactical Objectives 6-8)

In addition to 20 eNOTICE partners, 9 PROACTIVE members of the PROACTIVE CSAB and PSAB as well as PROACTIVE partners with a practitioner background were briefed as observers of the exercise. Of the 19 observers that completed the Observer Guide, three observers filled out the same guide in a joint agreement representing the DKR, 11 previously attended a CBRNe exercise and were therefore able to classify the exercise in comparison to similar exercises. In contrast, 8 observers provided observations without knowledge of previous exercises.

As seen in Table 3, the majority felt 'rather' to 'very' familiar with CBRNe incidents. However, this was not the case for the CSAB observers that indicated to be rather unfamiliar with the topic. Overall, an even distribution among different practitioner backgrounds could be ensured within the observer sample.

Table 3: Profile of observers of Dortmund Field Exercise that completed Observer Guide

Profile	Familiarity with CBRNe						Previous attendance of CBRNe exercise		Read PROACTIVE pre-incident material		Familiarization with PROACTIVE app				
	very familiar to very unfamiliar						Yes	No	Yes	No	very familiar to very unfamiliar				
Law enforcement agent	■						■		■			■			
Law enforcement agent	■						■		■			■			
Law enforcement agent	■						■		■			■			
Law enforcement agent			■					■		■				■	
Law enforcement agent	■							■	■			■			
Military member		■					■			■					■
Military member	■						■			■				■	
Military member/fire fighter	■					16 years as firefighter at chemical plant	■		■						■
Fire fighter	■						■		■			■			
Civil protection member		■					■		■					■	
Emergency medical responder	■					professional training as military medical doctor	■		■					■	
EEAB observers		■						■	■			■			
Training centre member for civilian multidisciplinary		■				mostly theoretical, courses, scenario discussions		■	■						■
Training centre member		■					■		■					■	
Academic research centre member		■				specific research		■	■					■	
Researcher		■					■			■					■
Civil society organisation member				■				■	■						■
Civil society organisation member		■						■		■					■
Civil society organisation member				■				■		■				■	

5.4. Role of PSAB and CSAB members/VIPs

The PSAB, CSAB and the PROACTIVE VIPs contributed in different activities to the success of the exercise.

- Relevant feedback on the presented exercise planning was received during the CSAB/PSAB Workshop in Paris in April 2022.
- The members provided valuable feedback after testing the PROACTIVE App before, during and after the exercise. The outcome eventually resulted in necessary adjustments to the system being programmed.
- During the identification of observers for the exercise, the CSAB and PSAB were used to invite potential candidates.
- As part of their observer role, members of the PSAB and CSAB as well as the two project reviewers as VIPs were asked to report on what they observed for the exercise analysis.
- Following the exercise, the two boards will support the project in disseminating the first lessons learned within their networks to inspire similar exercises, if applicable.
- Finally, the two VIPs provided an in-depth review of the project's performance during the exercise.

5.5. Use of PROACTIVE tools and SOPs

This chapter describes the use of the PROACTIVE tools used in the Dortmund exercise. The first is the PROACTIVE Pre-Incident Information. The other is the PROACTIVE App.

5.5.1. PROACTIVE pre-incident information material during the Dortmund exercise

The CBRNe Pre-Incident Information developed within PROACTIVE (see Chapter 4.3.1.) was used during the exercise in Dortmund (Appendix 6). As described earlier, the materials were translated into German to make them accessible to the volunteers of the exercise. The information was made available in two ways.

First, they were emailed to the volunteers as a Word document approximately two weeks before the exercise. This was to ensure that the volunteers had enough time to study the information in advance. The information was sent as a Word document to make it accessible to participants with vision loss (text to speech app).

In addition to the dissemination of the Pre-Incident Information via email, the information was also accessible via the PROACTIVE App (in both the English and German version). Whether the information was read before the exercise was queried via the pre-exercise questionnaire (Appendix 2) for volunteers as well as via the Observer Guide (Appendix 5). Using a six-point scale (Strongly disagree to Strongly agree), observers of the exercise were also able to indicate whether they thought the Pre-Incident Information was helpful to those involved in the exercise. The answer given

could be specified by a free text response. Volunteers were asked about several aspects of the Pre-Incident Information via the pre-exercise survey. For each question, participants had the opportunity to respond via a seven-point scale (Strongly disagree to Strongly agree). The same questions were included in the post-exercise survey (Appendix 3) for the volunteers to examine whether any changes occurred after the exercise regarding the volunteer statements. In addition, those involved in the decontamination were asked if they used the information during the exercise and if they talked to other volunteers about the information during the exercise. Moreover, via two free text responses, participants were able to indicate areas of improvement regarding the materials as well as provide an assessment of whether they think the information would be helpful if it were made available to the public prior to an exercise.

The results of the surveys as well as the results of the Observer Guide regarding the Pre-Incident Information are described in the final chapter (see Chapter 10) of this Deliverable. Based on the results, lessons learned are identified that will be incorporated into the further development of the Pre-Incident Information.

5.5.2. PROACTIVE web platform and mobile app during the Dortmund exercise

The PROACTIVE Web Platform and Mobile App (with a link to the app) was promoted in the email to the participants with the Pre-Incident Information (Word version). In addition, the app was advertised to the observers of the exercise via email in the run-up to the exercise. On the day of the exercise, the app was additionally promoted via QR codes on tables in the ABZ. Furthermore, the observers of the exercise received a QR code via the bag with the PROACTIVE logo. Following the live exercise, the observers were asked to complete the PROACTIVE Observer Guide (Appendix 5), part of which related specifically to the use of the Web Platform and Mobile App. The results provide a high-level summary of the feedback received and will guide the focus for the next round of development. The results will be presented in detail in Chapter 10.

6. ADMINISTRATION

The following chapter presents the administrative aspects of the exercise (roles and responsibilities, etc.). This also includes the final number of volunteers achieved for the exercise. Furthermore, the chapter contains the description of the registration process (Covid-19 tests, sign-up for the exercise, volunteer dress code check, etc.) in the context of the exercise as well as the description of the subsequent briefing of all involved participants in the exercise (briefing of the volunteers, briefing of the observers, briefing of the firefighters, etc.). Numerous procurements were made in the run-up to the exercise to ensure that the exercise ran smoothly. This process is also described in more detail below. The procurements also included identification items (e.g. wristbands) for the exercise participants. The various identification items are also described in detail. In addition, the following chapter provides an overview of the Exercise Area (map of the Exercise Area, restricted access areas, etc.). In a final point, the logistical aspects (transport, changing area for volunteers, handling of volunteers' personal belongings during decontamination, and catering and welfare) of the exercise will be presented in more detail. Transport includes the arrival and departure to the Exercise Area.

6.1. Command and control

The command team was established at an early stage of the planning process and was represented at all planning meetings held internally and externally. The planning meetings were chaired by the WP leader (CBRNE) except on the occasions that they were held in German when they were chaired by DHPol

Roles and responsibilities for the command team are shown in Appendices 8 and 9.

6.2. Administration of volunteers

The following chapter describes the final number of volunteers achieved for the exercise (age group, gender, vulnerability status, etc.).

6.2.1. Civil society volunteers

In total, PROACTIVE recruited and managed 18 civil society volunteers (see Table 4). The gender ratio comprised 5 men and 13 women ranging from the age 21 to 66. 44.4% of volunteers were in the age group 18-30, 27.8% in the age group 31-50, 22.2% in the age group 51-56 and 5.6% above the age of 65. The proportion of women was dominant in all vulnerability groups.

Following the recruitment process (see Chapter 5.3.2.), 12 volunteers, i.e. the majority, lived in Dortmund (see Table 5). 3 volunteers came from within a radius of fewer than 25 kilometres (Recklingshausen and Witten). One volunteer travelled from Münster, 55 km away and only two volunteers travelled 80 km (Emsdetten) or 100 km (Bielefeld) to the exercise location in Dortmund. The two volunteers who arrived from further away and thus had to arrive the day before due to the early start of the exercise with a meeting point at 6:30 am at the Dortmund Central Station (see timeline), were accommodated privately.

Table 4: Distribution of volunteer sample in Dortmund exercise according to age, gender, and vulnerabilities

Vulnerability	Age group	Gender	
		Male	**Female**
None known	**18-30**	3	5
None known	**31-50**	0	4
None known	**51-65**	2	3
Age	**65+**	0	1
Tourist			
Blind		0	2
Other visual impairment		0	2
Deaf		0	2
Wheelchair user		0	1
Other vulnerabilities		0	2
TOTAL		5 men	13 women
		18 participants	

6.2.2. Vulnerable groups and support associations

Of the 18 volunteers administered by PROACTIVE, more than 30% displayed a pronounced vulnerability regarding a CBRNe incident. One volunteer represented the age group 65+. Two volunteers required blind canes due to a long-term complete loss of vision while a further two volunteers indicated to be somehow visually impaired e.g. were severely dependent on glasses but not legally blind. Due to a hearing impairment two volunteers used cochlear implants. As part of the undressing process, those devices had to be removed, resulting in a complete loss of hearing. One volunteer was dependent on a wheelchair. No non-German speaking volunteer could be recruited.

However, during the exercise, it turned out that one volunteer is asthmatic and another volunteer experienced clinical anxiety when confronted with isolated situations where only men, are present as was the case during decontamination by firefighters. Even if the volunteers themselves did not consider this remarkable during the registration process, these two conditions can certainly be considered as special vulnerabilities to be addressed in CBRNe management, resulting in an overall 50% share of vulnerabilities in the total sample of volunteers.

To facilitate the engagement with the vulnerable volunteers, two carers of AWO were invited to not only observe the exercise as part of the CSAB observation team, but moreover to assist vulnerable volunteers and instruct the supporting PROACTIVE partners in their assistance tasks. During the decontamination exercise, the AWO especially helped with the re-robing process following the decontamination. To support the two blind volunteers as best as possible throughout the day with the multitude of tasks, a PROACTIVE partner was specially assigned to serve as a carer. For more details on human rights, see Chapter 9.

Table 5: Volunteers of Dortmund exercise by volunteer number, gender, age, category, and residence

No	Title	Age	Category	Residence
009	Ms	58	Blind	Witten
018	Ms	40	Blind	Witten
022	Ms	23	Other visual impairment	Dortmund
025	Ms	66	Other visual impairment/Age	Dortmund
017	Ms	56	Deaf (CI wearer)	Dortmund
021	Ms	52	Deaf (CI wearer)	Recklinghausen
007	Ms	34	Wheelchair user	Dortmund
004	Ms	23	Anxiety disorder	Dortmund
011	Ms	28	Asthma	Münster
013	Mr	27	No known vulnerability	Bielefeld
010	Mr	21	No known vulnerability	Dortmund
012	Ms	23	No known vulnerability	Dortmund
005	Ms	28	No known vulnerability	Dortmund
006	Ms	44	No known vulnerability	Dortmund
020	Ms	49	No known vulnerability	Dortmund
003	Mr	55	No known vulnerability	Dortmund
008	Mr	57	No known vulnerability	Dortmund
016	Mr	24	No known vulnerability	Emsdetten

6.2.3. Success of recruitment strategies

Based on the applied recruitment strategy, the following strategies were successful (see Table 6):

- All attending vulnerable volunteers were recruited via CSOs, namely those directly involved in the recruitment process (see Chapter 5.3.2.). In addition, the contacted organisation Amnesty International Dortmund successfully forwarded the request to its network. This approach can be seen as a Lesson Learned to be adapted for further exercises involving vulnerable civilians.

- The internal network of partnering organisations proved to offer positive results. Two colleagues within the DHPol department were willing to participate as volunteers. In this context, specific attention could also be paid to invite only colleagues without relevant previous experience in the field of disaster management.

- Given the human and financial resources required for the newspaper announcements, one Lesson Learned from the exercise is that the target group that could be considered as volunteers for this exercise could not be recruited through this channel. As these are some of the largest newspapers in the vicinity of the exercise, a change to a different journal would not likely have led to different results.

- Instead, conversations with participants with unknown recruitment background (see Table below) revealed that the contact with many different sporting, social and political associations was most effective to recruit most volunteers.

Table 6: Volunteers of Dortmund exercise by recruitment channel

Category	Recruitment via
Other visual impairment	Amnesty International Dortmund
Wheelchair user	AWO
Blind	By BSVW
Blind	By BSVW
Deaf (CI wearer)	By DSB
Deaf (CI wearer)	By DSB
No known vulnerability	Colleague
No known vulnerability	Colleague
No known vulnerability	Newspaper "Wir in Dortmund"
No known vulnerability	SPD
No known vulnerability	SPD
No known vulnerability	TSC Eintracht Dortmund
Other visual impairment	Unknown
No known vulnerability	Unknown
No known vulnerability	Unknown
No known vulnerability	Unknown
No known vulnerability	Unknown
No known vulnerability	Unknown

6.2.4. Volunteer withdrawal

Unfortunately, nine volunteers cancelled their participation in the exercise (see Table 7). One volunteer had to withdraw due to other professional commitments. Three formerly interested people gave no explanation on why they were no longer willing to participate. However, two of the volunteers expressed irritation towards the many briefing and registration documents. Five candidates had to cancel last minute due to health issues. Like the final sample, the recruitment process addressed mainly civilians in the vicinity near Dortmund. Furthermore, the contact to CSOs and clubs showed the most results, especially in recruiting vulnerable civilians.

With these additional nine volunteers, the maximum number of about 30 volunteers would have been achieved. However, during the planning discussions with FDDO, it was temporarily undecided whether the DLRG actors would also have to be considered as part of the PROACTIVE volunteer sample. Furthermore, the exercise was reduced from two phases to one phase, which originally required a reduction in the number of volunteers (see Chapter 4.5.). Therefore, although the recruitment process was intensified in the weeks before the exercise, it was finally stopped. Despite this, Tactical Objective 1 was fulfilled (see Chapter 4.2.). Moreover, the exercise showed that the available sample was sufficient for the planned two hours of exercise set by FDDO.

Table 7: Registered volunteers that cancelled their participation in the exercise

No	Title	Age	Category	Residence	Recruitment via	Reason
1	Mr	47	No known vulnerability	Geilenkirchen	Newspaper "Wir in Dortmund"	job issue
2	Mr	36	No known vulnerability	Dortmund	Unknown	no explanation
3	Ms	58	No known vulnerability	Dortmund	Amnesty International Dortmund	no explanation
4	Ms	unknown	No known vulnerability	Dortmund	Relative of volunteer	no explanation
5	Mr	41	Autism	Dortmund	AWO	sick
6	Mr	40	Autism	Dortmund	AWO	sick
7	Mr	unknown	No known vulnerability	Bergkamen	DLRG	sick
8	Ms	32	No known vulnerability	Dortmund	Colleague	sick
9	Ms	38	No known vulnerability	Dortmund	Unknown	sick

6.3. Registration process

The registration process for those involved in the exercise contained several components. After conducting a Covid-19 rapid test, registration for the exercise could be carried out. For those involved in the decontamination, this was followed by the selection of second-hand clothes for them to wear so that FDDO could remove them prior to decontamination. The individual processes are examined in more detail below.

6.3.1. Covid-19 testing

PROACTIVE agreed to be responsible for the Covid-19 testing of the eNOTICE and PROACTIVE guests on the morning of the exercise. The guests included all partners, observers, VIPs, volunteers and commissioned third parties, namely the personnel of the catering company and the videographer team. FDDO took charge of their personnel, their Firefighter Units, their PSNV Units and the DLRG actors.

There are strict national regulations specifying by whom and in which way self-testing must be carried out. To monitor and carry out the testing in accordance with the rules, PROACTIVE commissioned the local association of the German Red Cross (DRK). The members of the DRK were confirmed as qualified by the responsible authorities, as they are paramedics with relevant experience. A test station was set up by the DRK in front of the registration point for the exercise. There, the participants of the exercise had to perform a Covid-19 rapid test under the supervision of the members of the DRK which recorded the results and gave access permission. The tests were also provided by the DRK (see Chapter 6.7.). After the test, the participants had to wait 15 minutes for their test result. If the test result was negative, the participants received a wristband that allowed them access to the Exercise Area. While waiting for the test result, participants could already register for the exercise.

In addition, FFP2 masks were distributed by the DRK. Since the fire department is a critical infrastructure, FFP2 masks were mandatory on the entire premise of the ABZ.

The Covid-19 testing identified one guest who tested positive. This researcher had to leave the site, not take part in the exercise, and visit a local health centre to confirm the diagnosis.

6.3.2. Attendance registration

At the registration point, three employees of PROACTIVE and FDDO controlled access to the Exercise Area.

The vaccination status of all PROACTIVE and eNOTICE guests was checked by FDDO as part of their responsibility as owner of the ABZ. The participants also had to sign the list of participants administered by FDDO. The FDDO team, the firefighters, the PSNV Unit and the DLRG actors were not part of the joint attendance registration process and handled solely by FDDO.

PROACTIVE took charge of the administration of the PROACTIVE and eNOTICE guests. In this context, DHPol handed out the PROACTIVE lanyards with the ID badges of all guests (see Chapter 6.3.3.), the organiser folders and tabards for PROACTIVE organisers, and the bags for observers and VIPs including the Observer Guide. Furthermore, PROACTIVE was responsible for handing out and collecting the signed PROACTIVE consent forms of the eNOTICE observers.

6.3.3. General dress code

As already discussed in Chapter 5.3., a variety of different participants took part in the exercise. To visually distinguish the roles, PROACTIVE and FDDO agreed that a dress code was applied which differentiated the following groups:

- PROACTIVE organisation members actively managing the exercise
- PROACTIVE and eNOTICE guests including the PSAB and CSAB observers and VIPs
- PROACTIVE volunteers that take part in the exercise
- Members of FDDO actively managing the exercise
- The Firefighter Units exercising
- Supporting third parties including the videographer team, the DRK and the catering company.

ID badges

A basic distinction between the management units was initially achieved through the name badges. PROACTIVE developed uniform PROACTIVE lanyards with badges in a uniform design for FDDO, eNOTICE and PROACTIVE guests including VIPs and observers. In addition to the name, the organisation and task were specified. FDDO agreed to print and prepare the name badges. They decided that different coloured printing papers would eventually facilitate the identification of the affiliation to one of the above groups.

Tabards

All PROACTIVE partners in active management function were provided with orange high-visibility waistcoats with the PROACTIVE logo on the back. The colour of the tabards was approved in advance by FDDO for this purpose. The tabards further facilitated identification when meeting the volunteers at the Dortmund Central Station (see Chapter 6.6.2.).

PROACTIVE partners who served as PSAB observers did not receive a separate tabard. However, the chosen 5 PSAB and CSAB observers who FDDO granted entrance to the Exercise Area throughout the exercise were given the PROACTIVE tabards as well to facilitate their identification by the exercising firefighter Units. All other observers had to remain in the Observation Room.

As a sub-unit of PROACTIVE, the videographer team also received tabards by PROACTIVE. These neon yellow high-visibility waistcoats were labelled with the word 'Video team' and allowed them to move freely around the site, including the restricted Exercise Area.

Wristbands

A red and yellow striped wristband identified all those guests who tested negative for Covid-19 (see Chapter 6.3.1.). The wristbands were introduced and handed out by the DRK. During registration, the volunteers also received a second waterproof wristband by PROACTIVE, which displayed the volunteer ID and enabled the subsequent allocation of the surveys and the personal bags. The volunteer ID consisted of a sequential numbering of all volunteers (e.g. 001, 002, 003, etc.). Only the partners of DHPol had access to the assignment between ID and registration data. In the evaluation of the exercise, this anonymised ID was also used to differentiate between volunteers. A small compartment inside the wristband contained two numbered cable ties needed for the property management (see Chapter 6.6.4.). They were labelled with the participant ID in advance of the exercise and stored within the wristbands until their use. The wristbands were the sole responsibility of PROACTIVE.

Uniform

Members of FDDO in active management positions wore their dress uniforms. This always made them recognisable as contact and hosts of the ABZ. Furthermore, members of the DRK, as those responsible for Covid-19 testing, wore their operational uniforms. Members of the catering team wore their white uniforms.

PPE

The Firefighter Units that actively participated in the exercise wore their PPE.

6.3.4. Volunteer dress-code check

As part of the registration process, all PROACTIVE volunteers were asked to attend the dress code check on the other side of the main gate. Two responsible PROACTIVE partners, including a German-speaking partner, instructed the volunteers on how to proceed. Besides handing out wristbands, the volunteers also received old clothes from Caritas. Equipped with these clothes, the volunteers were led to Changing Tents where they could disrobe. To protect their dignity, it was pointed out several times during the recruitment process that volunteers were only allowed to take

part in the exercise if they were wearing swimming clothes underneath. After changing, it was therefore checked that the volunteers were wearing their swimming clothes underneath and Caritas clothes on top. Caritas jackets and freshly procured swimming clothes in different sizes were also part of the exercise dressing package. The personal clothing was sealed in large bags and marked with the personal ID on the wristband. The bags contained not only the personal clothes but also backpacks, if needed, and a fresh pair of underwear for after decontamination.

6.4. Briefing

To adequately prepare the large number of participants for the exercise and their roles, various briefings were held. These briefings differed according to the target group in briefings for:

- Joint PROACTIVE and FDDO responsibilities
- Exercise planning, management, and support roles
- Exercise players
- Evaluators and observers
- Responders

PROACTIVE was the main partner responsible for the briefing of the first four groups, whereas FDDO managed their Firefighter Units. The individual briefings took place in the weeks prior to the exercise as well as on the day of the exercise. Communication on PROACTIVE briefing details was channelled via a dedicated mail address of DHPol.

6.4.1. Joint PROACTIVE/FDDO briefing

In addition to several general planning meetings over more than a year, as well as special meetings on risk assessment and communication, three final joint meetings between the organising fire brigade and PROACTIVE took place in the week leading up to the exercise. At the final joint meeting on the day before the exercise, partners from all planning organisations were involved, including UIC as coordinator and communication leader, CBRNE as WP6 leader and risk manager, UKHSA as evaluator, Rinisoft as app coordinator, and the Ethics and Data Protection Supervisor (EDPS). In addition, FDDO's Decontamination Unit which carried out the exercise participated. Outstanding agreement gaps were closed, and the planning phase was declared complete. By then, all joint parties were briefed on their responsibilities within the exercise.

6.4.2. Briefing of exercise planning, management, and support team roles

The PROACTIVE partners were already asked in the spring which roles and responsibilities they would like to take on within the exercise if this had not already been determined by the PROACTIVE Grant Agreement. During the Progress Meeting in Paris on 5-7 April 2022, the distribution of responsibilities was finally confirmed by all partners and shared with FDDO for transparency purposes.

As part of the registration process, a month prior to the exercise, all partners received an information package including a) an information sheet to facilitate travel arrangements (similar document for volunteers; Appendix 11), b) a Covid-19 information sheet that included all necessary information on important regulations in Germany and detailed instructions regarding the entrance to the ABZ (similar document for volunteers; Appendix 12), c) the registration form providing final details on the meeting points (similar document for volunteers; Appendix 13).

Half a month prior to the exercise, a logistic pack was provided that included a detailed map of the ABZ (Appendix 16) and a general program of the day (Appendix 15). A very detailed time schedule was shared a week prior to the exercise to become familiar with the individual processes (Appendix 17). Online meetings were held with task leaders and their supportive team members to discuss remaining questions if required.

In the week before the exercise, each task leader and the subsequent supportive partners also received a detailed individual briefing by email with all the necessary documents related to the task to familiarise themselves even more with their roles in advance. These documents were handed out in printed form in organiser folders during the registration process on the morning of the exercise to provide them with all necessary information throughout the day. The folders provided every partner with the detailed time schedule, a contact list of all PROACTIVE partners including the mobile numbers, the map of the ABZ and dedicated process maps and flowcharts. Depending on the respective tasks, further documents were attached e.g. interview lists, templates of consent forms, etc.

The use of organiser folders also made it possible to replace a partner who was no longer available on the day of the exercise and to promptly equip and brief their replacement with all the necessary documents the evening before the exercise.

As part of the final joint planning meeting the day prior to the exercise, all relevant PROACTIVE task leaders received a final briefing by FDDO concerning the final time schedule and location of the Dressing Tents. As part of this, the commander of the Decontamination Unit conducted a dedicated walkthrough of the Exercise Area to resolve any last open questions and harmonise the PROACTIVE and FDDO activities within the restricted Training Area.

6.4.3. Briefing of exercise players

The recruitment of volunteers of the civil society was the sole responsibility of the PROACTIVE planning team (see Chapter 3.2.). For transparency purposes, the briefing of volunteers throughout the registration process was regularly shared and approved by FDDO.

The first briefings with potential volunteers started six months before the exercise at the beginning of December 2021. During this period, a close exchange was established with CSOs in and around Dortmund. These included the AWO Dortmund, the BSVW Dortmund and the DSB Dortmund. During several online meetings with those CSOs (see chapter Recruitment), both the exercise itself and the role of the volunteers were described and any questions that arose were answered. The CSOs were asked to search for potential candidates within their networks and already provide them with the information provided. Two of the participants later took part as volunteers themselves.

The recruitment website (https://uic.org/events/do22-english) also contained all the necessary information for a general briefing, addressing the following questions:

- What can I expect if I take part?
- What is observed?
- Am I eligible to participate?
- What do I have to consider before deciding to participate?
- Which are the risks involved in research?
- What is the Background of project PROACTIVE?
- How to register?
- How is Data protection handled?
- What do I do if I still have questions?

Interested participants then received a briefing package by mid-April available in German and English. The provided briefing documents (Appendix 11) covered the topics:

- Registration (how to proceed, deadline, etc.)
- Basic timeline (Meeting points, expected start and end of the day)
- Regulation concerning Covid-19
- Arrival formalities including a basic map of the ABZ
- A reminder of the dress-code for volunteers

As part of the briefing package, a more detailed Covid-19 information sheet like the one for partners was provided that helped determine whether a potential participant was eligible to enter the ABZ based on the national regulations and those set by FDDO as critical infrastructure (Appendix 12). Furthermore, the consent form was attached to the briefing package, which also briefly recapped the context and purpose of the exercise (Appendix 14). After receiving the signed consent form, all volunteers received the official registration form, which was based on FDDO's template and repeated the most important information such as location, date, time, and important meeting points (Appendix 13). Furthermore, an information sheet reiterated some of the information from the registration website and further elaborated on aspects of data protection and ethical standards set for the exercise (Appendix 10):

- Background and aims of the research activity?
- Why is this research being conducted?

- Why have I been invited to take part?
- Do I have to take part?
- What will happen to me if I take part in the research?
- Will I be photographed / filmed?
- Are there any potential risks in taking part?
- Are there any benefits in taking part?
- What happens to the data provided?
- Will the research be published?
- Who has reviewed this study?
- Whom do I contact if I have a concern about the study or wish to complain?
- How is data protection handled?

In addition, the previously introduced logistic pack was provided that briefed on the location and gave an overview of the main flow of activities concerning volunteers.

Up to this point, all volunteers were encouraged to contact the DHPol planning team at any time with questions, which some volunteers also used to clarify individual questions in advance. Further online and physical meetings were also held with the CSOs involved to make the pre-briefing as comprehensive as possible, especially regarding vulnerable volunteers and their special needs.

On the Monday before the exercise, all volunteers were once again reminded of the dress code, given final details about the meeting points at Dortmund Central Station and ABZ and provided with an emergency mobile number in case of any inquiries on the morning of the exercise. In addition, all volunteers received the pre-incident materials developed by UKHSA, as well as information about the PROACTIVE App.

Building on this intensive previous briefing and in view of the tight time frame set by FDDO for a physical briefing on-site, it was possible on the day of the exercise to briefly recap on the most important points, but essentially to concentrate on the aspects of safety on-site. The briefing was conducted in German by the PROACTIVE exercise director in cooperation with FDDO in the Briefing Rooms of the ABZ right before the start of the exercise. Amongst other things, volunteers were instructed to always follow FDDOs instructions, to not walk around unattended, and briefed about the emergency procedures in place including the codeword for real life incidents (see Chapter 7.4. and 7.5.). Furthermore, the availability of a PNSV Unit if required was introduced. Besides, the most important elements on ethics and data protection were recapped once again alongside a contact of the PROACTIVE (Project Ethics officer) PEO. Following this, the Decontamination Unit of FDDO briefly introduced the important details of the exercise and what to expect during the following hours.

After the official briefing, all volunteers could address their last remaining questions before proceeding with the exercise.

Despite this comprehensive briefing, it had to be noted that out of 18 volunteers only one had read the pre-indicated materials in advance. In addition, one blind volunteer indicated to not know anything about the dress code and the possibility of damage to private clothes and thus the possible need for spare clothes. Although great care was taken to design all briefing information as accessible as possible (e.g. no pdf files, formatting of headings as such, etc.), it was pointed out that not all information was easy to access for blind volunteers and they required assistance with the registration form. This is to be seen as an important Lesson Learned and to be improved in the context of the next exercise based on the feedback received. Another Lesson Learned is the fact that a couple of volunteers withdrew their participation due to the scope of the information provided (see Chapter 6.2.4.). Other volunteers expressed the wish for a facilitated registration process as well. It is therefore important to find a balance between a comprehensive briefing and at the same time keeping the briefing for the exercise as simple as possible. The volunteers' behaviour can also be negatively influenced if too many details are briefed in advance. In this case, volunteers can become prepared in advance for the expected scenario instead of going into the exercise unbiased as desired.

The briefing of the DLRG actors was handled by FDDO.

6.4.4. Briefing of responders

FDDO was responsible for the general briefing of their firefighters and their PSNV Units. One day prior to the event, the commander of the Decontamination Unit and the PROACTIVE planning team discussed the last details of the decontamination exercise within the Exercise Area. Based on this, he further briefed his units accordingly for the next day. On the morning of the exercise, a similar approach was applied in which the PROACTIVE partners in charge of the evaluation and the handling of the dressing processes, received a final briefing and briefed the Firefighter Units on where to stand and how to work alongside each other in the restricted area. Once again, the briefing was handled with the commander who included relevant firefighters of his unit directly affected by those PROACTIVE processes. Part of this briefing was also an explanation of the dressing process, especially the handling of personal property.

6.4.5. Briefing of evaluators and observers

Since some observers of the exercise were members of the eNOTICE consortium, the briefing had to be designed in a joint approach among PROACTIVE and FDDO as host of the exercise. The briefing of the observers itself differed greatly in content depending on whether the observers came from the PROACTIVE consortium or as invited guests of the PROACTIVE CSAB or as guests of the joint project eNOTICE. For the consortium partners who also had the role of observer, the pre-exercise briefing was held internally alongside the PROACTIVE partners in active roles (see Briefing of exercise planning, management, and support team roles).

Invited CSAB members who confirmed their participation received the adapted briefing package for observers like the one for PROACTIVE partners that provided necessary information for their travel arrangements (similar document for volunteers; Appendix 11) and details regarding the national Covid-19 regulations and specifications set by FDDO (Appendix 12). Furthermore, the same logistic

pack was provided including the map of the ABZ (Appendix 16) and the expected program of the day for observers (Appendix 15). Besides the briefing material, all observers received the registration form providing final details on the meeting point (similar document for volunteers; Appendix 13). This approach was also followed for the VIP guests of PROACTIVE.

The day prior to the exercise, CBRNE held an initial briefing for the eNOTICE observers at the ABZ in the frame of the FDDO/eNOTICE briefing event in which the objectives of PROACTIVE were presented. FDDO managed a general briefing of their guests that did not address the observer activities as part of this event.

On the day of the exercise, all exercise observers received a final briefing in the Observation Room at the ABZ by the PROACTIVE coordinator UIC, the PROACTIVE exercise director and the planning team of FDDO including the responsible commander of the Decontamination Unit. As part of this briefing, PROACTIVE emphasised the topics safety, ethics, and data protection, including the request not to take photos of volunteers. As the responsible partner for observer liaison and coordinator of the PROACTIVE project, UIC introduced the observer tasks. This included the request to follow the App notifications and use the App as well as the request to fill out the Observer Guide. Further instructions were given on how to fulfil those requests.

During the registration phase, all observers and VIPs received a bag with the PROACTIVE logo, which allowed them to easily transport their observation materials around the exercise site. They contained the printed Observer Guide and the PROACTIVE App QR Code alongside the already known logistic pack including the map of the ABZ and the program of the day for observers, among other things. Furthermore, the eNOTICE observers received the consent form for observers.

In addition to the above listed materials, the PROACTIVE External Ethics Advisory Board (EEAB) observer further received information on the data flow (Appendix 28), a copy of the used consent forms for volunteers and observers (Appendix 9), information on the ethical supervision of activities including a summary of the ethics risk assessment (Appendix 27), information on the overall risk assessment (Appendix 20), and a copy of the used accident book (Appendix 23).

6.4.6. Briefing of third parties

To not only ensure the smooth process of the catering, the testing of the guests on Covid-19 and the visual recording of the exercise, but also the health, safety, and dignity of the PROACTIVE volunteers always, several briefings were held online with the third parties involved by PROACTIVE. Consequently, PROACTIVE was responsible for their briefing.

The testing process and the necessary procurements including one tent for the dressing process were discussed with the DRK in the context of simple telephone calls with the main responsible contact of the organisation. All attending members of the DRK were also briefed about all related information and processes concerning their task.

The same approach was adapted to the involved catering company. In this context, the company was briefed that there were some special needs that had to be considered (e.g. allergies to certain ingredients, diets such as vegetarianism, etc.) and instructed to indicate this on the buffet cards in English and German.

The videographer team was briefed by the DHPol planning team in an online meeting, during which all important details of the activity were discussed. Particular emphasis was placed on how to deal with the volunteers in terms of ethical standards, dignity, and data protection. Further short briefings by mail took place the weeks prior to the exercise under the involvement of the PROACTIVE partner responsible for media and dissemination. On the morning of the exercise, this partner further briefed the videographer team to provide them with the last details for the day including a time schedule for the interviews to take place and introduced the team to the responsible contact of FDDO.

6.5. Exercise Area

The following subsections describe the ABZ site in more detail. This also includes the description of areas with restricted access.

6.5.1. Maps

The ABZ comprised two separate parts: a) the main premises including the Training Rooms, Sanitary Facilities, a Canteen, and a Main Hall for vehicles (see Figure 5), b) the Exercise Area including an open training ground, different training facilities like a deep-water pit and a train wagon, a building for hot and cold training and various cars to train on (see Figure 6).

During the planning process, FDDO proposed to use the available facilities as follows:

The front of the Main Gate was dedicated to the registration and testing process. PROACTIVE later agreed to have the dress-code checkpoint at the opposite area of the gate. The area was also declared as the official emergency meeting point in case of a real-life incident.

The vehicle hall was assigned as the Catering Area for all guests of the ABZ.

Figure 5: Main premises of the FDDO Training Centre based on google maps

In the main building, FDDO offered the Sanitary Facilities on the lower and first floor for all guests. This included Sanitary Facilities with toilets and showers separate for men and women. An elevator was offered to support vulnerable volunteers in wheelchairs to access the first floor. On the first floor, FDDO assigned two rooms to PROACTIVE activities which could be divided in half via a movable wall to give access to four separate rooms if necessary. However, PROACTIVE dedicated the big room to be used for the observers, while the smaller room in the back of the building was used for all activities involving the volunteers. The reason for this was that the later Observation Room gave the observers the opportunity to get a view of the Exercise Area from above. At the same time, the volunteers were cut off from this area during the subsequent focus groups and were not influenced any further. The smaller room, which was used for the briefing of the volunteers, was later divided into two to give space for two focus groups running in parallel. Due to the timing, an IT room had to be flexibly occupied as well on the day of the exercise to be able to conduct all three focus groups at the same time. The large room remained in its original form throughout the day. In addition to the official Observation Room, guests could also use the canteen below, as well as the area in front. Later during the day, the video team set up their equipment in the canteen to conduct the interviews undisturbed from outer audio disruptions.

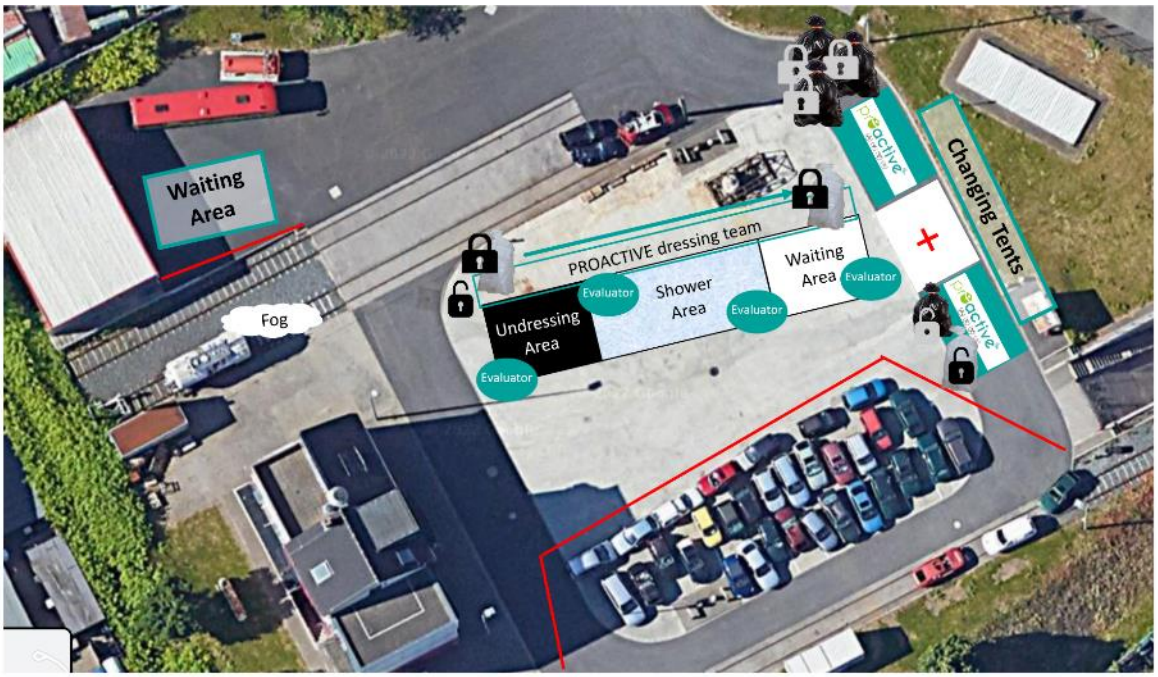


Figure 6: Training Area of the FDDO Training Centre based on google maps

Across the street, FDDO established the actual Training Area. To implement the defined scenario, a smaller hall was used in addition to the open space in the ABZ, which was designated as a simulated station hall where the volunteers had to wait for further instructions given by the responders. In addition, the freight wagon next to the hall was used as the cause of the accident. Unused or insecure areas were cordoned off (see Chapter 6.5.2. & 6.5.3.) The original plan was for PROACTIVE to erect more tents on the training ground. On the day before the exercise, these Re-robing Tents were merged with the previously planned Changing Tents in the hall. The location of the tents within the Exercise Area was also changed by FDDO, among other things since the cars were to remain on the site after all and were merely cordoned off. The set-up of the Decontamination Tents was communicated the day before the exercise during the final briefing. Based on the

discussions, it was jointly decided to move the PROACTIVE tents to the end of the decontamination set up. The change of tents had a direct impact on the handling of the whole dressing process (see Chapter 6.6.4.).

FDDO decided to erect the Decontamination Tents during the morning of the exercise. The Undressing Area was placed near the Waiting Area of the volunteers, followed by the Shower Area and the waiting area next to the Dressing Tents of PROACTIVE. The PROACTIVE dressing team was located alongside the Decontamination Tents to handle the personal property during the undressing process and hand out the bags in the Changing Tents. Since the volunteers had to change into spare clothes within the erected Decontamination Area, they could already get a first impression of the set up prior to the exercise. Their bags were secured next to the Changing Tents and surveyed until the start of the exercise and the subsequent handover.

During the exercise there were difficulties with the separation of facilities provided by FDDO and those provide by PROACTIVE for their own use. As part of this, the tents were temporarily used for other purposes by the PSNV Unit.

FDDO agreed to have four PROACTIVE evaluators located within the Decontamination Tents: One near the entrance, two within the tent and one at the exit of the tent. Furthermore, 5 observers were placed next to the entrance by FDDO within a fixed area. This location allowed them to get a small view into the undressing process. However, the position did not allow them to get an impression of the activities taking place inside. Due to the location, an exchange of observers during the exercise was not possible as to not interrupt the exercise.

6.5.2. Restricted areas and demarcation protocols

The risk assessment of the ABZ was handled by PROACTIVE and FDDO as a joint activity due to FDDOs expertise and sovereignty of the location. FDDO was responsible to demarcate restricted areas based on an extensive PROACTIVE risk assessment that had first taken place on-site in February 2022 and was continuously surveyed and updated over the upcoming month.

Prohibited areas on the day of the exercise were marked by FDDO with flutter tape. In principle, it was forbidden for unauthorised persons to enter the area of the immediate exercise (hot zone). Authorised persons included the responders, the volunteers, the four PROACTIVE evaluators, a fixed number of observers and four PROACTIVE organisers in charge of the handling of personal property and support during the dressing process.

6.5.3. Signage

DHPol created labels to indicate the location of key areas within the ABZ (Briefing Rooms, Focus Group Rooms, Sanitary Facilities, etc.). The labels included a simple written description that was supported by an icon of the respective location to facilitate the orientation of all guests.

6.6. Logistics

One area that was central to the success of the exercise was the logistical aspects associated with the exercise. For the exercise to run smoothly, it had to be ensured that everyone involved in the exercise arrived at the right place at a defined time (see Subchapter Transport). Likewise, for the

success of the exercise, it had to be ensured that there were sufficient Changing Areas for the volunteers involved in the decontamination (see Subchapter Changing Areas). In addition, the well-being of the volunteers was of central importance for the implementation of the exercise (see Subchapters Property Management and Welfare and catering). The mentioned areas are described in more detail in the following subchapters.

6.6.1. Site management

The site management was mainly the responsibility of FDDO.

6.6.2. Transport

PROACTIVE managed the transportation of their guests including the volunteers. To ensure that all participants of the exercise would be at the training site of FDDO in time on the day of the exercise, PROACTIVE organised a transport from the Dortmund Central Station to the ABZ. On the one hand, a PROACTIVE partner ensured that the partners of the PROACTIVE consortium as well as the observers and VIPs of the exercise (EEAB observer, External observers) reached the training site in time. For the tram ride, group tickets were obtained in advance by the project team of DHPol. On the other hand, further PROACTIVE partners were responsible for the transportation of volunteers. They were also met at the Central Station. The orange tabards with the PROACTIVE logo served as a distinctive mark of the PROACTIVE staff. Group tickets for the tram were also obtained in advance.

The volunteers were also asked in advance if they required assistance with their travel arrangements to and from the ABZ and if they needed a tram ticket. Some volunteers already held season tickets. The volunteers were also asked whether they wanted to meet at Dortmund Central Station and travel to the ABZ together with a PROACTIVE partner, or whether they wanted to travel directly to the ABZ on their own. In the second case, PROACTIVE had no direct responsibility for their travelling. However, PROACTIVE made sure that all volunteers were briefed on the fact that the parking facilities on the grounds of the ABZ were limited, so that only a few participants (e.g. catering company, video team) could be granted access to the grounds by car. PROACTIVE was responsible for collecting all parking requests while FDDO prepared parking permits in advance for this purpose.

For any emergencies and delays, an emergency number was provided in advance.

During the exercise, it was ensured that the volunteers were accompanied by PROACTIVE staff to the respective stations of the exercise (Catering Area, Briefing Rooms, Decontamination Area, Focus Group Rooms, etc.). PROACTIVE placed special emphasis on the care of the vulnerable participants in the exercise (assistance with catering, assistance in the tents with the change of clothes, etc.).

After the exercise, the previously procured group day tickets were handed out to the volunteers for their return to Dortmund Central Station. For two blind volunteers, PROACTIVE organised the transport back to their hometown Witten based on the request in their registration form. For this purpose, two designated PROACTIVE partners in charge of the transportation activities drove the volunteers back home.

For the attendance of two social events on Friday and Saturday evening, DHPol prepared an information document for all guests that offered the escort from the meeting point of Dortmund Central Station to the restaurants.

6.6.3. Changing Areas

To provide the volunteers with enough space on the day of the exercise to put on spare clothes before the exercise as well as to get dressed again after the exercise, three tents were obtained for the exercise (approximately 4 by 3 metres). In addition, a third tent was provided by DRK. The tents were equipped with seating (benches) for the participants and lightning if necessary. In addition, the participants had the opportunity to change in the main building next to the showers in the Sanitary Facilities of the ABZ.

6.6.4. Property management

The property management of the participants was the responsibility of PROACTIVE. As already described, the volunteers were instructed to change into spare clothes before the exercise following the registration process. The private clothes were stored in large bin bags with the assistance of the PROACTIVE dressing team. After sealing the bin bags using the wristbands (see Chapter 6.3.3. & 6.3.4.), PROACTIVE employees took the bin bags to the area behind the Decontamination Tents to ensure that the participants received their personal clothing again directly after decontamination. The bin bags were always supervised by PROACTIVE staff (Appendix 18). After the volunteers got their personal belongings back, they were allowed to break the seal on their own. In doing so, only the volunteers would be granted access to their belongings and could be reassured that nothing went missing (see Chapter 7.4.4. & 7.4.5.).

Other personal items (watches, wallets, glasses, canes for the blind, mobile phones, shoes, etc.) were kept by the volunteers until decontamination. PROACTIVE staff conducted a briefing with the firefighters on the morning of the exercise regarding the handling of these personal items (see Chapter 6.4.4.). As part of the decontamination process, appropriate personal items belonging to volunteers were again placed in small bags by the firefighters and sealed with the second labelled cable tie. PROACTIVE employees were responsible for bringing these bin bags behind the Decontamination Tents during the decontamination process, so that all volunteers would receive all their belongings at once after decontamination. The same was done with the items that were not placed into the bin bags. Those included fragile items such as glasses and hearing devices. For protection, PROACTIVE offered spare storing boxes if necessary to prevent any damage.

6.6.5. Catering and welfare

As part of its contribution to the exercise, PROACTIVE agreed to be responsible for the catering of all attending guests including the PROACTIVE, eNOTICE and FDDO guests and responders while FDDO offered to provide the necessary tables and benches.

Due to the early start time of the exercise, FDDO wished for a basic catering offering a simple breakfast, refreshments, and lunch. Therefore, PROACTIVE obtained three offers and decided to provide a breakfast buffet "standard” for 200 people, 50 vegan meals, 75 chicken based meals and 75 pork-based meals.

Besides a vegan/vegetarian option, allergies and intolerances like gluten-free options were also considered.

The day before the exercise, benches and beer tables for the catering were set up by members of PROACTIVE and FDDO. The catering company arrived in the early morning hours to allow the PROACTIVE and FDDO planning team to have breakfast before the arrival of the guests. The mealtimes of the individual participants were divided up as much as possible so that not too many guests were in the Catering Area at the same time and the catering went smoothly. After the firefighters and volunteers had left the ABZ, the organisers were able to sit down.

In addition to the catering of all guests, PROACTIVE was responsible to ensure the well-being of its guests, especially of the volunteers. A detailed risk assessment prior to the exercise as well as appropriate mitigation measures during the exercise day were applied (see Chapter 7.1., 7.2. & 7.3.). Contingency measures included the flexible adaptation to different weather conditions on the day of the exercise (rain protection, sunscreen, etc.) (see Chapter 7.5.). In addition, appropriate measures were taken to protect participants from cooling down after decontamination (towels, hair dryers, etc.). The participants also had the opportunity to take a warm shower after the exercise in the Sanitary Facilities within the main building of the ABZ.

FDDO was responsible for the medical welfare of all guests (see Chapter 7.4.). FDDO ensured that all participants had access to a medical first aid team and the PSNV Unit. Since the latter was already involved as responders and therefore had contact with the volunteers within the exercise, early stages of emergencies would be recognisable.

6.7. Procurements

To implement the exercise in Dortmund, numerous procurements were made by PROACTIVE in the run-up to the exercise to support FDDO in the overall planning and execution of the event. For this purpose, PROACTIVE had a budget of 25,000€.

A total of approximately €25,000 was spent on procurements for the exercise. The procurement process was started at an early stage, as a procurement App (with cost calculation and comparative offers) had to be submitted for each individual procurement item through DHPol's procurement office as part of the legislation. When planning such an exercise, therefore, consideration should be given to starting the procurement process at an early stage.

A large part of the mentioned budget was spent for the catering on the day of the exercise (see Chapter 6.6.5.), for the insurance (see Chapter 9.10.), and to produce a video (see Chapter 8.2.1.) about the exercise.

Prior to the exercise, two newspaper advertisements were placed as part of the participant acquisition process (see Chapter 5.3.2.). No other costs were incurred for processes taking place prior to the exercise.

For the exercise itself, minor costs were incurred in addition to the catering and the video production, covering items such as

- FFP2 masks, Disinfectants, Covid rapid tests kits, Sunscreen
- Spare clothes / second-hand clothes, Towels, Clothing bags

- Wristbands, Tabards / High viz jackets, ID cards / badges / lanyards
- Pens, Office items (paper, scissors etc)
- a 30-euro voucher for volunteers as a reward for their participation[4]
- recording equipment for use in the focus groups

As has already been mentioned, approximately €25,000 was spent on the procurements. It should be noted that no costs were incurred for the Training Area, the simulation of the incident, the equipment of FDDO, etc., as these costs were covered by the eNOTICE project and FDDO. Thus, when planning such an exercise alone, it must be considered that the costs for such an exercise must be set much higher.

Furthermore, to keep the costs low, local / regional connections on-site are advantageous. Thus, some procurement items (second-hand clothing, performance of Covid-19 rapid tests, tents, etc.) could be obtained free of charge through negotiations with the relevant organisations.

[4] DHPol procured the vouchers from the company "Querschenker" in Dortmund. The voucher can be redeemed in several stores, restaurants, etc. in Dortmund. 25% of the proceeds from the vouchers go to charitable projects. The purchase of the vouchers was previously clarified with the project officer of the project. An extra budget of €5,000 was available for the compensation of participants in the exercise.

7. RISK

The following Chapter describes the Risk Assessment for the Dortmund exercise as well as mitigation measures and contingency plans.

7.1. Risk assessment

The approach taken to the management of 'risk to' or 'arising from' the exercise was set out initially during the early planning for the Rieti exercise (Hale et al. 2020), which as described earlier was subsequently scheduled as the second exercise. This approach was subsequently developed into a plan for all the PROACTIVE Exercises (Hale et al. 2021).

The Plan set out the requirement to consider risks in two parts (Table 8):

Table 8: Risks to and from the Dortmund Field Exercises identified during the PROACTIVE Risk Assessment

Risk to What?	Risks from Where?	Comment
Risk to exercises	**From internal hazards / events or external hazards / events**	For the purpose of this exercise risks to exercises are those events (potential or actual) which could result in complete or partial failure of the exercise – i.e. cancellation or only partial fulfilment of its goals. Internal hazards are largely under the direct control of the project (arising from the site or the activities undertaken in the exercise) while external hazards are things like extreme weather and natural disasters which are largely outside of the control of the project.
Risk to others / participants	**From exercises**	Risks may arise as a result of the exercise itself– i.e. adverse events or potentials for adverse Events which would not exist in the absence of the exercise, or which could be exacerbated by the exercise (for example, the additional traffic associated with people travelling to the exercise site), or slips/trips/falls during the exercise. These will largely be under control of the exercise.

Risks were identified through several processes including brainstorming at planning meetings, walkthroughs, and review of previous experiences, but most of all through consultation and discussion.

7.2. Risk registers

Two formal Registers of the risk assessments were produced, an Exercise Risk Register (which covered 'Risk to Exercises' as described in Table 8) and a Health and Safety Risk Register to cover 'Risks to Others and Participants' as described in the same table[5].

[5] Ethical risks were also covered by a similar set of assessments as described in Appendix 27.

For the purposes of screening and prioritisation in the planning process, risks were categorised using a simple semi-quantitative process that assigned them as ‘High’, ‘Medium’ or ‘Low’ priority using the risk matrix shown in Figure 7.

		Impact		
		High	Medium	Low
Probability	High	High	High	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Low

Figure 7: PROACTIVE Risk Matrix of the Joint Dortmund Exercise

Extracts from each of the assessments are presented in Appendix 19, 20 & 21.

7.3. Mitigation

For each identified risk, the possibility of removing that risk completely was first considered (e.g. by change of approach or method) and then residual risks were addressed by appropriate mitigation measures. Example mitigation measures included provision of translators, provision of transport from the Dortmund Central Station to the site, provision of ID badges linked to property storage, detailed assessment of the chemical fog release (Hale 2022), escorting of volunteers, on-site Covid-19 testing, provision of rest and recovery areas and catering, site inspections and the provision of barriers.

7.4. Emergency procedures

An Exercise Day Contingency and Response Plan (Appendix 22) was developed that addressed potential emergencies and criminal activities on-site.

7.4.1. Evacuation plan

As the ABZ's authority, it was FDDO's responsibility to take care of the evacuation arrangements. Besides the structural labelling of escape routes within the closed parts of the building, FDDO also specified the emergency assembly point. It was determined for the roundabout at the end of the one-way street in front of the main gate and communicated to all guests during the briefing. In the event of an emergency, FDDO would have carried out the evacuation with the support of the PROACTIVE partners.

7.4.2. Fire

The same procedure as for an evacuation also applied in the event of a fire outbreak at the ABZ.

7.4.3. First aid

In case of any personal injury that required first aid or emergency support, PROACTIVE would contact FDDO for support and follow their guidance. FDDOs Firefighter Units are all first aid trained as a minimum. Additional emergency support was available at the site including an equipped ambulance car. If a volunteer required first aid, he or she was briefed to refer to the code word 'Real Real Real' and/or use hand signals. While FDDO was supposed to take care of the injured, PROACTIVE's responsibility was to document the incident using the developed Accident Book (Appendix 23). For further details on live incidents see Chapter 7.5.2.

7.4.4. Criminal activity

Great importance was given to the safety of all participants (see Chapter 9.). One item dealt specifically with the possibility of theft or other serious ethical issues. Potential situations to be avoided included theft of belongings, physical and/or sexual abuse as well as unauthorised photography, data breach and the like.

Any such instances were to be investigated fully and recorded. In the event of serious criminal incidents the Police were to be contacted immediately.

7.4.5. Damage of personal property

In the case of damage to personal property, a report including records of proof should be produced for the PROACTIVE insurance company that was involved for the exercise. In this case, the PROACTIVE partner CBRNE would be the intermediary party between the injured party and the insurance company (see Chapter 9.10.).

7.5. Contingencies

The Exercise Day Contingency and Response Plan (Appendix 22) covered different kinds of extreme weather, eventual live incidents, Covid-19, the absence of participants and communications failures.

7.5.1. Weather contingency plan

In the week prior to the exercise, the weather forecast was regularly checked to adapt the organisation of the exercise if necessary. The planning team created adaptation strategies for the following four events: considerable wind, heavy rain, cold and heat.

To address the issue of cold weather, spare coats of the Caritas were available to cover until the undressing process in front of the decontamination shower. The shower itself provided warm water. The Changing Tents could be equipped with small transportable heaters if necessary. In addition, Sanitary Facilities inside the ABZ included the option of a hot shower and hair drying. All briefing rooms could be heated.

In case of extreme heat, water was available for all volunteers outside and inside the Exercise Area. The PROACTIVE dressing team near the Changing Tents were instructed to hand out water bottles after volunteers left the decontamination. The Decontamination and Changing Tents further provided sun protection shelter. In addition, sun cream was procured.

7.5.2. Live incidents contingency plan

In case the Firefighter Units were suddenly alerted to a major incident in Dortmund on short notice, it was decided that PROACTIVE would not have the time and capacity to set up a decontamination exercise on its own. Instead, FDDO agreed that the upper Briefing Rooms of the ABZ could still be used to run a table-top exercise (TTX) instead.

For any live incident taking place during the exercise, FDDO defined the codeword 'Real Real Real'. In this case, the exercise would be stopped before a decision on management level would determine whether to continue or stop the exercise.

For any physical injury, a Paramedic Unit consisting of an ambulance team and an ambulance car would become involved (see Chapter 7.4.3.). To handle any psychological incidents, the PSNV Unit of FDDO would become involved.

While FDDO would be immediately informed to alert their respective units above, PROACTIVE would document the incident in an accident book for recording and insurance purposes (Appendix 26).

Ultimately, two minor incidents were recorded during the exercise in Dortmund (one volunteer experienced dizziness, another skin irritations). Following the contingency planning for live incidents, FDDO took care of the volunteers. Three days after the exercise, the participants were contacted again by PROACTIVE to make sure everything was okay. This was confirmed by the participants.

7.5.3. Covid-19 contingency plan

In face of the ongoing pandemic situation, the exercise had to be planned with an eye towards profound protective measures. In the weeks prior to the exercise the national Covid-19 regulations were constantly checked in regular exchange with FDDO. To ensure the highest possible protection, it was decided to apply the highest regulation standards. To prevent the spread of Covid-19 during the physical planning meetings on-site and during the exercise itself, all guests of FDDO had to be vaccinated thrice and tested negative before entering the ABZ. Furthermore, FFP2 masks had to be always worn where outdoor activities and sufficient air circulation indoors could not be ensured.

As a critical infrastructure, FDDO in cooperation with DHPol established a continuous set of written down regulations that were passed onwards to all PROACTIVE guests including the volunteers. It covered the accepted vaccines, the validity of booster injections and an explanation of the 3G system applied in Germany that regulates the approval of entering certain premises based on vaccination, recovery and testing status. On the day of the exercise the 2G+ rule was applied: All guests had to confirm a valid vaccination status. Furthermore, everyone had to undergo a rapid Covid-19 self-test.

Prior to the exercise, the handling of positive cases was discussed. Since none of the recruited vulnerable volunteers travelled unaccompanied by public transport, individuals testing positive twice would be kindly asked to leave the area and follow national quarantine rules. For PROACTIVE

partners in active management roles, an additional PCR test at a nearby test station was foreseen that could validate or negate the results of the rapid self-tests.

Disinfection and further basic hygiene measures were always guaranteed at the ABZ.

7.5.4. Participant absence contingency plan

No back-ups were in place for severe non-attendance on the exercise day due to limited registration numbers. However, there was a reasonable number of volunteers and a plan to recruit locally in the days beforehand if this event would seem likely to be a problem.

In case of participant absence due to Public Transport or infrastructure failure within Dortmund, PROACTIVE would have difficulty getting volunteers to the ABZ. As an alternative, the van of a project partner, who was assigned to the transport section, was prepared. In case of emergency, he could drive volunteers and partners from the Dortmund Central Station to the ABZ (see Chapter 6.6.2.). In addition, it was decided in consultation with FDDO that one of their minibuses could also be used if necessary.

7.5.5. Communications contingency plan

It was decided that the exercise is not critically dependent on the use of radios or other electronic devices. Instead, the use of direct verbal communication and human relays as well as the use of mobile phones, hand signals, code words and hand raising were considered sufficient given the manageable size of the ABZ.

8. COMMUNICATION

The following section describes all aspects of communication related to the exercise including internal and external communication prior, during and after the exercise.

8.1. Communication strategy

PROACTIVE put in place dedicated communication strategies for internal communication, external communication and media, protocols with exercise participants and communication about the project during the exercise.

8.1.1. Internal

During the exercise planning process, internal communication among the PROACTIVE planning team was based on regular online meetings that were set up in a flexible manner depending on the current need for discussion. Apart from the core planners of DHPol, CBRNE and UIC, additional partners in active roles were invited depending on the respective discussion. The PROACTIVE progress meetings served as a platform to present the current state of planning and engage in feedback discussions with all consortium members. For a clear communication strategy with FDDO it was decided that DHPol would be the main communicator due to language barriers. Joint meetings with the advanced planning team were held in English.

8.1.2. Protocols with exercise participants

Contact list

To always be able to contact the responsible organiser in charge of a certain activity, a detailed contact list was provided for all PROACTIVE partners beforehand and to all activity leaders in print form as part of the organiser folders. The contact list was shared with FDDO beforehand. In addition, DHPol used a contact list of all volunteers for any inquiry, especially regarding transportation issues on the morning of the exercise.

Safety code word / signs / indications

FDDO set the safety code word ‘Real Real Real’ to indicate real-life incidents (see Chapter 7.5.2.). The code was communicated by PROACTIVE as part of the briefing of all their partners, guests and volunteers. Signs were used to demarcate areas of risk (see Chapter 6.5.2.). For this purpose, FDDO used flagging tape. Facilities inside the building were indicated by labels with additional pictograms to facilitate orientation. Additionally, small labels were used by the catering company to indicate critical ingredients of the meals like nuts (see Chapter 6.6.5.).

Translation

Since only limited access to the Exercise Area was granted to the observers, an English narration of the exercise was performed by the commander of FDDO within the Observation Room who explained the processes taking place on-site. Using live streams that showed video and drone footage of the exercise on various screens, the narration allowed all observers to follow the exercise.

The handling of volunteers took place in German prior, during and after the exercise. Thus, DHPol communicated in German with all volunteers during the recruitment process to clarify even complex questions and contexts without a language barrier. For volunteers, the PROACTIVE planning team provided German translations of all documents. This was especially important concerning the consent forms. During the exercise, PROACTIVE made sure that a German speaking contact was available during all engagement activities including those involving volunteers. The surveys and focus groups were held in German as well to maximise the collection of data without any loss due to language barriers. Accordingly, the focus group leaders were all German speaking PROACTIVE consortium members who assisted with any translation issues throughout the day. Therefore, no external translation company was involved. Instead, a transcription company later translated the recorded audios of the focus groups into English for data analysis.

Since the catering included all English-speaking guests in addition to the volunteers, bilingual labels were offered. In all other areas of communication that affected all participants, neutral terms were used that could be found in both languages (signs with 'WC', code word 'Real, Real, Real').

8.1.3. Communication about the project during the exercise

Apart from members of the PROACTIVE consortium and its advisory board members, the project engaged with guests of the exercise that were unfamiliar with the project or only to a limited extent aware of its aims and objectives. Therefore, PROACTIVE aimed to communicate about the project prior and during the exercise as part of its communication activity in WP7.

To communicate the PROACTIVE project to all non-PROACTIVE guests of the exercise, an explanatory roll-up was placed in front of the canteen in which the PROACTIVE, FDDO and eNOTICE observers and VIPs were briefly welcomed. The roll-up was later used as a background for the interviews taking place. Furthermore, PROACTIVE dissemination material was put into the PROACTIVE CSAB and eNOTICE observer bags.

The toolkit ‘PROACTIVE App’ was communicated through various approaches:

- Introduction to the App as part of the volunteer briefing prior to the exercise (see Chapter 6.4.3.)
- Briefing on how to use the App as observers during their briefing at the day of the exercise (see Chapter 6.4.5.)
- Distribution of flyers with the QR Codes for Apple and Android including a brief information on the backside for all volunteers in German and for non-PROACTIVE consortium observers in English as part of the exercise bags (Appendix 25)
- Use of a poster with the QR Codes in the Observation Room
- Attachment of laminated QR Codes on all tables within the Catering Area

The toolkit 'pre-incident information material’ was introduced as part of the pre-exercise briefing of volunteers and further explained during the pre- and post-exercise surveys.

8.1.4. External communication & media

The CDP was developed jointly between PROACTIVE and FDDO and can be seen in Appendix 24. This strategy focused on communication and dissemination aspects towards external parties and the media. The plan established the ethical and legal obligations, relevant audiences, types of messages, tools for communication and types of communication channels used. In this section the development of the communication aspects is described.

In the first proposed draft of the CDP, PROACTIVE had requested to invite one trusted, third-party journalist of FDDO’s choosing to join the exercise and publish an article on it. FDDO does not allow journalists to be part of their training exercises. The issue of journalists discovering an ongoing training exercise is also why FDDO requested that communication about the exercise only occur once the event had passed. This resulted in an agreement to avoid any “live” social media posting, blogging, etc. and to wait until after the exercise occurred to send out the Press Release (which traditionally is sent out the morning of an event). It was agreed that PROACTIVE could communicate about the upcoming exercise at conferences and events but without divulging any specifics such as location or time of the exercise.

All PROACTIVE communication about the exercise took place post-exercise. A twitter thread was published[6] and a post on LinkedIn was posted[7]. While PROACTIVE followed the agreement about not posting on social media during the field exercise, project eNOTICE did post live. The different treatment of the projects regarding media use and contacts is something that should be made clearer

[6] https://twitter.com/PROACTIVE_EU/status/1524384761048928257

[7] https://www.linkedin.com/feed/update/urn:li:activity:6930164564365852673

in future exercises. The Press Release written by PROACTIVE was shared beforehand with the FDDO media team for approval. The Press Release was published on 19/05/2022[8].

Photographs taken on the day by a professional videographer team underwent a strict ethical review process before being published and are made available on the PROACTIVE website.

8.2. Dissemination

The CDP also laid out provisions for the dissemination of the results from the field exercise. PROACTIVE will use the results in both scientific publications and conferences/expos.

8.2.1. Filming/Recording

The hired professional videographer team was instructed to record film material to create two promotional videos based on the field exercise to be published on the PROACTIVE website and social media accounts. A new social media account on YouTube has been created for this purpose (Channel 'PROACTIVE EU Project'). As part of the promotional videos, PROACTIVE had planned the interviews according to Table 9.

However, on the day of the exercise, no eNOTICE partner wished to be interviewed and neither did a vulnerable volunteer. In total, 10 persons were interviewed. These interviews are included in the promotional videos and will also act as standalone dissemination materials. For dissemination purposes, the video will be presented online via the PROACTIVE YouTube channel that is linked to the project's homepage. In addition, FDDO will promote the exercise with the video during the world's leading trade fair for disaster management in June 2022: "INTERSCHUTZ offers the best opportunity for stakeholders to exchange ideas and solutions. At the same time, the [responder] organisations give visitors from all over the world an impression of their performance and the ever-growing challenges." (https://www.interschutz.de)

The raw footage is also being used for research purposes, which will then be part of the scientific outputs that the project disseminates. While it had been agreed that the videographer team could film into the Decontamination Tents for the purposes of research (and not for dissemination), on the day of the exercise the FDDO Media Manager did not allow for the PROACTIVE videographer team to film into the tents.

[8] https://uic.org/com/IMG/pdf/proactive_cp_5_en.pdf

Table 9: Interview plan for PROACTIVE film

When	Role	Interview Questions
Morning (before exercise start)	FDDO firefighter, Director	1. Could you please describe the scenario that FDDO is training? 2. What are the steps involved? 3. Why are such trainings important?
	eNOTICE Project Coordinator	1. How does an eNOTICE Joint Action work? 2. What are the advantages of doing a JA with PROACTIVE?
	PROACTIVE Coordinator	What proactive is about/hoped to achieve/synergy with eNOTICE
	PROACTIVE organiser	1. Can you please tell us about the volunteer recruitment? 2. What was your overall impression?
	PROACTIVE organiser	3. What were the PROACTIVE Exercise Objectives? 4. Why is it important to include vulnerable groups in training exercises? 5. Would you say we met our objectives?
	PROACTIVE Ethics	1. Please describe your role in the exercise 2. What were the values that PROACTIVE based the inclusion of vulnerable groups on? 3. How did you go about getting informed consent from the volunteers? 4. How did the exercise go today?
Afternoon (post exercise)	PROACTIVE LEA partner	1. What was your overall impression of the exercise? 2. How different was it compared to exercises without civilian volunteers (especially considering volunteers with vulnerabilities)? 3. What were some good practice examples you saw in the exercise that would be useful for your own organisation?
	PROACTIVE observer (civil society)	1. What was your overall impression of the exercise? 2. Do you feel better prepared for a CBRNe incident? 3. How effective were the first responders in managing the affected persons (volunteers), esp. re: persons w/vulnerabilities?
	eNOTICE observer	1. What was your overall impression of the exercise? 2. How does this joint action compare with previous eNOTICE exercises? 3. What were some good practice examples you saw in the exercise that would be useful for your own organisation?
	Firefighter	1. How different was this exercise compared to previous exercises? 2. What are the challenges and benefits of having civilian volunteers? 3. Do you feel better prepared now to manage vulnerable groups?
	Volunteer non-vulnerable	1. What was it like to partake in a disaster exercise as a role play victim? 2. What was your impression of the first responders? 3. Do you feel better prepared for a CBRNe incident?
	Volunteer vulnerable	1. What was it like to partake in a disaster exercise as a role play victim? 2. What was your impression of the first responders? 3. Do you feel better prepared for a CBRNe incident?

9. HUMAN RIGHTS, ETHICAL AND LEGAL ASPECTS

This section describes in detail all key elements considering the human rights, legal and ethical aspects of the exercise. The exercise was organised and executed in line with the principles set out in the European Convention on Human Rights and the Universal Declaration on Human Rights[9], embedding values such as the right to integrity, liberty and no discrimination. Moreover, the following principles in the Belmont Report[10] have been observed when carrying out research activities:

- **respect for people:** research subjects must be treated to protect their safety, respect their autonomy, and ensure their consent on an informed basis
- **beneficence:** possible benefits for the participants will be maximised while possible harm or risk will be minimised
- **justice:** any benefits and burdens derived from research must be balanced
- **competence:** the limitations and boundaries of the researchers' competence must be recognised and made explicit

9.1. Information sheet

An information sheet for participants in the decontamination and an information sheet for observers of the exercise was prepared (Appendix 10). Both information sheets informed the participants comprehensively about the PROACTIVE project (objectives, etc.) as well as about the exercise (exercise scenario, voluntariness, etc.). The information sheets also informed participants about Covid-19 regulations on the day of the exercise. Another part of the information sheet dealt with the data (audio recordings, film recordings, photo recordings, app usage data, etc.) that were collected from the participants during the exercise. The participants were given comprehensive information on how the data are handled (who has access to the data, storage, deletion of the data, use of the data, etc.). In addition, the participants were comprehensively informed about their data protection rights (right to data deletion, etc.). Another point of the information sheets dealt with possible risks, benefits and compensations in the research context.

9.2. Briefing on human rights, ethical and legal aspects

It was PROACTIVE's responsibility to ensure that all their guests were briefed sufficiently on human rights, ethical and legal aspects. Prior and during the exercise day, different briefings were held for everyone involved in the exercise (see Chapter 6.4.). In this context, human rights, ethics and data protection were stressed in several stages of the invitation and registration progress. During the briefing prior to the start of the exercise, the volunteers were reminded again about their rights as volunteers and about the ethical and personal data related aspects of the exercise. The focus was

[9] Full text at: https://www.un.org/en/about-us/universal-declaration-of-human-rights

[10] Full text at https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html

on the aspect of safety (do not walk around the site unaccompanied, what to do in case of an emergency situation, safety word to end the exercise immediately, etc.), ethics (participation is voluntary / can be terminated at any time) as well as data protection (data use, data protection rights, etc.). Everyone was given the opportunity to ask questions before the start of the exercise. The same recap approach was followed for the briefing of observers.

The third parties were briefed as well. A special focus was paid to the briefing of the videographer team as they were expected to film the volunteers during sensitive processes (e.g. undressing, showering, etc.). The most important ethical handling of volunteers has already been covered by the German legislation GDPR. PROACTIVE additionally briefed the team on what shots should be taken and what to be further considered. The videographer team was aware of what types of footage could be used only for dissemination and which could be used exclusively for research purposes (e.g. decontamination shower).

In addition, all PROACTIVE partners were briefed in advance on the sensitive handling of the volunteers and of the data collected. During this, the data flow was also presented several times to ensure that everyone knows what data they are allowed to collect, process, and disseminate.

In the joint planning meetings, FDDO was also briefed accordingly to ensure a joint approach. During these sessions, there were discrepancies concerning different operational aspects of the exercise, including the joint written agreement and differences concerning the prohibition for observers from taking pictures. Such discrepancies were solved by setting separate data management and volunteers' handling policies.

9.3. Informed Consent

To record the consent of all PROACTIVE guests, different informed consents were designed addressing different data subjects and data processing purposes. In total, three different consent forms had to be obtained:

- For all recruited volunteers
- For all observers that were not members of the PROACTIVE consortium but part of the CSAB or eNOTICE plus the VIPs
- For the invited third parties of PROACTIVE

In conjunction with the information sheets mentioned earlier, several online sessions (22nd of February, 4th of March, 19th of April) were held to develop the comprehensive consent forms for the first two groups (Appendix 9).

The consent forms for volunteers recapped the most important aspects already explained in detail within the information sheet (Appendix 10) and stressed the voluntary nature of participation as well as the possibility to withdraw participation at any time. In addition, the consent forms again referred to the data processing. With their confirmation, the consent to collect and use audio recordings, photo recordings and video recordings was obtained. A distinction was made between recordings for dissemination purposes and recordings for research purposes. Further consent was obtained to

use anonymised quotes from the focus groups conducted after the decontamination. Volunteers had the option to indicate that quotes should not be used.

The CSAB observers and VIPs received their consent forms prior to the exercise. Observers of the eNOTICE consortium were asked to sign the consent form on the morning of the exercise (see Chapter 6.3.2.).

The third parties signed a confidentiality agreement as part of their contract with DHPol that covered all relevant aspects of the consent forms. Members of the DRK additionally signed the consent form for volunteers as they were filmed by the videographer team in their activities.

In all cases, and following the GDPR, consent was broken down into all relevant data processing purposes (legitimate interest, research, communication and dissemination, training). This approach ensured that it was a specific, informed and unambiguous indication of the data subject's wishes. Moreover, such a level of detail fostered an explicit affirmative action and agreement to the processing of personal data.

Additionally, all interviewees which were not members of one of the above groups (chief commander of FDDO, etc.) had to verbally consent to their participation in the interview in the beginning of the recording session.

9.4. Dignity and respect

A core aspect of PROACTIVEs responsibility was to always ensure the dignity of and respect for the volunteers. In a joint agreement with FDDO it was decided that the volunteers had to wear swimming costumes underneath for the decontamination process.

Three Changing Tents were erected behind the Decontamination Area where volunteers could change into spare clothes during the morning and later change into their personal clean clothes immediately after decontamination. The number of tents ensured that no volunteers had to change together in one tent and guaranteed a secure private space. Only upon request, did the PROACTIVE dressing team assist with the dressing in the tents. Immediately after the decontamination, participants were given towels to dry off and cover until they were able to use one of the tents.

To ensure the volunteers' independence throughout the day, they were asked whether they would like any assistance and to what extent during the registration process. The assisting PROACTIVE organisers were instructed accordingly.

Moreover, FDDO offered the PSNV Unit for any perceived psychological inconvenience before, during and after decontamination.

To further protect the dignity of the participants, PROACTIVE instructed the videographer team not to take pictures of naked body parts that were traceable to an individual volunteer. Observers of the exercise were instructed to not take pictures or recordings of the exercise at all.

These comprehensive measures helped to protect the dignity of participants during the exercise.

9.5. Use of force

PROACTIVE was responsible for the handling of all volunteers outside the Exercise Area. During the exercise, the firefighters oversaw the undressing process and the subsequent handling of volunteers within the Decontamination Tents. Although they were briefed by FDDO following the joint planning process (see Chapter 6.4.4.), PROACTIVE had only a limited chance to interfere if the firefighters behaved unethically (based on the perception of PROACTIVE) or even used force to instruct volunteers.

For this purpose, all volunteers were briefed beforehand to express their concerns and set limits if necessary if they did not agree with any actions of the firefighters involving their direct treatment (see Chapter 6.4.3.).

Additionally, the evaluators were briefed to step in alongside the EDPS of PROACTIVE that accompanied the observers within the Exercise Area (see Chapter 6.4.5.).

9.6. Security

FDDO was responsible for the overall security of their ABZ. To prevent uninvited guests from becoming aware of the exercise and entering the premises, FDDO requested that during the recruitment process, the location should not be announced before registration. Furthermore, it was important for FDDO that the exercise should not be announced through their official communication channels, among other reasons to prevent creating unnecessary external awareness of the exercise in advance. The grounds of the ABZ, including the Exercise Area itself, were fenced off and thus closed to unwanted visitors. Since the ABZ is located at the end of a one-way street, the only access road could be easily controlled and secured if necessary. In view of this situation, there was no need for a dedicated security service to protect the premise from outside dangers.

Regarding internal security, the PROACTIVE planning team and FDDO developed procedures for dealing with live incidents and emergencies (see Chapters 7.4. & 7.5.). As part of this, risks on-site were identified as part of the risk assessment and subsequent mitigation process (see Chapters 7.1., 7.2. & 7.3.), marked as such and closed-off (see Chapter 6.5.2.). This particularly concerned potential tripping hazards, the cars and the two training pits within the Exercise Area and internal areas on the upper floor of the main building of the ABZ.

For the security of volunteers' personal belongings, see Chapter 6.6.4.

9.7. Data protection and GDPR

PROACTIVE video and audio recorded the exercise for research and dissemination purposes. Also, photographs were planned to be taken during the exercise. Following D8.3, the data management plan and the ethics protocol, data governance, requirements and protocols were established. According to this plan, DHPol and UIC acted as data controllers of personal data gathered during the exercise. UIC provided its Data Protection Officer (DPO) contact (dpo@uic.org) to coordinate the communication between data subjects, controllers and the DPO. Moreover, other actions were taken before the exercise, including contacting the DPO of DHPol (in February 2022), who confirmed that no authorisation or notification was required before the exercise from the State Data Protection Authority of North Rhine-Westphalia regarding the involvement of vulnerable groups in the exercise.

As part of these preparation actions, the types of personal data to be collected were classified in:

- Data necessary for the organisation and management of PROACTIVE exercise and other project activities such as name, surname, organisation, position, email addresses, signature

- Image, video, and voice (via photos and audio-visual recordings) and location (via the PROACTIVE App)

To ensure data security and proper coordination in the management of this data, a dataset template was developed and circulated among all partners that were going to collect personal data on-site. This template provided concrete information about data identification, partner roles in data management, and methodologies and standards applied to the processing. On this basis, responsible and specific measures were established for the following three different datasets:

- **Dataset A (Recruitment and logistics data):** The list of participants (volunteers, observers, VIPs) contains personal data of the participants (name, age, gender, place of residence, email address, vulnerabilities, food preferences, allergies, if applicable) for recruitment, research, and logistic purposes. The DHPol was planned to collect and access the data. In addition, FDDO planned to have access to personal data (such as names) of the participants, as FDDO was going to control access to the exercise site on the day of the exercise.

- **Dataset B (Photo, video, audio, and observational data):** Participants were photographed and videotaped during the exercise for research and dissemination and training purposes. Furthermore, audio recordings were made for research purposes. Observers of the exercise collected observational data during the exercise. After the exercise, participants were interviewed about their exercise experiences. UIC and UKHSA collected the data, UIC for dissemination and training purposes and UKHSA for research purposes. UIC and DHPol managed the hiring services of professional video/photographers (video-team) whose service description included the requirement to follow the GDPR rules. It was planned that CSAB members and PSAB members would have access to public video/photo materials.

- **Dataset C (PROACTIVE App):** PROACTIVE App usage data was planned to be collected during the exercise. Registration details for the PROACTIVE App (optional) – email address and password / IP Address collected using cookies. To save the password, Rinisoft used ASP.NET Identity, which hashes the passwords using PBKDF2. This allowed them to check that a password is an exact match while making it very difficult to recover the actual password.

The overall data life cycle and data management protocols for each of the above datasets (A, B and C) can be found in Appendix 28.

According to the stated plan and informed consent, the purposes of the processing included:

- **Management and organisation of PROACTIVE project activities** (e.g. information sharing, drafting of minutes, keeping of attendance list). This data will not be released outside the PROACTIVE consortium

- **The scientific research** purposes of assessing the PROACTIVE toolkit and testing its technical capabilities, as well as its compliance with legal requirements and social impact. All research data will be anonymised before any sharing outside the PROACTIVE consortium or publication

- **Dissemination and communication activities** (in printed and/or digital form to be published offline and/or online in various channels, e.g. print publications, websites, posters banners, social media, conferences, workshops.). This data will be released outside the PROACTIVE consortium under volunteers consent only

The legal basis for data collecting volunteers and other external participants' data for research, dissemination and communication purposes was their informed consent, following Article 7 GDPR. Moreover, personal data was collected for the drafting of minutes and information sharing among the PROACTIVE consortium based on the PROACTIVE Consortium Agreement and Grant Agreement. Processing is necessary for the performance of these contracts.

Among the above datasets, A and B included personal data and may contain special categories of personal data, which require special safeguards in its treatment (Article 9 of the GDPR). To ensure compliance with this data management and have more control over data flows, it was decided to restrict the use of mobile phones and cameras during the event. This was properly explained during the exercise briefing.

Personal data is not shared with third parties except for dissemination data (Dataset B), which following the above plan, was reviewed, and filtered by UIC with the support of ETICAS. This process included the contrasting of all consent required for each of the processing activities. In this regard, all volunteers provided consent regarding public images and videos. After finishing this process and based on consent only, videos and photos will be shared online, fully or partially, onto the PROACTIVE website and its social media accounts, so it is accessible to the general public worldwide. Regarding dataset A, DHPol is in charge of conducting its pseudonymisation before exchanging this information with any organisation outside PROACTIVE. Enisa and other guidelines for the implementation of robust pseudonymisation were shared with DHPol before the exercise.

Participants were informed about their rights (information, access, rectification, erasure, restriction, or withdrawal) and concerning all mentioned data management aspects. This includes the storage period. According to this, personal data will be securely stored and retained for as long as necessary. They will be kept for a maximum period of 5 years after the end of the project, namely until April 2027 at the latest, in the project' image and media bank, which is accessible to the PROACTIVE consortium members and will be safely deleted afterwards. Photos and videos uploaded on the PROACTIVE website and its social media accounts will be retained so long as the site and the social media account exist. Regarding data stored on the website, this will follow its 'Terms of Use' and 'Privacy Policy', but for a maximum period of 5 years after the end of the project and will be safely deleted afterwards.

Lastly, it should be noted that consent breaks down data processing purposes into 11 options so users could properly understand each data type collected by the project and provide affirmative approval or opt-out for each of them.

9.8. Ethics risk assessment

To support the planning process with an adequate ethical approach, an ethical risk assessment template was created, allowing the organising team to identify potential ethical issues associated with CBRN response tools and procedures and implement the control measures to minimise the risk. This is important because CBRN responses have traditionally been treated as primarily a technical and/or organisational challenge where technological advances were either generally understood as something positive or seen through a purely consequentialist ethical lens (that is: means and right secondary if the outcome is positive). However, CBRN response raises a wide range of issues touching upon the fields of disaster management ethics (e.g. individual liberty versus collective protection from cross-contamination), technology-related ethics (e.g. track & trace and privacy/data protection), research ethics (e.g. how to organise realistic exercises without violating rights of physical integrity), and others. The template consisted of a matrix: In the rows of the matrix, a catalogue of rights/norms is identified and categorised into five generic sections: fundamental rights, procedural rights, distributive rights, intergenerational issues, and informational rights. In the columns, questions of potentially arising/observed/undertaken ethical issues and their management in relation to the development of the exercise were listed (Appendix 27).

9.9. Ethics supervision

To provide ethical oversight during the PROACTIVE 1st Field exercise, the Ethics and Data Protection Supervisor (EDPS) was appointed. The role was fulfilled by the PROACTIVE PEO. The role of EDPS was to ensure the field exercise was carried out in a manner that was ethically compliant with the relevant legislation set out in Deliverable D8.1 and D8.3. The EDPS also carried out an on-site evaluation of ethical aspects of the exercise seeking to ensure, that:

- the Exercise was always carried out with respect for human dignity
- all proper authorisations had been obtained
- the exercise briefings had been carried out in accordance with recommendations
- volunteers had completed the consent form(s) as recommended
- relevant legislation had been complied with

The EDPS was supported by one External Ethics Advisory Board (EEAB) member. The EEAB member provided a consultative role for the exercise planning team.

During the day of the exercise, the EDPS and the member of the EEAB were supervising and evaluating the Dortmund field exercise as part of the Task 8.4 Ethical and Societal Assessment of PROACTIVE outputs. The supervising and the evaluation process followed the Ethical impact assessment framework established in Deliverable D8.1 (sections 3.4 and 3,5) and the associated ethical documents:

- PROACTIVE Ethics Impact Evaluation Framework
- PROACTIVE Ethics Risk Assessment Template

9.10. Insurance

The insurance for the PROACTIVE field exercise was organised by CBRNE Ltd via its insurance broker Aston Lark Limited. The company investigated the market availability and costs and advised the best insurer was Hiscox Underwriting Ltd, a well-established firm of underwriters authorised and regulated by the Financial Conduct Authority.

The cover was limited to:

- Property Damage at the venue to the limit of €20,000 which was split up as follows:
    - General Volunteer possessions excluding jewellery €15,000
    - Wheelchairs €5,000
    - The excess in both cases was €250
- Public Liability with a sum insured of €10,000,000 with an excess of €250
- Criminal Defence Costs of €100,000
- Pollution and Contamination Costs of €100,000

The process for identifying the level of insurance to be placed included interaction with the organisations acting for vulnerable people, specifically on this occasion for those who had hearing aids which included implants of a value of circa €50,000 each. To keep the cost of the insurance at a reasonable level it was agreed these implants would not be insured and the owners would take action to de-risk the situation. Similarly, the possible insurance of expensive electric wheelchairs was discussed but in the event this insurance cover was not needed as the wheelchair included in the exercise was a “manual” one.

CBRNE Ltd negotiated that the cover should be for the period 4th to the 8th of May 2022 to cover any claim that might arise during the preparation and clear up phases.

At the time of writing no insurance claim has been submitted or requested.

10. EXERCISE OUTCOMES

The following chapter describes the exercise outcomes based on the evaluation strategy applied (see Chapter 4.4.). It includes:

- the evaluation of first-hand experience of volunteers based on the pre- and post-exercise survey and the focus groups
- the evaluation of the exercise based on the evaluator's observations that explain some of the previous points raised by volunteers from a scientific perspective
- the evaluation of the expert observations based on the Observer Guides that provide general observations about the exercise
- the evaluation of the ethical observations provided by the PROACTIVE EEAB that addresses the ethical aspects of the exercise

Furthermore, the chapter presents final remarks of the other involved tripartite partners.

10.1. Data analysis

The quantitative questionnaire data was analysed using descriptive statistics and one sampled t-tests to explore perceptions of the pre-incident information, perceptions of responder communication, and the impact of vulnerabilities. Paired sample t-tests were then conducted to assess any differences in volunteers' perceptions, understanding, and identification from before to after the exercise. We then ran Linear regressions to identify predictors of compliance and a Pearsons correlation to assess relationships between variables.

The open-ended questionnaire responses, observational data (from evaluators), and focus groups were analysed using framework analysis, a qualitative thematic approach that is often used in research that has implications for policy (Pope et al. 2000; Ritchie & Spencer 1994). Five steps of framework analysis were conducted (Ritchie & Lewis 2003): familiarisation with the data; identifying initial codes relevant to the research; indexing broad themes; charting the data into an analytic framework; and defining and clarifying themes in relation to other themes. UKHSA conducted the analysis for the observational data and qualitative questionnaire responses as well as the analysis of the focus group data.

The observer data were analysed both quantitatively and qualitatively. The quantitative answers were given on a 6-point Likert-type scale (1: strongly disagree, 6: strongly agree). For these answers the average rating is reported (M=X.XX), and a higher average score represents a better performance. The content of the open answers provided by the observers were analysed and reported in a qualitative way. The focus was to understand why certain observers provided a lower rating and what were their suggestions for improvement.

10.2. Evaluation of first-hand experience of volunteers based on questionnaires

10.2.1. Quantitative analysis

Descriptive Statistics

In the pre-exercise questionnaire, seven volunteers (43.8%) reported that they had read the pre-incident information while nine volunteers (56.3%) reported that they had not read the pre-incident information. In the post-exercise questionnaire 6 volunteers (33.3%) reported that they discussed the pre-incident information with other volunteers during the exercise and 12 volunteers (66.7%) reported that they did not discuss the pre-incident information during the exercise. We ran a one-sample t-test to assess whether each pre-incident item was significantly different to the scale midpoint (see Table 10). The results showed that five items (willingness, comfort, efficacy, ability, and desire to seek further treatment) were significantly higher than the scale midpoint.

Therefore, volunteers who had read the pre-incident information indicated that they would be comfortable, willing, and able to take the actions in the pre-incident information and perceived the actions in the pre-incident information to be an effective way to decontaminate, though they would still want to seek further treatment. After the exercise, volunteers reported that their vulnerabilities impacted their interactions with first responders, that they had received sufficient practical information from responders, that they would comply during a real incident, that they perceived responder actions to be legitimate, and that they perceived responders to be competent.

In the post-exercise questionnaire, all 18 participants reported that they went through the decontamination shower. We used one-sample t-tests to examine whether the following variables were significantly higher than the scale-midpoint of 4: the two accessibility questions (accessibility impacted interactions with first responders; accessibility impacted ability to undergo the decontamination shower), responder communication, perceptions of practical information, identification with volunteers, identification with responders, expected compliance with responders' instructions, expected compliance with decontamination, perceptions of privacy, perceived responder legitimacy, and perceived responder competence. The results are shown in Table 10. The results showed that the following variables were significantly higher than the scale midpoint: impact of vulnerabilities on interactions, perceptions of practical information, identification with volunteers, expected compliance with responders, expected compliance with a decontamination shower in a real incident, perceived responder legitimacy, and perceived responder competence. Whereas the following variables were non-significantly different to the scale midpoint: impact of vulnerabilities on decontamination shower, responder communication, identification with responders, and perceptions of privacy.

Table 10: Comparisons between the Means and the Scale Midpoint

	M	SD	*T*	p	df	Cohen's d
If a real incident of this type were to occur, I think that taking the actions recommended in the pre-incident information sheet would be an effective way to remove a contaminant from my skin.	5.38	1.41	2.75	.014	7	0.98
If a real incident of this type were to occur, I would feel comfortable taking the actions recommended in the pre-incident information sheet.	5.38	1.19	3.27	.007	7	1.16
If a real incident of this type were to occur, I would feel embarrassed taking the actions recommended in the pre-incident information sheet.	3.63	2.50	0.42	.658	7	0.15
If a real incident of this type were to occur, I think I would find it easy to take the actions recommended in the pre-incident information sheet.	5.00	1.31	2.16	.034	7	0.76
If a real incident of this type were to occur, I would be willing to take the actions recommended in the pre-incident information sheet.	5.88	1.36	3.91	.003	7	1.38
If a real incident of this type were to occur, I would feel the need to seek further treatment after taking the actions recommended in the pre-incident information sheet.	5.88	1.36	3.91	.003	7	1.38
My disability/condition/vulnerability impacted my interaction with the first responders.	5.67	1.37	5.15	<.001	17	1.21
My disability/condition/vulnerability impacted my ability to undergo a decontamination shower.	3.94	2.58	0.09	.928	17	0.02
Perceptions of responder communication	4.22	1.87	0.48	.319	15	0.12
Perceptions of practical information	4.92	1.97	1.97	.033	17	0.47
Expected compliance with responder	6.29	0.92	10.27	<.001	16	2.50
Expected compliance with decontamination shower	6.76	0.56	20.37	<.001	16	4.92
Identification with volunteers	6.25	0.97	9.80	<.001	17	2.31
Identification with responders	4.00	2.01	0.00	.500	17	0.00
Perceptions of privacy	4.00	2.00	0.00	.500	16	0.00
Perceived responder legitimacy	5.78	1.52	4.97	<.001	17	1.17
Perceived responder competence	5.50	1.29	4.81	<.001	16	1.17

Difference Between Pre-Exercise and Post-Exercise

Paired samples t-tests were conducted to assess the impact of the exercise (pre-exercise vs. post-exercise) on the six pre-incident information items, participants' confidence and knowledge, perceived responder legitimacy, expectancy of help, helping others, identification with responders, and identification with volunteers. See Table 11 for the results.

The results showed that there were significant differences between pre-exercise and post-exercise questionnaires for confidence and knowledge, identification with responders, and marginal significance for perceived responder legitimacy. At post-exercise, volunteers reported significantly higher confidence and knowledge, significantly lower identification with responders, and marginally lower perceptions of responder legitimacy compared to pre-exercise. There were non-significant differences for all six pre-incident information items, expectancy of receiving help, helping others, and identification with volunteers. Therefore, the exercise increased confidence and knowledge of actions to take and reduced identification with responders and perceived responder legitimacy. The exercise did not impact perceptions of the pre-incident information, identification with volunteers, or expectancy of helping others or receiving help.

Table 11: Pre- and Post-exercise Questionnaires

	Pre-		Post-		*t*	df	*p*	Cohen's d
	M	SD	M	SD				
Confidence and Knowledge	2.82	1.66	4.09	1.91	3.80	16	.002	0.92
Perceived responder legitimacy	6.58	0.69	5.78	1.52	2.04	17	.057	0.48
Identification with responders	5.14	1.63	4.00	2.00	3.77	17	.002	0.89
Expectancy of receiving help	5.08	1.19	4.92	1.65	0.43	17	.671	0.10
Helping others	6.82	0.39	6.59	0.62	1.73	16	.104	0.42
Identification with volunteers	6.25	1.24	6.25	0.97	0.00	17	1.00	0.00

Predictors of Compliance

Two regressions assessed whether responder legitimacy, responder communication, practical information, and identification with responders predicted compliance with responders' instructions and compliance with decontamination, respectively. The results (see Table 12) for both models were non-significant showing that perceived responder competence, responder communication, practical information, and identification with responders did not predict expected compliance with responders or decontamination showers.

Table 12: Regression for Compliance

	Compliance 1		Compliance 2	
	B	95% CI	*β*	95% CI
Perceived responder Competence	0.09	(-0.44, 0.57)	-0.13	(-0.36, 0.24)
Responder Communication	0.23	(-0.45, 0.68)	0.33	(-0.24, 0.44)
Practical Information	0.01	(-0.49, 0.50)	-0.02	(-0.30, 0.29)
Identification with responders	0.05	(-0.33, 0.37)	0.17	(-0.16, 0.26)
Adjusted R2	-0.28		-0.17	
P	.910		.734	
F	0.24		0.50	

Correlation between Variables

To assess relationships between communication, identification, and compliance during the exercise a Pearson's correlation was run between confidence and knowledge, perceived responder legitimacy, expectancy of help, helping others during the exercise, identification with volunteers, identification with responders, anxiety, expected compliance, collective agency, perceptions of privacy, perceptions of responder communication, perceptions of practical information, perceived responder legitimacy, and emotional engagement. All variables were from the post-exercise questionnaire.

The findings showed (see Table 13) that expecting help from members of the public was positively correlated with helping others during the exercise but negatively correlated with anxiety. Perceived responder legitimacy was positively correlated with perceptions of privacy and confidence and knowledge.

Table 13: Correlation between Variables

Note. * $p < 0.05$ **p<0.01, ***p<0.001

	1	2	3	4	5	6	7	8	9	10	11	12
1. Confidence and Knowledge	-											
2. Perceived responder legitimacy	0.50*	-										
3. Helping others in the exercise	0.04	0.08	-									
4. Expectancy of help	0.41	0.20	0.66**	-								
5.Anxiety	-0.41	-0.35	-0.19	-0.63**	-							
6. Identification with volunteers	0.40	0.44	0.20	0.67**	-0.58*	-						
7.Identification with responders	0.74***	0.43	0.21	0.48*	-0.72**	0.35	-					
8.Expected compliance	-0.02	-0.21	0.04	0.44	0.37	0.36	0.20	-				
9. Perceptions of practical information	0.24	0.12	-0.13	0.06	0.25	-0.07	0.09	0.29	-			
10. Perceptions of responder communication	0.24	0.49	0.16	0.39	-0.18	0.27	0.45	0.36	0.69**	-		
11. Perceived responder competence	0.22	0.06	0.08	0.02	0.13	-0.11	0.19	0.15	0.20	0.17	-	
12. Collective agency	0.68**	0.55	0.10	0.45	-0.47	0.51*	0.61*	0.02	0.14	0.32	-0.29	-
13. Perceptions of privacy	0.23	0.59*	-0.20	-0.04	0.16	0.25	0.03	-0.14	0.36	0.59*	-0.22	0.48*

In terms of identity, identification with volunteers positively correlated with expectancy of help and collective agency but negatively correlated with anxiety. Identification with responders positively correlated with confidence and knowledge, expectancy of help, collective agency, and negatively correlated with anxiety. Additionally, collective agency positively correlated with perceptions of privacy.

Finally, in terms of communication, perceptions of practical information positively correlated with perceptions of responder communication.

Quantitative Summary

Volunteers reported high confidence, willingness, and ability to take the actions in the pre-incident information. Taking part in the exercise had no impact on perceptions of the pre-incident information but did increase volunteers' confidence and knowledge of actions to take. Taking part in the exercise also reduced volunteers' perceptions of responder legitimacy and identification with responders. Identification with other volunteers and responders was related to high expectancy of help from members of the public, higher collective agency, and lower anxiety. Last, perceptions of practical information were related to perceptions of responder communication.

10.2.2. Qualitative analysis

Accessibility

Volunteers were asked "please describe any ways in which accessibility impacted your ability to undergo a decontamination shower?" to which seven volunteers provided a response. The answers revolved around communication with the responder and impaired senses. Communication with responders impacted accessibility due to responders not providing information on what would be happening or vulnerabilities (e.g. hearing impairments) impacting communication with responders.

- 018: *"The fire department didn't explain to me what was happening. I had an uncertain feeling."*
- 021: *"Deafness. Communication with the emergency services was difficult - due to gas masks, etc. Mouth field not recognizable. Gestures / signs on the part of the emergency forces too little used. Not always clear instructions."*
- 017: *"I could not hear because I am deaf without my speech processors. In addition, I had limited sight because I had to take off my glasses. This made it very difficult for the helpers to make me understand what they expected of me."*

Other answers revolved around the impaired senses generally impacting accessibility during decontamination.

- 022: *"Decreased vision."*
- 016: *"I could hardly see. Had a headache."*

Levels of Anxiety

The next open-ended question focused on the underlying reason behind volunteers feeling anxious, stressed, or scared during the exercise ("If you felt anxious, stressed or scared during this exercise,

please describe what the main reason for this was") to which 10 volunteers answered. Volunteers reported they were scared because of the impact on their senses. For one volunteer this meant they did not know what was happening around them, while another volunteer reported having a panic attack because of eye irritation and a lack of explanation.

- 017: *"I was a bit unsettled by my impairment, as I couldn't see exactly or hear what was going on around me."*
- 011: *"I put myself in the situation of having a panic attack and was scared because my eyes were burning, and no one could tell me why."*

Another reason volunteers reported feeling anxious, scared, or stressed was due to the lack of communication by the first responders. Volunteers reported that a lack of information from the first responders led to discomfort, not knowing what to do, and feeling like no one cared.

- 005: *"The reason for my discomfort was the lack of communication from the emergency personnel at the point of communication."*
- 025: *"I was parked with another person and told to wait. Nothing happened for a very long time. No info. Nobody cared."*

Pre-incident information

Volunteers were asked if the pre-incident information would be useful to members of the public before an incident ("Do you think the pre-incident information would be helpful to the public if it was provided to people before this type of incident occurred?"). Nine volunteers answered, and all said that the pre-incident information would be helpful if provided prior to an incident. Five answered with just the word "Yes" and the other four said "Yes" and explained why. The reasons for why it would be helpful included knowing what to do in that situation and in case of a lack of communication from responders during an incident.

- 007: *"Yes, then they might know what to do in such a situation."*
- 005: *"Yes, definitely. If task forces continue to fail to communicate on-site, old information in advance would be helpful."*

Communication with responders

Volunteers were asked how communication from first responders could be improved. Nine volunteers responded with answers revolving around three areas for improvement: improved support for those with vulnerabilities, improved communication, and more information. Regarding vulnerabilities, it was reported that responders could have made adjustments to communicate with people with vulnerabilities better that included allocating one responder to a person with impairments for the whole exercise as each time the responder changed, they had to adjust to the volunteer's vulnerability.

- 017: "*The safety personnel could have written down what they wanted to say to me. One person should have been at my side - changing people had to adjust to my impairment each time."*

Second, improved communication was reported as an area for improvement. Volunteers stated it was difficult to hear the first responders with background noise, and that it was also difficult to accept what responders said as they appeared to not know what was going on.

- 025: *"Speak loudly and clearly. There is a lot of background noise + nervousness."*
- 011: *"It was difficult to understand the emergency services acoustically and to accept them, because even they did not know what was going on."*

Third, volunteers stated responders needed to give more information about what would happen and why this would be happening.

- 016: *"More talk about the process, what exactly happened. Give reasons for action, for example: Why weren't people helped at the beginning of the exercise when injured people were on the floor."*

Improvements to Decontamination Process

Volunteers were also asked about how responders could have better dealt with the decontamination process. Volunteers noted two areas for improvement: communication and general behaviour from first responders. Regarding communication, volunteers wanted better communication and more information from first responders.

- 022: *"Better communication."*
- 006: *"Better information (perhaps using a megaphone) at the beginning of the accident. After all, we were only held back by the firefighters and pushed into a corner. In the real case, a small disaster within the disaster."*

Regarding general behaviour, volunteers stated that first responders' behaviour could have been improved as they appeared uncertain. One way in which their behaviour could have been improved is through faster initial treatment.

- 005: *"The decontamination process was not the problem, but the behaviour of the rescue staff before the decontamination."*
- 016: *"More paramedics to provide care. Faster initial treatment of the injured at the beginning."*
- 012: *"Some seemed very uncertain about the exact procedure and had to ask more often."*

Compliance

In the final open-ended question, volunteers were asked "If you would not be willing to undergo a decontamination shower during a real incident or would not be willing to be naked inside the decontamination showers in a real incident, please explain why.". Volunteers reported two reasons for not wanting to undergo a decontamination shower: a lack of understanding and shame.

- 010: *"Lack of understanding of the process."*
- 007: *"There is a certain sense of shame."*

Qualitative Summary

A key finding that volunteers reported in most open-ended questions was that communication from responders could be improved. The poor responder communication led to accessibility issues and increased anxiety. Volunteers reported responders could improve communication by adapting to vulnerabilities (e.g. writing), explaining what would happen and why, and clear communication.

10.3. Evaluation of first-hand experience of volunteers based on focus groups

Initial analysis of the focus group transcripts revealed 5 main themes (accessibility; communication from responders; responders' attitude and behaviour; anxiety; exercise artificiality), and 6 sub-themes. Initial findings are summarised by theme and sub-theme, below; full results will be presented in PROACTIVE Deliverable D6.6.

Accessibility

Participants discussed aspects associated with accessibility of decontamination for members of vulnerable groups. There were three sub-themes: difficulties for members of vulnerable groups in undergoing decontamination; preparedness of emergency responders to manage members of vulnerable groups; and suggestions for improvements to accessibility.

Difficulties for vulnerable groups

Several participants expressed that they used sensory aids (e.g. glasses, hearing aids) and that after removing these they found it difficult to see and hear any communication from emergency responders e.g. "I took off my devices and couldn't hear anything, I was really deaf and that has made me unsure a bit because I didn't hear what they were talking, what they were doing. I had to take off my glasses too and I couldn't see so well" (FG2). Some also expressed concern about what would happen to any aids they used, once these were removed from them e.g. "In the beginning it was agreed that we will have to package our technology waterproof in a bag, but I have thought all the time, what would be done in a real case of emergency? […] To trust that we get technology back […] in a real emergency I would have feared for my technology (FG2).

Preparedness to manage vulnerable groups

Participants spent some time discussing their perceptions of responder preparedness to assist those with vulnerabilities. In most cases, these perceptions were negative e.g. "I told them clearly, I can't hear […] I had to take my glasses off too and put them in the bag and they couldn't deal with it. […] One of them tried to speak louder but I told him I am deaf, also when you speak louder, I won't understand". (FG2). At times participants expressed surprise and concern at the perceived lack of preparedness of emergency responders to manage members of vulnerable groups e.g. "None of the firefighters knew how to guide a blind person and that is shocking for me, honestly" (FG1), "I wanted to know what is going on […] I approached one of the firefighters and what was the worst part, all firefighters haven't offered their arm for guidance, like one should do it with blind people, and I think that people who work with people should know that, but no, all grabbed my arm and pushed me forward" (FG1). Some felt that although responders were not prepared to manage those with

vulnerabilities, they tried their best to assist e.g. “They tried their best and when I came to the tent, a blind person, but they didn't know how to deal with it” (FG1)

Suggestions for improvement

Participants made several suggestions for ways in which responders could improve the way they manage members of vulnerable groups. A key suggestion was to have one or two contacts who could lead someone through the decontamination process e.g. “if we had in the different areas a sort of contact person […] maybe one person should have the focus on one or two people, so that you have someone you could approach and ask” (FG1), “I think it would have been better, not only for the handicapped but for all, if the same person would have lead us through the complete process” (FG2). Relatedly, a suggestion was that information on vulnerabilities within the group should be shared amongst emergency responders e.g. “in regard to the handicapped persons, especially when the handicap isn't obvious, the information has to be transferred within the emergency forces” (FG3). Additionally, one participant suggested that responders should introduce themselves to participants e.g. “One introduced himself with his first name…that is maybe better. When you know the name, you have a different level” (FG1). Other suggestions included writing information and instructions down, or using hand signals e.g. “During the decontamination process one had the idea to write [the information] down, which was a great idea, but it only happened at the end. […] And the other tried hand signs, which was a good approach, but it wasn't clear what he meant. I would have wished that they had expected there is a deaf person and had developed ideas prior to the training about how to deal with it” (FG2). A general suggestion was for responders to receive further training on how to assist those with vulnerabilities e.g. “the firefighters need training for people with handicaps” (FG1), “or [training] with human beings in general” (FG1).

Communication from responders

Participants discussed several aspects relating to responder communication, and there were three sub-themes relating to communication: problems with communication; positive aspects of communication; and suggestions for improvement.

Problems with communication

Participants generally felt that communication from responders during the exercise was poor. This was especially the case at the initial incident site, prior to undergoing decontamination e.g. “In the beginning the firefighters arrived, took things out of their vehicles and for minutes there wasn't any information […] when someone tried to approach them, they made signals to go back, just go back, but there wasn't any communication” (FG1), “The communication in the beginning, in the dangerous situation [...] haven't existed somehow. About 4 metres away there was a person that was crowding us together with hand signals […] I was completely alone […] nobody came” (FG2), “The firefighters arrived and were blocking the site but there was no communication what was supposed to be done. Anything would have been helpful but there was no communication and if we approached them, there were only hand signs” (FG3). Participants reported that they wanted information, and asked for it, but this was not provided by emergency responders e.g. “I went to the emergency forces repeatedly and I understood that they have to block the location and so on, but I said, just give us information, someone has fainted and is on the ground, instruct me how to help this person” (FG2).

Some reported that communication improved once they got to the Decontamination Tents e.g. “in the shower it was okay. There was communication and I was told where the sponge goes […] in the beginning it was a catastrophe” (FG1). However, this was not the case for all. A particular problem at the Decontamination Tents was that it was difficult for participants to hear responders through their protective equipment e.g. “the problem with the communication started, because the problem gas mask, oxygen device, is he talking to me or not. As hearing impaired the situation was absolutely a problem” (FG2). While this was a particular problem for those who had vulnerabilities impacting their ability to communicate (e.g. hearing impairment), others also noted that even without such vulnerabilities, communication at this stage was challenging e.g. “Even me, as not hear-deprived person, couldn't understand the people behind their masks” (FG2).

Participants also explained why they felt that effective communication was important. A key reason given was that effective communication reduces stress and anxiety e.g. “people get hectic and stressed when they don't have information. If you explain it in the beginning nobody needs to be stressed” (FG2). One participant stated that they would have been afraid in a real incident as a direct result of the lack of information, and that this would have been easy to resolve e.g. “I would have been afraid as there was no information. If someone would have just said to cover your mouth with a cloth, I would have felt better because I knew that I could help myself” (FG2). Another emphasised that effective communication creates trust, and that responders failed to do that during the exercise e.g. “communication creates trust. They just arrived, pushed us to the side, encircled us as if we had done something wrong. […] But when communication occurs it creates a basis for trust. That we feel perceived as humans” (FG2). It was also noted that effective communication early in the incident could potentially prevent people from leaving the scene e.g. “When they arrive it takes some time until they set up a tent and I thought that someone with a megaphone [should] tell the people to stay put and you need decontamination. I thought that this information needs to be communicated [so that] everybody would have understood to not go home and stay in the area” (FG3).

Positive aspects of communication

While issues with communication were noted during decontamination (as described above), participants were generally more positive about communication at this stage. Participants highlighted that responders at this stage explained what they were doing e.g. “When I was in the shower I was explained very well, what they are doing, washing my face, asked me where I was mostly affected. The communication was very good” (FG3), “It was explained in detail, 30 seconds here and then you continue here, step-by-step, that was very good” (FG1). While some suggested improvements to communication at this stage, there was general agreement that communication at the Decontamination Unit was better than communication at the incident site. As well as describing what responders told them, participants were also positive about the way responders communicated e.g., “the firefighters always made eye contact with me, spoke clearly, at least to me, and that was very good” (FG2). One participant highlighted that positive communication built trust between those affected and emergency responders e.g. “in the shower it was top, washing and everything. The first one was very empathic, explained everything to me, he took the sponge, I looked him in the eye, and I trusted him” (FG2).

Suggestions for improvement

Participants made several suggestions for how communication could be improved. Participants wanted more information about what actions the responders were taking e.g. “I think for all of us, no matter whether blind or not handicapped, we would have had more certainty if they have told us we are here, please stay calm […] I think an announcement would have calmed down the situation and the people” (FG1), and what actions they could take to help themselves e.g. “in general, communication step-by-step, what is happening, what are we doing and why are we doing it” (FG1). Participants also suggested that they would have liked more practical information about how they should shower e.g. “I haven't showered like this before. I did it like I do it at home, but I don't know how it works in such a case. It would be sufficient if someone would say it is right what you are doing” (FG3).

Participants also made practical suggestions for how communication could be improved including how responders could make themselves heard e.g. “with the mask it was difficult to understand. Therefore, someone with a megaphone outside the dangerous area would have been useful” (FG1), and how communication could be made more accessible e.g. “if possible [communicate] in 20 different languages” (FG1).

Responders’ attitude and behaviour

Several participants expressed surprise at the way in which responders interacted with them during the exercise, feeling that responders should have been friendlier e.g. “the emergency forces who had pushed us together haven't been very friendly in general” (FG1), “I would have imagined the firefighters being friendlier” (FG1). Some participants felt that responders hadn’t taken care of them e.g. “in the emergency situation I didn't really felt taken care of. Somehow, I had the feeling that we were pushed into the corner more and more as they came closer” (FG2), or that responders had treated them aggressively e.g. “but there was just this aggressiveness […] It wasn't helping, it was like we did something wrong, and we were just encircled” (FG2). Some even went so far as to suggest they felt treated like the enemy e.g. “if a kind of a man from Mars is approaching you, shouting at you, you think why I am the enemy, I thought you are helping me” (FG2), or as if they weren’t human e.g. “they pushed us together and I didn't feel addressed as human being, as affected person, who might have an injury or fear” (FG2).

However, some participants did highlight instances of positive behaviour from emergency responders, particularly during the decontamination shower e.g. “during the shower I was hyperventilating, and, in that moment, I felt very well taken care of. There were always people around me” (FG2), “the firefighter who got me at the location of the accident was very empathic, he was a bit younger and friendly, he told me that they are here, they will help us, and nothing will happen to us” (FG2).

Participants explained that the negative way in which the responders treated them would have had an adverse impact on their behaviour had the exercise been a real incident. In particular, participants felt that had this been a real incident, the way in which responders managed the initial incident would have resulted in them leaving the scene e.g. “in the beginning I had trust in the emergency forces but when they arrived and nothing happened and nothing was told, I thought in a real situation this wouldn't have been great. I think I would have gone eventually to take a shower or something like this” (FG1), “we are the victims, and you could help us instead of shouting at us. Then we wouldn't

try to escape. It is done out of desperation because you have the feeling you can't do anything in this situation […] I thought, in a real emergency situation you wouldn't have been able to control it" (FG2).

Anxiety

Although it was only an exercise, and participants knew they weren't in danger, several participants experienced anxiety or stress at times during the exercise. This was particularly the case during the early phase of the incident e.g. "this crowding together made me really uncertain as there was no explanation and, in that moment, I got a bit nervous although it was just an exercise […] in this moment […] it was a bit like an enemy image. […] They haven't explained anything, and it felt threatening" (FG2). Some said that they felt less stressed during decontamination than during the initial stage of the incident e.g. "I felt more comfortable and better taken care of [during decontamination] than in the direct area of the emergency situation, where I was still in danger, and something could happen to me. […] I didn't feel good in this situation at all. We haven't had any information, we were only told to go into the corner, nobody paid attention to people who weren't doing well. I really felt more comfortable when I was naked than when I was still dressed" (FG2). However, this was not the case for everyone, with some saying they felt worried during decontamination e.g. "I was more unsettled than I am usually as my senses had been limited enormously and then the situation that we are standing there in a bikini or in a real situation we would be naked […] The situation was difficult" (FG2). One participant felt particularly concerned at the lack of female responders in the Decontamination Unit, and explained that this was uncomfortable for her e.g. "my problem was also that as a woman, you get from one man to the next in a room with only men […] Of course, they are firefighters but I was intimidated, although it was an exercise and we had to undress, you would be naked in front of men in protection gear […] for me personally it was disturbing that it was only men" (FG2).

Exercise artificiality

Participants highlighted certain ways in which the exercise was artificial compared to a real-life incident. The main comment was that participants felt responder behaviour wasn't as it would have been during a real incident e.g. "nobody was in a hurry. Would they be in a real emergency also so calm and relaxed?" (FG1), "I could feel that they knew it was an exercise and therefore they haven't been so empathic" (FG2), "I also think that reality was a bit lost as many firefighters were just standing around and were observers" (FG3). Some participants also felt that certain aspects of the exercise were unrealistic, including the resources available (i.e., number of firefighters) e.g. "the first situation was more realistic. There were more victims than emergency forces and later there were more emergency forces than victims" (FG2), and the exercise timings e.g. "the question is what would have happened if we had to start from zero? What would have happened then? Everything now was already prepared […] the second part was well-organised because it was already prepared" (FG2). Relatedly, some participants felt that responders had too much prior notice about the vulnerable groups who would be participating in the exercise e.g. "the breakfast was a bit strange, it should have been done after the exercise because they had already seen it and knew there is a blind person, a person in a wheelchair" (FG1), "what I would have wished for in the beginning was maybe not to bring together the participants and the emergency forces. Because then they knew there are blind participants and a wheelchair person" (FG3).

10.4. Evaluation of the exercise based on the evaluator's observations

Five main themes were identified from the observational data: description of exercise, volunteer to volunteer interaction, communication from responders, responder interactions with vulnerable individuals, and areas for improvement.

10.4.1. Description of Exercise

This theme compiles a description of events that took place during the exercise. Following the start of the exercise, shouting, and screaming could be heard from the site of the incident, where a white fog was released to stimulate the release of a contaminant. Volunteers waited at the incident site, to be led to the Decontamination Tents by a responder. Volunteers were often led to the Decontamination Tents in pairs, with one responder accompanying each volunteer. Another responder waited with the group of volunteers at the incident site. On arrival at the Decontamination Tents, each volunteer underwent disrobing. During the exercise, ambulant volunteers removed their own clothing over their heads with at least one-to-one guidance from responders. For non-ambulant volunteers, responders cut off their clothes and placed their clothes in bags that were then tied up. This was done with two responders to one volunteer, with one responder removing the top half of the volunteer's clothing and the other removing the bottom half of the volunteer's clothing.

Following disrobe, participants moved towards the decontamination showers. There were two lanes set up for the showering process: one for ambulant individuals and one for non-ambulant individuals.

The ambulant showering process involved two showers, with each volunteer using both showers one at a time. There was a maximum of one individual per shower at each time. The first shower involved: active showering, cleaning oneself with hands, turning, and receiving assistance from responders to sponge wash the front and back of legs. The second shower involved individuals self-washing their hair, turning, and typically having their back and legs washed by responders, followed by turning around again, spreading their arms, and being sponged down once more by the responder. All responders used the same sponges across all volunteers, with a rinse between uses. Responders appeared to be providing explanations between showers. A responder met each volunteer as they left the decontamination showers and provided them with a towel and slider shoes. There were approximately 10 responders in the re-robe area, and several of these responders did not appear to have an active role.

With regards to the non-ambulant shower, goggles were put on each volunteer, who was then put on a stretcher and pushed along a conveyor belt by responders. There were two responders and two showers, the responders talked to the volunteer and then at the same time both would shower down the volunteer and clean with a sponge. The responders then appeared to instruct the volunteers, before tipping them to the left side, where they were showered and sponged, and then tipping to the right side with the same process. When volunteers were tipped to the right side they held onto a handrail. The volunteer was then pushed out the shower on the stretcher, was lifted from the conveyor belt to a bench in re-robe by two responders, and then was towelled down by a responder. Four volunteers went through the non-ambulant shower on a stretcher, three appeared ambulant as they walked after being unclipped from the stretcher, one was non-ambulant and was a wheelchair user. In both showers, the same sponge was used for all volunteers and no detergent was used. In re-robing, all volunteers were asked questions and then were given a lanyard.

The time taken to complete the decontamination process from the start of the first shower to the end of the last shower was 34 minutes and 42 seconds. Times were also recorded for non-ambulant volunteers' decontamination shower: the second non-ambulant volunteer took 2 minutes 18 seconds, the third 2 minutes 41 seconds, and the fourth and last (non-ambulant) was 2 minutes 55 seconds. The last non-ambulant volunteer also waited 7 minutes and 41 seconds from being lifted onto the bench after the shower before being helped into their wheelchair.

10.4.2. Volunteer to volunteer interactions

At the incident site, volunteers who were waiting to be taken to the decontamination shower were stood in a group and talked to each other. Volunteers also provided other volunteers with support at the incident site. This included physical support, such as volunteers helping another volunteer on the ground, one volunteer's wheelchair being pushed by another volunteer, and a wheelchair user giving her wheelchair to another volunteer. Volunteers also provided emotional support to each other, including holding hands, hugging each other, and calling to responders for help for another volunteer. While waiting to go into the shower, volunteers talked and laughed with each other, and when in the shower, volunteers occasionally talked to each other. However, no volunteer-to-volunteer assistance was observed during showering. At re-robe, one volunteer attempted to reassure another volunteer by trying to put a hand on her shoulder, but she leaned away when touched.

10.4.3. Communication from Responders

One key theme was the communication from the responders to the volunteers during the field exercise. At the incident site, the firefighter that stood with the volunteers did not appear to communicate with them. The volunteers frequently approached responders whilst waiting at the initial incident site, but responders just held up their hands gesturing for volunteers to go back; communication at this stage therefore appeared to be very limited.

At dis-robing, responders appeared to guide volunteers on how to remove clothing. Furthermore, at dis-robing, there was at least one responder (up to three responders) to one volunteer. The responders appeared to be engaged and provided assistance, thus there were lots of responders to volunteer discussions and responders appeared to be joking and laughing with the volunteers. When dis-robing non-ambulant volunteers, responders appeared to display good engagement and communication. When non-ambulant volunteers were waiting to be moved to the decontamination shower there was always one responder with them. Towards the end of the exercise there was less engagement and assistance from responders. Some responders had walked through the shower to re-robing. At one point there was one responder to six ambulant volunteers and after volunteers had been dis-robed and were waiting for the showers there were nine responders in dis-robing with none of them interacting with the volunteers. In the ambulant shower, there were in-depth discussions between responders and volunteers that included hand movements and pointing; responders appeared to be outlining how to shower. Responders washing volunteers appeared to interact calmly and patiently.

In the non-ambulant shower, responders were in constant discussion with the volunteers. When there was a wait, this was communicated by responders, for example, one non-ambulant volunteer

had to wait for a second responder to become available so they could be lifted from the conveyor belt to the bench, the first responder kept communicating with the volunteer waiting to be lifted.

Overall, communication between responders and volunteers was very limited at the incident site, but responders appeared to be in continual communication with volunteers during disrobing and showering.

10.4.4. Responder Interactions with vulnerable individuals

Responders' behaviours towards vulnerable individuals are centred around three sub-themes: support, issues with support, and decontamination of mobility aids.

Support

Responders provided physical support to vulnerable individuals during the exercise. For example, a responder physically supported one of the blind volunteers to move away from the incident site. Furthermore, at the decontamination shower, multiple responders led the two blind volunteers to the ambulant showers first. Responders led these volunteers by hand through the decontamination showers and appeared to be communicating with them throughout. At re-robing, one volunteer appeared to be in distress sitting on the bench and one responder crouched down next to her holding her hand, appearing to be providing support. Another two responders stood around her while the first responder was holding her hand, then she was led out of the Disrobing Tent by the responder holding her hand.

Issues with Support

However, despite the provision of support, there were some issues with the assistance of vulnerable people. First, when responders led the blind volunteer through the ambulant shower she tripped over the ramp and started to appear distressed, possibly due to responders leading her too quickly. Indeed, both blind individuals appeared to tell the responders how to assist them in and out of the shower. Second, the first time the wheelchair user went through the decontamination shower, she was wheeled straight through, fully clothed and with the showers turned off. At re-robing she pretended to towel off, as if she was wet. The responders then took her through the non-ambulant shower properly, with her clothes off and the showers on.

Second, one volunteer was hesitant with the responder physically assisting her in the first shower. The volunteer reacted with lots of headshaking, but the responder appeared to give a lot of explanation and she then allowed the responder to sponge wash her. In the second shower, she did not allow the responder to touch her and was instead given the sponge to use herself. At dis-robing, another responder tried to place a lanyard over her head, but she resisted and kept standing back. The responder tried two more times to put the lanyard over the volunteer's head and then gave her the lanyard to put over her head. Additionally, during dis-robing, another responder tried to talk to the volunteer by touching her at which point she immediately leant away and then jumped further away from the responder. The responder then kept trying to get closer to the volunteer, as she continued to jump and step further away. This only stopped when the responder appeared to be told by another responder to stop trying to touch her. When being assessed in dis-robing, the responder got her to sit down by inviting her to sit down at a distance. Finally, before leaving dis-robing a responder tried to help her put on footwear by nearly touching her which caused her to move back.

Decontamination of Mobility Aids

It was also noted that the responders did not decontaminate vulnerable individuals' mobility aids. First, before the decontamination shower, a responder took away the sight stick from a vulnerable individual and this was not decontaminated. Second, the wheelchair was wheeled through last and was not decontaminated. These items were therefore returned to volunteers without having been decontaminated.

10.4.5. Areas for Improvement

The last theme revolves around notable areas for improvement that could aid the efficiency and effectiveness of the decontamination process. At the incident site, as volunteers were waiting to be taken to the Decontamination Tents, the responder could have advised volunteers to take protective actions. For example, outer layers of clothing could have been removed at the incident site. In addition, there could have been better management of the contaminated clothing. For ambulant volunteers, contaminated clothing was removed overhead rather than being cut off, and for both ambulant and non-ambulant volunteers contaminated clothes were placed into sealed bags, with the bags then left inside the tent. Another key area for improvement would be decontamination. The first decontamination improvement is to use different sponges to be used for different volunteers during showering, along with the use of detergent. The use of the same sponges for all volunteers is problematic because it results in the potential for cross-contamination. The second improvement to decontamination is to decontaminate vulnerable individual mobility aids such as wheelchairs and walking canes, these mobility aids were not decontaminated in the exercise and may also lead to cross-contamination. Finally, at both dis-robe and re-robe, queues were building up. At disrobe, volunteers had to wait to get into the shower, while at re-robe they had to wait to be assessed. Given that there were lots of responders present for the response, and that some did not appear to have an active role, these processes could be made faster and more efficient.

10.5. Evaluation of the PSAB and CSAB expert observations based on the Observer Guide

The following chapter describes the feedback from observers reported by 19 observers who filled in the Observer Guide (see Chapters 4.4.). Six observers were able to be on the exercise site, the others observed from distance and through the drone footage.

10.5.1. Feedback about the observation task

Feedback on observers' expectations towards the exercise (Q6)

In general, the exercise was in line with the observers' expectations (M=4.47), based on the pre-exercise briefing material and the previous exercise experiences. Most observers appreciated that the exercise was conducted according to the plan and that it was well prepared and organised. While some recurrent criticism included the lack of clear overview from the Observation Room (n=3), other observers (n=4) clearly appreciated the good overview of the land thanks to drone images and the possibility to interact with other experts in the Observation Room. The number of role-players was smaller than some observers expected but the diversity of role-players was a positive factor. Some lower ratings were explained by several problems identified in the actions of the firefighters: e.g. lack

of awareness or engagement of some first responders “who didn't take exercise seriously”, no attempt to deal with the release (water curtain or suppression), firefighters exposed to risks without respiratory protection, fire brigade already on scene and the Decontamination Tents installed before the incident. A cooperation between several responding services would have also been appreciated.

Report on the confidence of observing (Q7)

The self-reported level of observer confidence was high (M=4.94) suggesting an overall good reliability of the observations. The observers who provided a lower rating explained that this is because of the remote observation location where they could not see or hear all of what was going on. Three observers explicitly stated that it was impossible for them to provide clear answers to the questions because of this. Most observers explained their answers based on what they witnessed from the Observation Room.

10.5.2. Feedback about the decontamination exercise

Observation on the first responders’ management of volunteers (Q8)

Overall, the observers felt that the first responders managed the affected persons quite effectively (M=4.07). The good aspects involved:

- They appeared to have professional knowledge of the procedures
- They appeared to take steps to contain the situation and improve circumstances for victims
- The affected persons were gathered and led to the decontamination showers in an orderly manner and their reactions were monitored
- The sight impaired role-players appeared to be treated and managed well

However, a number of problems were raised by the observers in the way the responders managed the group of victims:

- No initial triage
- Time delays (n=3): e.g. “There was an initial delay in communication with the casualties”; “took a while to find a hidden person, which would be typical far from persons with mental disabilities”
- They didn't secure the perimeter effectively and one blind person was about to fall in the Platform Area (n=2)
- Immediate/improvised decontamination did not appear to be a consideration and therefore casualties were exposed to greater risks
- Victims were not treated with the necessary confidence and care (n=2). E.g. “did look like there was a responder per person when taking to decontamination but several were left on their own at the scene for a period of time - no one staying with the group of remaining casualties”

- The wheelchair user was left unattended for a period (n=2). E.g. “One of the victims, the person in wheelchair, was left among the last victims treated in the Decontamination Area though it was among the first to be taken from the disaster scene.”

- All casualties were exposed to the contaminant and undergoing decontamination there were cross-contamination risks at the point of extension between hot and warm zones

A set of five questions analysed more specific dimensions of the interaction between the first responders and the diverse group of victims. The rating of these specific elements was average, therefore indicating that there is plenty of room for improvement (Figure 8).

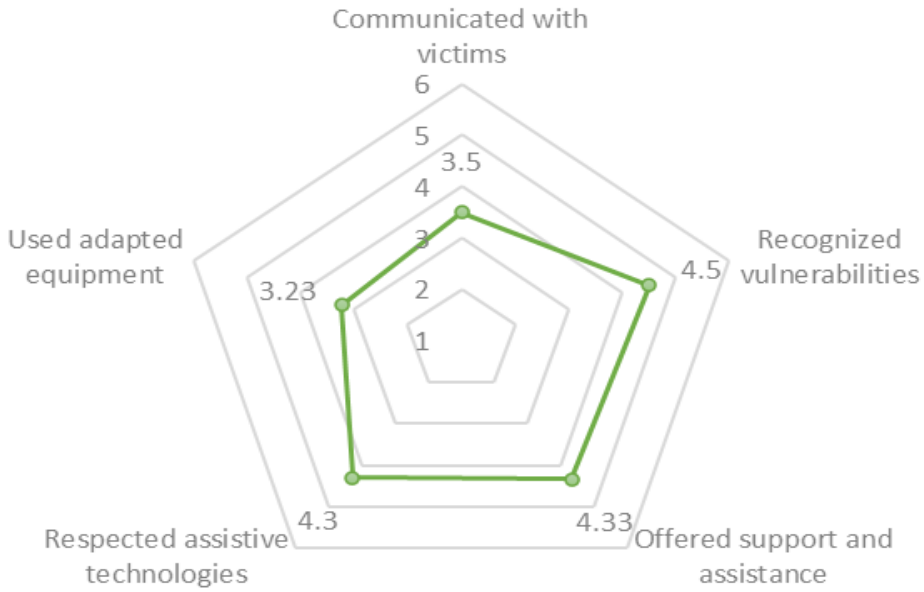


Figure 8: Five elements of the responder-victim interaction and their average observer score (1=lowest rating; 6=highest rating)

Observation on the first responders’ communication with volunteers (Q9)

The observers highlighted problems in the way first responders communicated with the affected persons (M=3.5). Most observers reported that they could not hear the communication due to the distance. The observers who were closer to the action, declared that: “first responders tried to communicate, but it wasn't so easy in the breathing apparatuses.”; “Sometimes it seemed the affected persons didn't know what was happening and what's going to happen next.”; “I thought the psychological support team managed some hysterical role-players efficiently.” One observer reported major communication flaws: “First responders were not giving proper instructions to victims, lacking confidence and without inspiring confidence. … Lack of coordination at the end of the decontamination process affected the victims because some left the area unattended, without knowing where to go to change or receive further assistance. … first responders are not prepared to communicate in this type of situation, not among themselves, not with victims: the incident involved the actors, "people in search of their relatives", which managed to breach the perimeter and even enter the Decontamination Area.”

Observations on treatment of volunteers during the CBRNe decontamination (Q19)

The treatment of affected persons by the first responders did not entirely reflect the civil society's expectations. The average rating (M=3.2) suggests that the CSAB observers would have expected to be treated better during a CBRNe incident involving decontamination. The observed problems refer mainly to better care and communication, for e.g. "Rescuers seemed a bit unsure about how to act, communication could be better."; "Not proper care for their situation"; "Not giving them enough information on each step of the process"; "Not inspiring confidence and safety"; "Leaving them unattended."

Observation on the first responders' efficiency in recognising vulnerable volunteers (Q10)

The first responders appeared to be relatively effective in recognizing vulnerable persons (M=4.5). One observer indicated that the obvious vulnerable people were recognized quickly e.g. wheelchair users / visually impaired, but the hidden disabilities were not easy to recognize. Another observer added that "Recognizing the vulnerable persons - especially the person with visible disabilities - might have been easy but treating them with care is a whole different thing. Towards the end of the exercise, when someone took charge of the end of the decontamination process, people with visible disabilities were taken to special designated areas for victims."

Observation on the first responders' efficiency in supporting and assisting vulnerable volunteers (Q11)

In general, the first responders appeared to be effective in supporting and assisting vulnerable people (M=4.33). However, a set of challenges were pointed out by some observers:

- In the first part of the exercise, "too many first responders were in the Decontamination Area" and "were not providing instructions where to take the victims".
- One of the visually impaired casualties was not escorted by the firefighters and was left to walk around with their assistant.

Further, some of the observers who were present on in the Exercise Area and closer to the involved responders and volunteers, reported two interaction-related issues:

- Discussion with the firemen revealed that there were slight problems in adapting the procedures to vulnerable people
- "Spoke to the blind woman and a woman in a wheelchair, both spoke about 'being handled' with not enough communication."

Observation on the first responders respect towards assistive technologies used by vulnerable volunteers (Q13)

First responders appeared to be respectful of the assistive technologies used by persons with vulnerabilities (M=4.3): “As far as I've seen, they were careful with the assistive tech used by the victims (the stick of the blind persons, the wheelchair). I couldn't see if first responders were as aware with the assistive tech of those with hearing impairments.” Someone else said: “I was aware the wheelchair user had their wheelchair returned. I could not tell whether it was decontaminated, or this was limited by the artificial factors of an exercise.” Another observer commented: “I was unable to see how the wheelchair was decontaminated to such an extent that it could be handed back to the casualty. This is the same for the visually impaired persons. I am aware that the risk was low as this was a vapour hazard but in other circumstances this would be a risk.”

Observation on the adaptation of the first responders’ equipment to vulnerable volunteers (Q14)

The least favourable evaluations concerned the equipment used by first responders which was not very adapted for persons with vulnerabilities (M=3.23). Several observers (n=4) noted that the firefighters used standard equipment, which is adapted for a CBRN environment, but did not notice any extras which would consider specific vulnerabilities. There was no additional support for the victims not walking. “The wheelchair person seemed to be a problem; parts of the wheelchair had to be searched afterwards.” Another observer noted: “The existing technology is not adapted for people with disabilities in a real situation, a person suffering from obesity would not be able to be decontaminated, as well as people in wheelchairs. Even if the Decontamination Area (showers) has a ramp for better using that space, it is not wide enough to accommodate the decontamination personnel and the victims in wheelchairs.”

10.5.3. Feedback about the PROACTIVE toolkits

Observation on the helpfulness of the PROACTIVE Pre-Incident Information material for volunteers (Q12)

There is no clear consensus among the observers about the PROACTIVE Pre-incident Information materials and whether they seemed to be of help for those affected (M=3.44). While some observers said that “the materials were easy to read, understandable”, others thought that “the pre-incident information was too long in description and should be more precise and easier to remember”. Another expert added: “I don't think the materials prepare them enough for what happens during the exercise.” Most observers agree that only by asking the volunteers, one can find out if the materials were useful for them.

Observation on the PROACTIVE Webpage and App (Q23-35)

Following the live exercise, the observers were asked to complete a questionnaire, part of which related specifically to the use of the Web Platform and Mobile App. The following results provide a high-level summary of the feedback received and will guide the focus for the next round of development.

Mobile App Usability Feedback

Table 14 summarises the results of the Feedback received for the Usability of the Mobile App. Overall, the App Usability averaged at 3.79 on a 6-point Likert-type scale, with the App being given 2.57 out of 5 stars.

Table 14: Qualitative Feedback of observer questions Q23-Q35)

Question	Number of Responses	Average Score	Qualitative Feedback
I felt confident using the app (Q23)	16	3.25	Registration issues, no time to understand the App and like social media
The app design is easy-to-use (Q24)	14	3.93	Simple to use, some technical issues (App crashed several times)
Most people would learn to use the PROACTIVE App quickly (Q25)	14	4.29	Simple to use, concern for the elderly, some technical issues (App crashed several times)
The app has effective accessibility features (Q26)	11	4.00	Suggestions to include Language flags and more symbols
The app respects my privacy (e.g. the privacy statement, GDPR obligations) (Q27)	12	4.58	As expected, suggestion to include details on privacy audit and compliance with some privacy standards
The amount of text displayed was appropriate (Q28)	12	4.33	Well balanced, some translation issues
The visualisations were appropriate (Q29)	11	4.18	Use of pdf files not appropriate, Map to include additional layers
The PROACTIVE App enhances the situation awareness of the population on CBRNe events (Q30)	13	3.85	Dependent on population acceptance, suggestion to be part of existing National processes and Apps.
I was confident that the incident information I saw on the app was the most recent update (Q31)	13	3.31	Technical Issues prevented this feature being tested
It was easy to find critical information about the incident (e.g. time, location, severity) (Q32)	13	3.38	Language options to be clearer, suggested App uses images for incident updates
I was able to find information resources/ materials on the topic of CBRNe (Q33)	12	4.50	Easy to find, clear and useful information. Use of pdfs advised.
I would use the PROACTIVE App in the case of a real CBRNe incident (Q34)	14	3.07	Yes, if linked to national processes and available in local languages
Based on today's experience, how many stars would you give the app, out of five? (Q35)	14	2.57	N/A

Mobile App Features Feedback

Table 15 summarises the results of the Feedback received for the features of the Mobile App. Overall, the Mobile App Features averaged at 4.10.

Table 15: Qualitative Feedback of observer questions Q36-Q39)

Question	Number of Responses	Average Score	Qualitative Feedback
In-app notifications (Q36)	12	3.92	Consensus live notifications are useful as an additional source to verify incidents. Must work flawlessly
Incident list (Q37)	11	3.73	Useful for multiple stakeholders, suggestion to focus on only live incident and possibility to categorise/filter incidents
Maps showing incidents (Q38)	12	4.50	Negates language barriers, would like to see perimeters for access and transport links
CBRNe Information Library (Q39)	12	4.25	Good feature, only for use outside incident

Conclusion of Feedback

The feedback received from the observers was limited, this may have been partly due to the time available and the priorities of the Dortmund exercise not focusing on the Mobile App as planned. The feedback received, despite the technical challenges, was constructive and when analysed with the feedback from previous workshops aligned with the consensus for improvements and new features as detailed here:

- Redesign of the App GUI (specifically the Home Page) to include three large buttons and less text
- Customizable localisation for Incidents. Enable the user to manually set a boundary around their location for notifications.
- Provision of public contact details (optional). Request the citizens to provide a contact number on registration. This would only be visible to the LEAs for the intention of quickly contacting a user should they report an incident where further information is needed. Ethical Implications to be reviewed.
- Statistics for LEAs; to be available monthly/annually for data analysis based on geographical parameters
    - Number of users registered
    - Number of incidents reported
    - Number of times a user downloaded the CBRNe information
    - Number of Push Notifications sent

- Heat Map for LEAs. A push notification is sent to LEAs if more than 10, 20, 30 people report an incident within a specified parameter. Would need to clarify single point of contact and how it works multi-agency
- Contact details of organisations/ points of interest via a map. Use already existing layers in google maps initially

10.5.4. Feedback about lessons learned

Observation on the realism of the exercise (Q15)

The unfolding of the exercise was generally perceived as realistic (M=4.81). Seven observers appreciated the realistic "exercise conditions" and the "realistic aspects in the design of the exercise". The introduction of role-players was very useful and contributed to the realism of the exercise. "Participation of volunteers made the exercise closer to a real-life situation." However, "it was a very difficult scenario with a compressed time and actions."

Two observers noted some artificial elements such as the absence of "other services". One observer noted that the "use of the time-line jump is common in exercises and the sequence of events seemed to play out in reasonably, realistic order." However, two observers severely criticised the "accelerated timelines" which needed to be clearer. "I believe the factor 'time' was heavily abused. In addition, the "decontamination set-up was false, and this would need to be communicated in advance."

Observation on good practice examples of the exercise (Q16)

The provided examples of good practice observed in the exercise revealed six core topics, which are illustrated in Table 16.

Table 16: Examples of good practice reported by the observers in the Dortmund exercise

Topic	Examples	Frequency
Organisation of the event	▪ Exercise planning ▪ Exercise organisation ▪ Information sharing ▪ Organisation of the event - itself; An ability to ask questions on-site after the scenario had finished ▪ The documents regarding the legal and ethical aspects of the exercise ▪ Good organisation for places and good role explanation ▪ Vest colour code ▪ Trained actors to create realistic behaviour environment	9
Involvement and treatment of civilian (and disabled volunteers)	▪ Participation of persons with real disabilities ▪ “Real" handicapped people ▪ Direct addressing of the limitation ▪ Specific help with different disabilities ▪ For the wheelchair solution was found	7
Drone footage	▪ Online view to exercise ▪ The drone video was very informative and helpful ▪ Drone usage to gain a full overall view of the situation ▪ Drones are effective to get an overall picture ▪ Drone overview to support incident command ▪ Effective use of live - feed video from drone ▪ Drone footage assisting location of a victim although not ideally communicated to the responders	6
Decontamination process	▪ Use of decontamination technology, not just simulator equipment ▪ Sufficient, properly equipped/ trained personnel ▪ Good layout of triage/ decontamination zones ▪ The initial operational response was efficient and effective although delayed ▪ The first casualty was rescued to decontamination lines within 9 minutes ▪ Once decontamination started it was quick and efficient: The single decontamination route with 2 channels (ambulatory and non-ambulatory) worked very quickly ▪ Division of affected persons in the decontamination showers forming two lines	5
Other response measures	▪ Medical skills of first responders, who are responsible for decontamination process ▪ One person fainted and a first responder quickly reacted and caught the person and helped immediately ▪ They found a woman hidden behind a container ▪ Looking for people hiding was successful ▪ Handling the people that needed to use spine boards ▪ All rescuers seemed to stay calm ▪ Calming effect on the client	5
Psychological care	▪ I was impressed by the psychological team and how they integrated with the first responders ▪ The assistive but respectful approach of responders towards emotional female casualties	2

Observation on possible improvements of the exercise (Q17)

The provided examples of how emergency response unfolded during the exercise could have been improved, and revealed four core topics, which are illustrated in Table 17.

Table 17: Examples of recommendations for improvement regarding the Dortmund exercise

Topic	Examples	Frequency
Involvement and treatment of civilian (and disabled volunteers)	▪ The awareness of the first responders in all phases of the exercise ▪ Awareness concerning the existence of victims that might be visually impaired (one blind person was about to fall from the ramp) ▪ Rescuers could be informed better about how to lead a blind person. ▪ Rescuers were astonished about the wheelchair person ▪ Care for the situation of the victims ▪ Some victims were leaving the Decontamination Area unattended ▪ Not to leave groups of affected people alone ▪ Empathic communication with affected people could be improved ▪ Communication between first responders and victims	9
Organisation of the event	▪ Getting training to a higher level by realistic time scale (without jumps) ▪ Perhaps some of the first responders should have arrived by road under lights + sirens response to generate additional realism ▪ Perhaps disruption from external bodies and the press	3
Decontamination process	▪ "It took 6 minutes before the first firefighter engaged with a contaminated subject. A missed opportunity to use a public address system could have reduced this time and cause casualties /subjects forward to them." ▪ Wounded decontamination should have some airflow from the proper to the dirty side11 ▪ Not to leave first responders alone to deal with groups of affected people.	3

Other response measures	▪ Responders stood close to the release without respiratory protection and within the plume
	▪ There was no obvious downwind hazard monitoring or any attempt to suppress the release/chemicals
	▪ I haven't seen proper detection to set the danger zone:
	  ○ action to stop the leakage
	  ○ needed to solve secondary contamination; in the real situation will affected people run to the safe places before firefighters arrive
		3

[11] Indicated as part of Q16

10.5.5. Feedback about the observation of the exercise

Recommendations on how to improve the observation of the exercise (Q42)

The provided examples on how participation as an observer can be improved revealed four core suggestions for future exercises, which are illustrated in Table 18. The main suggestion is that observers should be allowed closer to the exercise scene and not observe from distance. Although this was outside of the responsibility of PROACTIVE, recommendations will be considered in discussion surrounding future exercises.

Table 18: Examples of suggestions for future exercises

Suggestion	Examples	Frequency
Observers closer to the scene	▪ Possibility of direct observation of the exercise ▪ Closer to the screen ▪ Real overview of the exercise field ▪ Observers closer to the scene ▪ A clearer location to be closer to the action ▪ Observers had direct access to the exercise premises ▪ If observers should play effectively, they should be closer to the intervention	8
Drone live video is helpful	▪ The drone feed greatly enhances the experience ▪ Live video for observers would help to assess the situation ▪ Drone pictures were too far away	3
Include better live audio communication	▪ Communication couldn't be heard ▪ A live audio feed from the hot zone would add extra realism - we would hear what the responders are saying and the tone - are they in control? Empathic? Understanding	2

Further observations (Q18)

There were not many additional observations about the field exercise. However, one observer provided four useful suggestions:

- No Public Announcement System used in the Briefing Room. We ended up either not hearing what was going on or else people were shouting at us.
- Consider using a live interactive whiteboard feed. Observers could feed in comments and questions in real time while the exercise is unfolding and everyone in the room can see the issues being raised. This is an effective way of pre-debriefing tools. It gets people thinking about issues in advance of the hot debrief.
- Group of the observers together of 4 or 5. These are like mini workshop sessions - they can observe and discuss at the same time. Instead of one evaluation form per person, have team feedback completed by the team leader. Have a mix of background experience and other qualities on each team. Team leaders can speak at debrief - save on time.
- Consider asking teams to focus on specific aspects of the exercise so that the evaluation is of a higher, more in-depth quality."

Additional comments about the experience as observers (Q43)

Most additional notes or comments about the observers' experience in the exercise were very positive (n=4), for example:

- "The directing staff were exceptional and made a very good impression on the observers. The briefing and material before the exercise was invaluable and well presented. The serial photography and monitor screens were reliable and useful. I would strongly recommend it."
- "Very good and comfortable facilities. The exercise run by FDDO was very professional. Great to see so many voluntary first responders involved. They add so much value to an event."
- "I felt my presence was welcomed by everyone involved answering my questions fully and in a non-technical language."
- "Thank you, it was a great experience."

Some observers (n=2) reiterated that the observation task was challenging uniquely from the Observation Room and that this should be improved in the future.

10.5.6. Feedback about Key Takeaways

Feedback on SOPs currently offered by observers' organisation to deal with vulnerable civilians (Q21)

The PSAB observers appreciate that in their organisation there are no SOPs that take vulnerable groups into account (M=2.67). "Vulnerable citizens are a consideration but not as high a priority as we would like. There are ongoing reviews to address this." Another practitioner explains: "There are some, but it is not systematic training for all responders and maybe the level of detail could be improved towards specific situations like CBRN/ hazmat."

Feedback on preparedness to engage with first responders in future CBRNe incidents as affected person following the exercise (Q20)

Thanks to this exercise, some civil society observers feel slightly better prepared to deal with first responders in a CBRNe incident (M=4.00). E.g. "I will know how to help them with victims that need psychological support."

Feedback on preparedness to deal with vulnerable civilians in future CBRNe incidents following the exercise (Q22)

Thanks to this exercise, the PSAB observers felt that their organisation would be better prepared to deal with vulnerable groups (M=6.00). For example, one observer explained that "I am re-writing the initial operational response and recognising vulnerable citizens plus those with hidden disabilities can be a priority. A detailed timeline to the exercise has identified areas for learning and improvement."

Additional comments (Q43)

“The exercise showed how important it is that rescuers have a minimum knowledge about disabilities as:

- how to lead a blind person
- how to gesture basics with a deaf person (picture communication?)
- how people with mentally disabilities act in emergencies (hiding, laying on the ground, fleeing, hitting, etc.)
- how to handle a wheelchair
- have contact with people with severe and multiple handicaps to be prepared for unusual behaviours
- how cold water affects people with physical disabilities

10.6.Evaluation of the ethical observations provided by the EEAB

The following part describes the ethical review of the exercise observer of the PROACTIVE External Ethics Advisory Board (EEAB).

General remarks on ethical and legal issues concerning the project and the participants

As a member of the EEAB, the observer was consulted multiple times and had the opportunity to provide:

- ***early-stage feedback*** on the general approach to ethical and legal aspects of the 1st field exercise (March online meeting on Dortmund field exercise)
- as well as ***in-depth feedback*** on the last version of the ethics and legal policies and procedures pack (written feedback on “Ethics Protocol for the recruitment of volunteers”)

Given the extensive coverage of the ethics and legal policies and procedures and the quality of the work put in those documents, as Ethics Expert, the observer took them as reflecting the necessary level of precautions, legal compliance and ethical consideration for deploying the field exercise.

One important aspect about the Ethics Protocols is related to **the quality of the consent**:

- the Ethics Protocols contained sufficient information about all important aspects and were written in a relatively accessible language
- the recruitment process included the consent of the volunteers

Remarks related to the exercise design & deployment

Better signalling

The exercise rules and checkpoints should be stressed more intensively. For instance, no photo forbidden signs were hung up that would enforce the briefed rule during the exercise.

Privacy of volunteers

Although privacy of the volunteers was a major topic on the agenda of the EEAB and was properly addressed by the Ethics Protocols, during the exercise, the first responders failed to properly comply with it. For example, some of the volunteers dressed outside the special designated tents. A female volunteer had to walk down the Exercise Area and outside near a bus to get dressed, but without realising that the protocol was broken, and her clothes were elsewhere.

Exchange between volunteers and first responders

During the exercise, the volunteers, first responders and all the other participants used the same general access, and they were also provided breakfast together prior to exercise deployment. This administrative aspect might affect the way first responders reacted during the exercise to the roles played by the volunteers and their impairments.

Awareness

The exercise began with a general lack of awareness regarding the exercise purpose and conditions, as well as 'victims' as part of the training of first responders. For example, in the first part of the exercise, there were ungeared first responders on the main scene where there were supposed to be first responders with masks. There was a volunteer with visual impairment who was about to fall from the ramp and no first responder paid attention to the 'victims' and saw what was going on. A general sense of the affected scene is important, especially for identifying the victims with special needs. This lack of awareness also led to what seemed a lack of prioritisation of the 'victims'.

Safety

Insufficient attention was paid to the conditions where volunteers were supposed to be involved in the field exercise as part of the training of first responders. This led to potential risks that were not given sufficient attention, even if the scenario was supposed to be as realistic as possible. For instance, the floor of the exit of the Decontamination Tents was full of shredded glass from previous exercises and this could have affected the volunteers[12]. Another example, from the first part of the field exercise, refers to the fact that one of the volunteers (a person with vision impairment) was in real danger of falling from the ramp where they were first introduced in the exercise[13].

[12] PROACTIVE had previously cleaned the inside of the tents to mitigate this risk. In addition, later in the exercise, the volunteers were provided with slippers to avoid cutting their feet by the PROACTIVE team on-site.

[13] PROACTIVE had set up a visual demarcation that in this case was insufficient.

Communication skills

During the field exercise, the first responders seemed to know their role, but lacked the basic communication skills to calm 'victims' down and provide clear instructions and confidence that the situation was being taken care of. In real life situations, this is essential especially when dealing with vulnerable people, who may have difficulties in properly assessing the situation and, as a result, suffer from supplementary stress. On several occasions, the first responders were confronted with actors screaming and acting hysterically, but they were dealt with in a manner that created more chaos on the scene. For instance, the actors entered the tents where volunteers received medical attention or got dressed. Clearer instructions would have also prevented volunteers from leaving the Decontamination Area clueless about what follows next.

Coordination

For most part of the field exercise, the first responders lacked proper coordination. This lack of coordination led to bottlenecks at the entrance and exit from the Decontamination Area. For example, at one point, the exit area of the Decontamination Tents was overcrowded by first responders that appeared not to know what to do. This situation was solved at the end of the field exercise when someone assumed coordination and began giving instructions to colleagues and to the 'victims'. Entrance of an ambulance on the premises of the disaster scene was a danger for both volunteers and first responders because it came too close to the scene. It should have been designated a special area where ambulances could receive patients. A further development of the scenario would have created a huge problem for the first responders who didn't secure the area before considering the exercise done. In the very first stage of the exercise, the scene was not properly contained by the first responders. This might have happened due to two main issues: lack of coordination and the relaxed attitude of the first responders toward the exercise.

Recommendations regarding the exercise planning and management

- Taking into consideration that the project is meant to look *from a civil society perspective* at CBRNe protection procedures with focus on victims from vulnerable categories, the recommendation is to increase the number of civil society representatives that participate in the field exercise monitoring and debriefing.

Recommendations regarding the procedures in CBRNe disaster scenarios

- The volunteers should not be left unattended, especially when they have visible impairments or special needs.
- In real life scenarios, with multiple victims, the first responders will be overwhelmed by the problems they have to deal with, but, in disaster scenarios, proper care and attention should be paid to the 'victims'/volunteers.
- The scenario should be considered closed only when the supposed disaster scene is considered secured and the last volunteers leave the premises with all their belongings.
- Special attention should be paid to the plausibility of the field exercise, because this influences the reaction of the responders.

10.7.Final remarks of the other involved tripartite partners

Asked for their general observation regarding the first joint exercise in Dortmund, the partners of the tripartite agreement eNOTICE and FDDO perceived the exercise to be successful.

Interview with project coordinator of eNOTICE

Olga Vybornova, the Coordinator of project eNOTICE, during an interview expressed her satisfaction with the joint action. She explained that “PROACTIVE is a strategic partner for us because it allows us to show that CBRNe ABZs are open to integrating ongoing research projects in training exercises. It makes sense for PROACTIVE to come to the real training ground, practice with real first responders and CBRNe practitioners and for us, the challenge is that ABZs very seldom or some never have previously done an exercise with real volunteers from the public (and not actors, role players, students).” While acknowledging the challenges associated with organising this joint action, she deemed the event a success, “it was a very challenging, exciting and interesting experience.”

Interviews with head of FDDO Training Department and Leader of FDDO Decontamination Unit

The Head of the FDDO Training Department, Oliver Nestler, expressed the importance of training to be prepared for CBRN decontamination as CBRN operations are very complex. His overall impression of the exercise was one of great success and he mentioned that “at the end of the exercise, we had a list of learning points, which is quite good.” The firefighters were challenged by the involvement of the civil society volunteers and during their debrief, the responders stated that they had “learned a lot.”

Marco Finnemann, Leader of the FDDO Decontamination Unit, described the challenge to “take special needs into account such as [...] [the special needs of] visually impaired or non-ambulatory patients in wheelchairs.” He emphasised that they “did not tell [this fact] the other units beforehand but said: React in the situation.” According to Marco Finnemann “that was a super training effect, [and] afterwards, all the participants were enthusiastic about that”. As a final statement he stressed “that [the Exercise] really brought [them] forward.”

11. BEST PRACTICES AND KEY TAKEAWAYS

The following chapter presents the lessons learned (what went well) as well as Key Takeaways based on identified challenges during the planning process and during the exercise.

11.1. Best Practice from the exercise planning process

Resuming the planning process described in the IIMARCH Chapters, it became apparent that some aspects of the Dortmund exercise ran very successfully (e.g. see Table 16). Fourteen aspects of the planning process which can be considered as Best Practice (for future exercises) are described in the following section:

Best Practice 1

Adaptable and flexible plan
The IIMARCH process used in the project (see Chapter 2) enabled the division of exercise preparations into central areas (method, administration, etc.). As a living document, the IIMARCH process allowed constant adjustments and extensions of the individual areas.

Best Practice 2

Roles and Responsibilities
In advance of the exercise, a detailed plan was prepared of the responsibilities that would need to be covered by PROACTIVE during the exercise. PROACTIVE partners were assigned to the individual areas defined in an organogram (Appendix 8). The individual partners were extensively briefed on their roles prior to the exercise. Furthermore, on the day of the exercise, they received planning folders with all relevant areas for their task (contact lists, process maps, etc.). This comprehensive preparation ensured that there was a clear division of tasks on the day of the exercise and that the tasks could be executed by the individual PROACTIVE partners in the best possible way.

Best Practice 3

Timeline planning
A detailed time schedule with different time windows was prepared for the exercise day (Appendix 17). The detailed plan ensured that all phases were completed in a specific time frame on the day of the exercise. Furthermore, it enabled a quick overview of the responsibilities for individual tasks during the exercise. Changes to this schedule before the exercise could easily be inserted into this schedule. The same was true for a more excessive plan that covered the hot phase in the weeks leading up to the exercise.

Best Practice 4

Process mapping
The creation of process maps for different areas of the exercise (Process map for Briefing, Process Map for Catering, Process Map for Dressing Process, Process Map for Transportation) as well as the creation of a checklist for registration allowed for a quick overview (responsibilities, schedule) of key areas of the exercise. At the same time, the process maps were designed in such a way that they could be easily adapted in case of changes.

Best Practice 5

Contingency planning
A detailed risk assessment (see Chapter 7) as well as plans to minimise possible risks during the exercise made it possible to reduce possible risks during the exercise to an absolute minimum. Furthermore, contingency plans (see Chapter 7.5.) for key areas that can affect an exercise ensured that preparations were made for different contingencies in the areas (Weather contingency plan, Live incidents contingency plan, Covid-19 contingency plan, Participants absence contingency plan and Communications contingency plan).

Best Practice 6

Resource planning
A living procurement document among the PROACTIVE core planning team facilitated the management of all procurements and enabled the smooth running of the exercise (tents for the volunteers to change clothes, identification of PROACTIVE staff via orange tabards, identification of the volunteers' belongings via bags with numbered seals, etc.) as well as ensuring the well-being of the volunteers (towels after decontamination, sun protection, etc.).

Best Practice 7

Vulnerable volunteer recruitment and levels of representation
PROACTIVE's minimum goal of including at least 15% of particularly vulnerable individuals in the exercise (Tactical Objective 1 of PROACTIVE during the exercise in Dortmund) was far exceeded, with nearly 50% included. A strong network of relationships with Civil Society Organisations representing vulnerable groups, built up over several months, proved to be a recipe for success in recruiting particularly vulnerable people.

Best Practice 8

Collaboration with local Civil Society Organisations
The involvement of Civil Society Organisations representing vulnerable groups has had a positive impact on the exercise planning process, on the one hand, and on the exercise itself, on the other. Thus, in the run-up to the exercise, the specific needs of the vulnerable people involved in the exercise could be sufficiently considered in the planning process (insurance aspects, logistical aspects, etc.) through the involvement of the organisations. In addition, the involvement of a Civil Society Organisation on the day of the exercise enabled support in the care of vulnerable people in the context of the exercise (change of clothes in the tents, care in the context of catering, etc.). Cooperation with other Civil Society Organisations (Amnesty International, local sports organisations, etc.) additionally turned out to be a recipe for success in recruiting non-vulnerable individuals for the exercise.

Best Practice 9

Volunteer handling and welfare
A comprehensive briefing of the volunteers (see Chapter 6.4.) and related comprehensive information for the volunteers in advance of the exercise (information sheet, website with information about the exercise, etc.) enabled the volunteers of the exercise to inform themselves sufficiently about all central aspects of the exercise (data protection, ethical aspects, security, exercise procedure, etc.). Furthermore, numerous measures (catering, etc.) and plans (emergency plans, accident book, etc.) on the day of the exercise ensured the well-being of the volunteers and all other exercise participants.

Best Practice 10

Immediate identifiable tangible benefit of including civil society volunteers
The involvement of the local population (especially the involvement of vulnerable people) and not, as is usually the case in emergency exercises, of actors, confronted the emergency forces of the exercise with additional challenges. However, these were positively received by the emergency forces, as only through additional challenges improvements can be implemented in the event of a real emergency.

Best Practice 11

Focus group management - numbers and format
Extensive training for the focus group leaders prior to the exercise enabled the smooth running of the focus groups on the day of the exercise and a flexibly applicable guideline (Appendix 4) made it possible to respond individually to different group dynamics within the focus groups. Three focus groups with about six persons each allowed that in each focus group the participants had enough time to share their exercise experiences. The small groups allowed for a pleasant group atmosphere during the focus groups.

Best Practice 12

Translation arrangements
On the day of the exercise, it was ensured that during processes that involved the inclusion of English-speaking partners when dealing with volunteers, first responders, etc., a German-speaking partner was always available to assist with communication problems. This ensured smooth communication on the day of the exercise.

Best Practice 13

Provision of clothing for volunteers
The provision of spare clothing for volunteers proved to not only ensure the safety of personal property but furthermore reportedly created a sense of community among volunteers during the changing process.

Best Practice 14

Filming and photography
By engaging a professional video company, it was possible to create high-quality film and photo footage of the exercise. In cooperation with the video company, as well as through a detailed review of the materials by those responsible for ethics and data protection in PROACTIVE, it was also possible to ensure that in the creation of the materials (no naked body parts, etc.) as well as the publication of the materials, particular importance was attached to the dignity of the volunteers as well as to the data protection rights of the volunteers.

11.2. Key Takeaways for the exercise planning process of the next exercises based on challenges experienced

Based on the identified challenges during the exercise planning process and the feedback given by the PROACTIVE PSAB, CSAB and EEAB observers (see Chapter 10.5. & 10.6.; e.g. Table 17 & 18), 15 Key Takeaways for future exercises can be described including foreseen adaptation strategies.

While discussing the scenario parameters for the Dortmund exercise during the planning process, the fine line between welfare, set timeframe and reality became apparent. To ensure the welfare of all volunteers, an intense briefing had to take place in advance resulting in volunteers already becoming slightly familiar with some aspects of the expected scenario (e.g. decontamination shower, dressing process, etc.). On the other hand, the time schedule foresaw the setup of Decontamination Tents in advance of the exercise leading to volunteers waiting less for responders than expected in a real-life incident. Overall, the imposed exercise parameters were criticised by some observers to be not realistic enough (e.g. lack of further responder agencies, no mitigation actions regarding the source of the incident, etc.) (see Chapter 10.5.).

Key Takeaway 1

Challenge	**Imposed exercise parameters**
As parameters of the scenario could only be influenced to a limited extent, PROACTIVE had to adapt to elements that were initially not foreseen or envisaged in a different manner (e.g. set up Decontamination Tents prior to the exercise, exclusion of other response organisations, exclusion of children, etc.).	
Adaptation strategy	**Broader exercise scope to make scenario more elaborate**
For the next exercise a greater transparency should be achieved among the tripartite parties to collaborate on how to realise a broader and realistic exercise scope that elaborates the scenario and the exercise output. 1) The involvement of different response organisations in a multi-agency approach, 2) the involvement of children and 3) the inclusion of a triage are elements aimed for.	

Key Takeaway 2

Challenge	**Changing exercise parameters**
Due to the tripartite character of the exercise, exercise parameters changed over the course of the planning process due to new requirements of the involved parties (e.g. new pandemic regulations, etc.). Therefore, PROACTIVE had to constantly adapt its project related plans, accordingly, resulting in a lack of planning reliability and eventually efficiency.	
Adaptation strategy	**Early engagement with exercise host teams to address identified challenges early on**
To enhance planning reliability and efficiency, an early engagement among all involved parties, especially the exercise host team, is crucial to identify potential challenges early on and implement adaptation strategies involving fixed planning milestones.	

The set time frame of FDDO proved to be a challenge regarding the early start time of the exercise itself and the lack of a formal joint activity to initiate the end of exercise (see Chapter 5.2.).

Key Takeaway 3

Challenge	Early start time of exercise
To ensure the wellbeing and briefing of all participants, PROACTIVE had to perform several activities during the morning leading to the start of the exercise. Due to the set timeframe of the day, guests had to arrive very early in the morning. This had especially a negative impact on the travel arrangements of volunteers, eventually resulting in fewer registrations.	
Adaptation strategy	**Exercise start times to allow for travel, registration, and preparation of volunteers**
PROACTIVE recommends shifting the exercise start time to a later morning hour to facilitate travel arrangements and allow more extensive in depth briefing on-site. At the same time, the registration process would become more pleasant for all participants.	

Key Takeaway 4

Challenge	No formal joint activity start and finish
The individual processes of the day including the formal start and end of the exercise were not clearly communicated during the day. Especially after the exercise and the subsequent evaluation of volunteers' experience, no closing event was initiated to indicate the end of the day.	
Adaptation strategy	**Define formal start and finish of the exercise day**
Official welcome events during the morning for volunteers and observers are recommended. To close the day, a joint closing discussion should give all participants brief feedback of the day. Furthermore, PROACTIVE recommends a subsequent short debrief on-site for initial feedback followed by a social dinner among all planning partners involved to foster the successful partnership.	

Observers criticised the limited number of observers in general and ethical observers in particular allowed to partake and the physical distance to the Exercise Area (see Chapter 10.5.5. & 10.6.).

Key Takeaway 5

Challenge	Restriction on numbers of volunteers, partners and observers
Due to Covid-19 regulations, FDDO as the host of the exercise had to follow internal regulations on the overall number of guests to be accepted on-site. Due to this limitation, PROACTIVE had to reduce the number of partners, volunteers, and observers.	
Adaptation strategy	**Earlier communication and negotiation among all involved partners on number of guests to be invited**
PROACTIVE recommends a similar approach as pursued during the Dortmund exercise in which negotiations with the other tripartite parties allowed a flexible distribution of guest seats depending on the different parties' necessities. Based on the lessons learned, the numbers of guests needed to realise the exercise on part of each party should be communicated transparently as early as possible in case of future guest restrictions.	

Key Takeaway 6

Challenge	Limited number of ethics observers
Due to the overall limitation of observers, an ethical observation was made only by one appointed EEAB member. As a result, not every aspect run in parallel could be observed.	
Adaptation strategy	**Dedicated evaluation strategy for ethical observations**
PROACTIVE recommends a dedicated evaluation strategy in place based on an ethical Evaluator Guide to observe the handling of volunteers in every stage of the day and to identify any arising ethical issues on-site. For this purpose, at least two EEAB observers should be involved.	

Key Takeaway 7

Challenge	Limited physical access to the Exercise Area for observers
Most observers had to follow the exercise from the Observation Room via live streams since too many people within the Exercise Area would hinder the Firefighter Units in their performance. However, the limited physical access to the Exercise Area had a negative impact on the accuracy of observations taking place.	
Adaptation strategy	**Better physical involvement for observers**
The exercise performance should not be negatively affected by observers within the Exercise Area. However, suitable measures like the provided livestreams via drones should be implemented and further options for live view assessed depending on the individual features of the next exercise. It is also recommendable to divide observers into small groups with access to the Exercise Area, as was done in Dortmund, and to exchange the observers in between.	

During the recruitment process it became apparent that some volunteers were unsatisfied by the scope of bureaucracy in place to ensure data protection and ethics (see Chapter 6.2.4.). Furthermore, the registration process on the morning of the exercise proved to be a challenge due to the Covid-19 testing requirements for critical infrastructures (see Chapter 6.3.1.).

Key Takeaway 8

Challenge	**Bureaucracy – too many forms put volunteers off**
Due to high ethical and data protection standards developed for an exercise involving the (vulnerable) public, the briefing of volunteers required an extensive provision of briefing material. Some volunteers perceived this process to be too intense and two volunteers even cancelled their further commitment due to the scope of provided documents.	
Adaptation strategy	**Simplify registration process**
For the next exercises, the registration process should merge information into fewer documents and the number of reminders sent out prior to the exercise should be reduced.	

Key Takeaway 9

Challenge	**Covid-19 testing requirements for critical infrastructures**
PROACTIVE had to ensure the safety and wellbeing of all involved guests. The profound Covid-19 testing requirements for critical infrastructures required the involvement of a third party responsible for the management of the testing. Furthermore, the registration process lasted considerably longer than planned to implement all national pandemic regulations on the day of the exercise.	
Adaptation strategy	**Clearly define the registration process of all tripartite parties in advance to plan time for necessary steps e.g. Covid-19 testing**
PROACTIVE recommends that the joint registration process should be planned in advance during a common rehearsal with all tripartite parties to increase an efficient management of all related processes. If necessary, a Covid-19 testing has to be part of the next exercises as well. In this case, PROACTIVE recommends planning more time for this process.	

As part of the Risk Assessment, the handling of volunteer property was challenged by some unexpected high valuable items that could not be fully covered by insurance, namely the CI hearing devices (see Chapter 9.10.). It must be assumed that other properties might create similar challenges in the upcoming exercises.

Key Takeaway 10

Challenge	**Volunteer valuable property management**
Communication with involved CSOs revealed that some potential candidates were afraid of damages to or loss of their valuable and/or sensitive property (e.g. high-tech wheelchairs, hearing aids, etc.). This considerably affected the recruitment process. Furthermore, although PROACTIVE was responsible for the security of the property, the handling of volunteer property was conducted jointly among the PROACTIVE team and the respective Firefighter Units within the Exercise Area. Thus, the intactness of high value items could only be granted to a certain extent by PROACTIVE.	
Adaptation strategy	**Fake high value items of property for volunteers**
Spare mobile phones are recommended within the Exercise Area to allow the use of the PROACTIVE App on-site. The use of spare wheelchairs should reduce insurance issues as well as increase commitment of respective interested volunteers. The handling of further value items like hearing aids could already be secured following briefings with the respective volunteers prior to the event (e.g. plan to store devices in secure boxes during the undressing process, etc.).	

During the exercise, the volunteers expressed concern that the responders did not feel confident in their response measures (see Chapter 10.3., 10.4.3., 10.4.4. & 10.4.5.). This opinion was also expressed by the observers (see Chapter 10.5.2.) and evaluators (see Chapter 10.2.).

Key Takeaway 11

Challenge	**Involvement of volunteer firefighters with limited first-hand experience of CBRNe exercises**
The involvement of volunteer firefighters that were not used to CBRNe exercises on a regular basis, made the PROACTIVE evaluation process difficult since the response management deviated from what would be expected by well-trained CBRNe responders. The application of SOPs on vulnerable groups cannot be properly evaluated if not all first responders implement them the same way.	
Adaptation strategy	**Early exchange with exercise host to ensure sufficiently trained first responders are training during the PROACTIVE exercise**
While we acknowledge that training exercises are also for less trained units within a responding body, an early exchange with the exercise host team should ensure that only sufficiently trained first responders are involved in the PROACTIVE exercise. By doing so, SOPs of the respective country could be properly evaluated.	

As a Tactical Objective of the exercise, the handling of the PROACTIVE Website and App proved to be a challenge due to technical issues (see Chapter 10.5.3.). Those issues must be mitigated for the next exercise to allow all observers, volunteers, and responders to use the toolkit without any issues and give adequate feedback about its usefulness.

Key Takeaway 12

Challenge	**Technical challenges with the PROACTIVE mobile app**

Prior to the exercise starting, it became apparent that the iOS Mobile App would not be available during the live exercise. This was due to the review process followed by Apple and a query around the manual translations implemented. However, the Android Mobile App and the Web Platform were both available for testing.

During the live exercise, limited technical support was on hand to help with any issues due to the restricted number of people able to attend the exercise. This proved difficult to help people and release live notifications simultaneously. However, PROACTIVE was able to attain feedback (further details of which can be found in the next section) regarding the app.

The most common technical bugs identified, included the following:

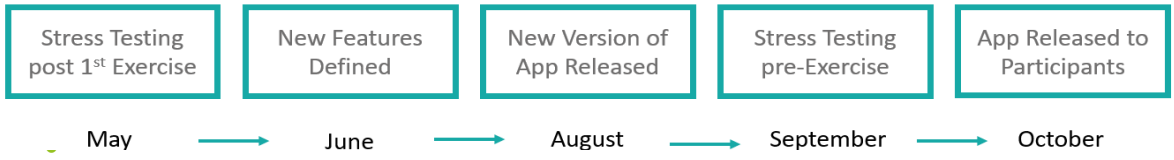
- Push Notifications received, however when clicked on, some users were redirected to the google landing page or received an error message
- When clicking on an incident to view the details, only part of the incident could be viewed as the scroll option was disabled
- Some users who had not yet registered or had forgotten their passwords found it difficult to access the Mobile App. However, with support 90% managed to successfully gain access.

Adaptation strategy	**Early release and testing of the PROACTIVE App**

Following the completion of the exercise, the engineers continued to stress test the Web Platform and Mobile App to resolve all technical bugs and a new version was released the week ending 3rd June 2022.

In preparation for the next live exercises, several guidelines will be followed to prevent similar issues happening. These include:

- Participants to be given the option to download the Mobile App two weeks in advance of the Rieti exercise
- Timeline for App release to be refined



- Participants in the Exercise to use the App, not just the observers

Although a communication plan among PROACTIVE and FDDO was in place (see Chapter Communication), an inconsistent live dissemination on the day of the exercise challenged the PROACTIVE media team in their performance.

Key Takeaway 13

Challenge	**Inconsistent live dissemination protocol**
Live external communication was handled differently by the involved tripartite parties. An official communication agreement was only established between PROACTIVE and FDDO.	
Adaptation strategy	**Clearly define the sharing of information and dissemination between all tripartite parties**
A communication agreement should be in place that covers the activities of all involved parties apart from the host planning team. This further enhances the harmonisation of joint activities.	

Although the observers expressed positive feedback regarding the handling of translations, the limited number of German speaking partners on-site proved to be difficult since many actions requiring translators run in parallel. Adaptation strategies need to be put in place since the upcoming exercise in Rieti requires at least the same number of translators although none of the PROACTIVE consortium organisations is situated in the country.

Key Takeaway 14

Challenge	**Limited number of translators for a variety of tasks requiring a German-speaking contact**
All German-speaking partners were constantly active to manage the involved third parties, the transportation of volunteers, the engagement with the volunteers including the dressing and evaluation process and the communication with first responders on-site. No German-speaking partner could be assigned as an evaluator within the Exercise Area.	
Adaptation strategy	**Involve external translators if the host team can't offer enough translators and assign at least one evaluator speaking the local language**
For future exercises, professional translators could facilitate the communication during all activities. Furthermore, it is recommended that the planning host teams should be stronger involved in this regard as far as possible. Additionally, PROACTIVE team members (when possible) speaking the respective language(s) should be assigned to translation related roles and responsibilities.	

11.3. Lessons Learned of the CBRNe exercise with (vulnerable) civilians

Based on the feedback of the volunteers and observers, 5 first hand key takeaways can be found to improve CBRNe response for (vulnerable) civil society.

Lesson Learned 1

Pre-Incident Information
Distribution of CBRNe Pre-Incident Information prior to CBRNe incidents by first responder organisations may be useful in preparing potential affected civilians for CBRNe incidents. Thus, the survey of volunteers revealed that the Pre-Incident Information used for the Exercise in Dortmund was considered an effective way to inform civilians about decontamination measures.

Lesson Learned 2

Decontamination measures
As part of the evaluation process by the PROACTIVE evaluators, firefighters were described as using the same sponge to decontaminate several volunteers. Although the sponge was washed off before being used for another volunteer, there is still a risk of cross-contamination with such a procedure (this was cautioned by the observers of the exercise, among others). To avoid cross-contamination during decontamination, a sponge should only be used once for one person. Another area with potential for improvement relates to the area of preparation for decontamination. It was described in the evaluators' observations that outer layers of clothing could have already been removed at the scene. However, this would have required clear instructions from the emergency personnel. This would have been advantageous to save time during decontamination. Furthermore, in the event of a possible contamination of the clothing, those affected would no longer have been exposed to the hazardous substance.

Lesson Learned 3

Communication
The volunteers and observers reported that there was room for improvement around communication with those affected. Volunteers reported that it was difficult to communicate with the emergency forces (also because of the protective clothing) and that too little information was given about the events. This contributed to discomfort on the part of the volunteers. As a potential for improvement in communication, an increased use of gestures and signs was suggested (especially for vulnerable people). This suggestion is in line with **Recommendations 6 + 11 + 12 from D3.4**, which described body language as an important element of an effective CBRNe communication. In addition, it was suggested that responders should speak loudly and clearly. Furthermore, regarding vulnerable people, it was suggested to provide information / instructions in written form. In this regard, it was found in the context of D3.4 that for vulnerable people, information in written form is preferred over all other language formats.

Lesson Learned 4

Vulnerable groups
Experiences / observations during the Dortmund exercise are consistent with the gap identified in **D2.5 (see Recommendation 1)** that, in general, too little attention is paid to vulnerable groups in the context of CBRNe incidents (e.g. measures of response, communication strategies). Thus, decontamination of the wheelchair user initially proved problematic. Another problem in this respect was that the ramp to the Decontamination Tents was not wide enough for the wheelchair. Regarding the hearing-impaired volunteers, if they did not understand the instructions of the emergency forces, the emergency forces simply spoke louder. Problematic for blind volunteers during the exercise was that firefighters did not know how to properly guide the respective volunteer. To prevent such problematic situations, an exchange with CSOs representing vulnerable groups should be sought, as they can inform the emergency response organisations what the specific needs of the vulnerable group they represent are. As done during the Dortmund exercise, representatives of such a CSO can be involved as supporting third parties to facilitate the management of vulnerable volunteers. This is in line with **Recommendation 1 and Recommendation 3 from D3.4**. One further idea that came up during the exercise concerns the accompaniment of vulnerable people during the decontamination process. From the volunteer side it was suggested to identify one person for each vulnerable person during the decontamination process, who accompanies this person during the whole process. This is an idea that responders can consider as part of an incident if resources allow.

Lesson Learned 5

Ethical needs
One female volunteer with anxiety disorder triggered by isolated contact with men felt particularly concerned due to the lack of female responders during the exercise. This problem has already been described in D3.4. Thus, it can be particularly problematic for women to go through the decontamination process in the company of men. **Recommendation 1 in D2.5** and **Recommendation 11 in D3.4** addressed this problem by suggesting a greater involvement of female CBRNe responders to address ethical needs during decontamination.

12. CONCLUSION

12.1. Summary of limitations of the exercise

During the exercise / preparations for the exercise PROACTIVE was confronted with several limitations over which PROACTIVE had limited or no control.

The limitations can be divided into four areas:

- Pre-exercise management and timeline planning
- Scenario parameters
- Number of involved parties
- Filming

Pre-exercise management and timeline planning

The pre-exercise management responsibilities constantly evolved through the disruption caused by Covid-19. Exercise timelines and venues were in a constant state of flux due to changing restrictions as Covid-19 waves came and went. Multiple contingency plans were developed and additional activities such as a CSAB/PSAB TTX were organised to maintain people's interest. Despite the challenges and uncertainty around exercise-parameters, a flexible and adaptable approach to exercise management ensured that collaboration between FDDO and PROACTIVE successfully delivered the exercise during a difficult operational period.

Furthermore, the timing on the day of the exercise proved to be a limitation. Due to the early start of the exercise, the preparatory processes for the exercise (briefing, etc.) had to be streamlined. Furthermore, it can be assumed that the early start of the exercise prevented potential volunteers from taking part in the exercise. PROACTIVE's request to start the exercise later could not be met on the FDDO side. Nevertheless, all preparatory processes for the exercise could be implemented in a sufficient manner and enough volunteers were recruited for the exercise.

Scenario parameters

As part of the scenario development, several restrictions arose that could not be influenced by PROACTIVE. Due to Covid-19 restrictions, it was decided not to include any other blue light organisations in the exercise apart from FDDO. However, this would have been necessary to simulate a terrorist element (as suggested by PROACTIVE) within the framework of the scenario. LEAs would have been necessary for this purpose.

Regarding the volunteers, there was a restriction due to national laws that no persons under the age of 18 could be included in the exercise. Furthermore, a limitation can be seen in the inclusion of actors in the exercise. The actors were the sole responsibility of FDDO and were used to train the PSNV Unit of FDDO during the exercise. However, the actors were not decontaminated. This limited the reality of the exercise.

Furthermore, the exercise would have been more realistic if the Decontamination Tents had only been erected during the exercise. However, FDDO decided to set up the tents before the start of the exercise.

Despite the limitations mentioned, all PROACTIVE objectives could be achieved with the ultimately implemented scenario.

Number of involved parties

As described, PROACTIVE underwent restrictions on volunteers (no inclusion of children). Furthermore, the total number of volunteers who could participate in the exercise was limited. In addition to the volunteers, this also affected the PROACTIVE and eNOTICE consortium as well as the number of observers for the exercise (PSAB/CSAB observers, EEAB observers, inclusion of other CSOs, etc.). However, the restrictions were necessary due to Covid-19 regulations. Also because of this, only a few observers were able to observe the exercise at the exercise site. As described, the other observers were able to observe the exercise via drone footage. Restrictions additionally concerned translators for the exercise. Due to the restrictions, translators could not be provided for the PROACTIVE evaluators from UKHSA. Therefore, conversations in the Decontamination Tents could not be captured by the evaluators. Overall, negotiations with FDDO and eNOTICE ensured that all parties were sufficiently represented in the exercise to implement their respective objectives.

Filming

Another restriction arose in the context of the accompaniment of the exercise by a professional video team. Thus, in the run-up to the exercise, it was agreed between PROACTIVE and FDDO that the video team would be allowed to film in the Decontamination Tents during the exercise for research purposes (not for dissemination purposes). But on the day of the exercise, following a decision by the FDDO Media Manager, it was not possible for the PROACTIVE video team to film the events in the Decontamination Tents during the exercise. However, PROACTIVE evaluators were able to collect enough data from the events in the Decontamination Tents.

12.2.Summary of Tactical Objectives findings

Despite the challenges, PROACTIVE could accomplish all exercise objectives as previously described.

Tactical Objectives 1

The first objective was to have at least 15% of the volunteer sample to have vulnerabilities. Over 50% of the total sample of volunteers had a vulnerability (see Chapter 6.2.2.).

Tactical Objectives 2 and 3

The second and third objective assessed the effectiveness of first responders at identifying, supporting, and assisting vulnerable individuals through the exercise. Through the observations it was noted that in some instances, responders showed a failure to understand vulnerabilities (e.g. a responder repeatedly tried to touch a volunteer who jumped back) (see Chapter 10.4.4.). However, other responders appeared able to identify and provide support to vulnerable individuals during the exercise, for example by leading blind individuals. However, there were sometimes issues with the support provided to vulnerable individuals such as blind individuals stumbling on the ramp to the decontamination shower and vulnerable individuals' mobility aids not being decontaminated.

The results from the questionnaires demonstrated that volunteers reported that their vulnerability impacted their interactions with first responders (see Chapter 10.2.). In the questionnaire, participants also reported that responders were unable to modify their communication for people with vulnerabilities. For example, volunteers reported that it was hard to hear and understand first responders, although first responders tried to use limited hand gestures to communicate; this led to volunteers with hearing and vision impairments not understanding what they needed to do. In the focus groups, volunteers reported largely negative experiences of first responders managing vulnerabilities. Negative aspects that were highlighted included an inability of responders to provide physical support (e.g. visually impaired volunteers reported that first responders pushed them and did not guide them) and inability of responders to effectively modify communication (e.g. a volunteer with hearing impairment reported that first responders tried to communicate by speaking more loudly). This suggests that responders identified vulnerabilities but were unable to effectively support those with vulnerabilities throughout the exercise.

Overall, responders were sometimes able to identify vulnerabilities during the exercise. However, when vulnerabilities were identified, first responders did not effectively support and assist vulnerable individuals.

Tactical Objective 4

The fourth objective was to assess the effectiveness of the pre-incident information. From the pre-exercise questionnaire, the volunteers who had read the pre-incident information reported that they would be comfortable, willing, and able to take the actions in the pre-incident information. It was also shown that volunteers thought the actions in the pre-incident information would be an effective way to decontaminate themselves, though they would still want to seek further treatment (see Chapter 10.2.).

In the post-exercise questionnaire, some (six) volunteers reported that they discussed the pre-incident information with other volunteers during the exercise. There was no significant difference between perceptions of the pre-incident information from the pre-exercise to post-exercise questionnaire, showing that the exercise did not impact perceptions of the pre-incident information. In the open-ended questions, participants reported that the pre-incident information would be useful to members of the public as it would enable them to know what to do in that situation, noting that this would be particularly useful if there was a lack of communication from responders during an incident.

Overall, the pre-incident information was perceived as effective as volunteers reported positive perceptions of the actions in the pre-incident information and felt that it would be helpful to members of the public.

Tactical Objective 5

The fifth objective was to examine if the communication from first responders to volunteers was pitched at the appropriate level in terms of language, complexity, and channels. In the post-exercise questionnaire, volunteers reported high perceptions of practical information though not of overall communication (see Chapter 10.2.). In the observations it was noted that responders appeared to communicate consistently with volunteers in the Decontamination Tents, including during the decontamination shower (see Chapter 10.4.3.). However, focus group discussions revealed that volunteers perceived communication from responders to be poor, especially at the incident site (prior to decontamination) (see Chapter 10.3.). At this stage, volunteers reported that the responders did not provide them with information even when they asked for it. Some volunteers reported that communication improved in the decontamination shower, stating that responders gave clear instructions and spoke clearly, which helped build trust in responders. However, perceptions of communication during decontamination were mixed, with some volunteers reporting that they were unable to hear any instructions provided by emergency responders.

In open-ended questionnaire items and focus groups, volunteers reported communication could be improved through more information and better clarity of communication. First, volunteers stated they wanted responders to communicate better about what was happening and why; this was particularly the case at the incident site where volunteers wanted to know what actions responders were taking, what actions they could take to help themselves, and why injured individuals were not being attended to. Second, volunteers suggested that practical aspects of communication should be improved, as volunteers could often not understand responders due to background noise and responders appearing to not know what was happening. Practical suggestions included the use of a megaphone, written instructions, and provision of instructions in different languages.

Overall, volunteers reported poor communication from responders at the incident site with no information being communicated. The responders were reported to communicate better in the decontamination shower giving clearer instructions that were more easily understood. This is in line with the finding that volunteers' perceptions of practical information from responders were high, while perceptions of overall communication were not.

Tactical Objective 6, 7, 8

The observers provided feedback on the PROACTIVE website and App according to technical aspects, effectiveness in supporting the needs of the Civil society and of the first responders (see Chapter 10.5.3.).

Observers reported having difficulties registering and using the App due to technical issues including the registration process and the stability of the system. Some referred to the website instead. However, from a technical aspect, the app is seen as being designed to be user-friendly and accessible for the (vulnerable) public (e.g. visualisation, set up of document, etc.). Due to the technical issues, in the current version the App is considered not sufficient to report and provide information about real-life CBRNe incidents (e.g. in-App notifications, etc.).

Regarding the effectiveness of the features, the observers reported that the App is perceived as useful to provide the (vulnerable) public with relevant CBRNe information material via its library. However, to inform them about ongoing incidents, the features should be updated to include heat maps, push notifications and relevant contact details.

Regarding end-users on the part of first responders, the observers saw a value in the incident list for multiple stakeholders. The library is considered an informative database to be used outside a real-life incident. However, the observers wished for a categorisation of incidents by filters, helpful regularly updated statistics and push notifications if a certain number of civilians report the same incident.

Tactical Objective 9

The last objective centres around identifying factors that influence volunteer compliance. The perceived responder competence, perceived responder communication, perceptions of practical information, and identification with responders as predictors of expected compliance in a real incident were examined (see Chapter 10.2., 10.3., 10.4.). The results showed that volunteers' perceptions of responder competence, responder communication, practical information, and identification with responders did not predict expected compliance. This may be due to all participants undergoing the decontamination shower and high expected compliance.

However, in focus group discussions, volunteers reported that ineffective communication from emergency responders would be likely to result in non-compliance through the form of people leaving the incident site prior to decontamination. Indeed, several volunteers reported that had the exercise been a real incident, the lack of communication from responders would have resulted in them leaving the scene. Findings therefore suggest that communication may be a key factor influencing volunteer compliance.

12.3.Conclusion of evaluation

Pre-incident information

In the results from the questionnaire, positive perceptions towards the pre-incident information were found, however, the exercise had no impact on perceptions of the pre-incident information. This might be because in the pre-incident information the actions for the public would occur before first responders arrive on the scene, whereas in the exercise the first responders were on scene and therefore, the volunteers were not able to take the actions in the pre-incident information. Overall, this finding is in line with the results with D5.1 (Nicholson et al. 2021) that showed positive perceptions towards the pre-incident information.

Responders

The exercise did increase confidence and knowledge of actions but reduced perceptions of responder legitimacy and identification with responders. The reduction in identification with responders has been noted in previous exercises (Carter et al. 2013) and suggests that the volunteers were not satisfied with the responder's management of the exercise. This is supported by the qualitative data in which volunteers reported poor communication from the responders and negative perceptions of responder behaviour.

Previous research examining participants' experiences of exercises has identified results revolving around poor communication from responders such as the need for clearer instructions (particularly noted during the decontamination shower), the need for greater explanations during the exercise, and communication difficulties resulting from the use of PPE (Carter et al. 2012). These results are in line with experiences of volunteers in the current study who reported poor responder communication, particularly at the incident site, where it was reported that responders gave no information, backed volunteers into a corner, and appeared to not know what was going on. Volunteers reported more positive aspects of responder communication in the decontamination shower, such as responders communicating clearly and providing instructions; however, PPE and background noise at times created difficulties in volunteers being able to hear instructions.

Social Identity

The evaluation of the current exercise showed that volunteers demonstrated high identification with other volunteers. Shared identity in disasters is likely among members of the public due to a sense of shared fate they all face (Drury et al. 2009). The results also showed increased identification with other volunteers was associated with increased expectancy of help, increased collective agency, and reduced anxiety. Similarly, identification with responders was associated with increased confidence and knowledge of actions to take, increased expectancy of help, and reduced anxiety. These results are not surprising as shared social identity can lead to higher expectations of social support and in turn a reduction in stress (Haslam et al. 2009; Haslam & Reicher 2006; Haslam et al. 2005). In addition, previous field exercises and experiments have shown shared identity among the public predicts co-operative behaviour (Carter et al. 2013), while shared identity with responders may reduce public anxiety (Carter et al. 2015). Although in the current study the direction of the relationships was not assessed, the results are in line with previous research as increased social identity was related to less anxiety, more collective agency, more expectancy of receiving help, and more confidence and knowledge of the actions to take. Furthermore, both identification with

volunteers and identification with responders was correlated with higher collective agency. Shared social identity has been shown to result in increased collective agency (Drury et al. 2009; Haslam et al. 2009), including during decontamination (Carter et al. 2014; 2015). This in turn can increase compliance through members of the public working together to achieve the shared goal of decontamination (Carter et al. 2013), however, this finding was not observed in the current exercise. Thus, in this exercise shared social identity is associated with less anxiety, more collective agency, and increased expectancy of help. While the results do not extend to compliance, this may be due to volunteers knowing they would undergo a decontamination shower; it is likely that if volunteers did not want to undergo a decontamination shower, they would not have participated.

Vulnerabilities

It was noted throughout that the responders did not effectively manage individuals' vulnerabilities. First, volunteers reported that their vulnerabilities impacted their interactions with first responders but did not impact their ability to undergo a decontamination shower. This suggests that responders were able to modify the decontamination process to fit vulnerability needs but were not able to modify communication to vulnerable individuals. This is in line with the qualitative data, in which those with vulnerabilities were not able to understand responders due to responders being unable to effectively modify communication (e.g. not using hand gestures or speaking louder to deaf individuals).

In addition, responders seemed to typically be able to identify vulnerabilities but not be able to support them. First, responders took the wheelchair user through the ambulant shower where they did not undergo a decontamination shower. It was stated in the observer's debrief that the responders were confused about what to do with this volunteer, and that she was annoyed after initially being taken through without showering and informed the responder that she had come to the exercise to go through the shower. At this point, the volunteer was taken back round and went through non-ambulant decontamination. Second, blind individuals reported that responders did not appear to know how to guide them. Third, vulnerable individuals' mobility aids were not decontaminated, this includes wheelchairs and walking canes.

Compliance

Previous research demonstrates the role of lack of shared identity, low perceived responder legitimacy and poor responder communication impedes compliance of staying on the scene (Carter et al. 2013; Carter et al. 2015). These findings were not present in the questionnaire data; this may be due to several reasons. First, there was high expected compliance for a real incident in the sample, possibly due to volunteers knowing they would have to undergo a decontamination shower in the exercise. Second, due to the way the questions were asked. Although these findings were not present in the questionnaire data, volunteers did link poor responder communication to reduced compliance in the focus groups suggesting that the impact of poor communication on reduced compliance was present in this exercise.

12.4.Conclusion

During the planning and execution of the Dortmund exercise, certain aspects went well, while upcoming challenges require adaptive strategies for the next PROACTIVE exercises.

- 14 Best Practices were identified to enhance CBRNe exercises
- 14 Key Takeaways could be found based on challenges identified. The adaptation strategies will be put to the test during the planning for the next exercise

Furthermore, based on the evaluation findings, certain aspects of CBRNe management should be enhanced to improve the involvement of the (vulnerable) civil society some of those aspects being already addressed in the previous developed recommendations of PROACTIVE D2.5 (study with CBRNe responders) and D3.4 (study with CSOs).

- 5 Lessons Learned should be recognised by CBRNe responders in both training scenarios and real-life incidents

The Best Practice, Key Takeaways and Lessons Learned and will be further elaborated during the upcoming PROACTIVE exercises.

13. OUTLOOK

The three PROACTIVE field exercises have been planned in partnership with the project eNOTICE, which takes advantage of nationally planned exercises at national CBRNe Training Centres, each exercise being referenced as a “joint activity” in eNOTICE, whereby they invite a third party to take part in the exercise. This opportunity for collaboration is cost-saving for the projects and allows a single field exercise to serve multiple purposes: training, learning, and sharing of best practices among CBRNe centres (eNOTICE partners) and conducting new research and testing tools or procedures with the civil society volunteers through the joint activity (for the PROACTIVE field exercises).

The three exercises were conceived as a process composed of three phases: (1) running the exercise and its evaluation workshop, (2) analysing all the results generated by the exercise and workshop and producing the Deliverable, and (3) post-processing and transfer of all relevant lessons learnt into the next exercise. These phases are sequential and were designed as a feedback learning loop between each exercise. In addition, each phase has been optimised in terms of timing, leaving a gap of about 4 months between each exercise. This gap allows the project team to process the lessons learned in one exercise into the planning process of the next one.

The Dortmund exercise reported in this Deliverable is therefore the first step in the longer process.

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15. APPENDIX 1: UKHSA ETHICAL APPROVAL

UK Health Security Agency

3rd May 2022

UKHSA Research Management & Knowledge Division
Wellington House, 133-155 Waterloo Road, London SE1 8UG
Tel: 01980 612922

www.ukhsa.gov.uk
https://research.ukhsa.gov.uk/

Dr Amelia Dennis
Research Fellow
UKHSA
Porton Down
Salisbury
SP4 0JP

Dear Amelia

Re: PROACTIVE: 1st Exercise, Dortmund, 7th of May 2022
R&D Ref: R&D 504

Thank you for submitting your study to the Research Support and Governance Office (RSGO) for review by the UKHSA Research Ethics and Governance Group (REGG).

UKHSA REGG approval for your study has been granted. This approval is granted based on the information provided in the REGG application form and accompanying study documentation, and on the understanding that the study is conducted in accordance with the conditions stated in the applicable UKHSA policies and procedures.

Approval is only granted for activities for which a favourable opinion has been given by the UKHSA REGG. All amendments must be submitted to the RSGO. Any change to the status of the project (including changes to the research team) and any change to the project closure date must also be notified to the RSGO.

The UKHSA is currently undertaking the implementation of an end to end research management system and institutional repository. Aligned to this, from 1 September 2020 the UKHSA Open Access policy requires peer-reviewed research outputs to be made available open access. For further information contact Paul Rudd.

If you need any further support or information, please do not hesitate to contact the UKHSA RSGO quoting the reference number for your study.

Wishing you every success with your study

Yours sincerely,

E Coates

Dr Elizabeth Coates
Head of Research Governance
Research Support and Governance Office

16. APPENDIX 2: PRE-EXERCISE QUESTIONNAIRE

Dortmund Pre Exercise Questionnaire

PROACTIVE: 1st Exercise, Dortmund, 7th of May 2022

What is the purpose of the current evaluation?

The field exercise in Dortmund will examine how emergency forces manage a simulated chemical accident. The exercise will examine the behaviour of a group of the population that undergo a fictitious but realistic scenario will be set up to simulate the accident and the release of the substance. (Note: **no hazardous substances are used in the exercise and there is no risk for the participants to come into contact with hazardous substances during the exercise**.)
This exercise will be evaluated using a series survey, focus groups, and observations involving reporting and discussing your experiences of taking part in the field exercise.

Why have I been invited to take part?

You have been invited to take part in this evaluation as you are a participant in the Dortmund exercise. You are a participant in Dortmund exercise because you applied as a volunteer to the fist PROACTIVE exercise, and you satisfy the criteria, including the age limit age 18+.

Do I have to take part?

No. You will have the opportunity to ask questions of the evaluation lead before deciding whether or not to take part. If you do decide to take part, you may withdraw yourself at any time either prior to or during the evaluations (including the surveys or focus groups).
Surveys will be completely confidential. You will be given a participant number for the exercise, and this will be used to link your pre-exercise survey to your post-exercise survey. The evaluation team will be the only one's to see your survey responses and won't have access to your identifiable information. Focus groups will be recorded, transcriptions will be made anonymous and any identifiable information you say during these focus groups will be deleted. Observational data will be collected during the exercise that will be completely anonymous.

What will happen during the Evaluation?

If you are happy to take part, you will participate in a pre-exercise survey prior to engaging in the exercise. Immediately after the exercise, you will participate in a focus group discussing the experiences of taking part in the exercise. Following this, you will complete a post-exercise survey. During the exercise itself we will be taking observational notes on certain behaviours.

Are there any potential risks in taking part?

There is the potential an exercise involving a hypothetical CBRNe incident may be distressing. However, if at any point your feel distressed, you are free to withdraw from the focus group without giving a reason. If you feel distressed after taking part in the evaluation, further support can be obtained by contacting Samaritans (www.samaritans.org) or TelefonSeelsorge (https://www.telefonseelsorge.de/).

Are there any benefits in taking part?

There will be no direct or personal benefit to you from taking part. However, the information that you provide will facilitate: a) the optimisation of recommendations to improve the management of incidents involving CBRNe incidents; b) the development of scenarios concerning CBRNe incidents to inform future exercises as part of the PROACTIVE project, and c) ongoing work within the PROACTIVE project and its technological outcomes.

What happens to the information provided?

The information you provide during the exercise evaluations will be confidential and will be stored securely. This data will only be available to members of the PROACTIVE project team.
Information provided (including consent forms) will be stored securely according to GDPR and the Data Protection Act 2018.

Will findings from the survey be published?

Findings may be published in academic publications and PROACTIVE Deliverables.

Who has reviewed this work?

This work has been approved by the UKHSA Research Ethics and Governance Group.

Who do I contact if I have a concern about the study or I wish to complain?

If you have a concern about any aspect of this focus group, please contact Amelia Dennis (amelia.dennis@phe.gov.uk) or PROACTIVE PEO: Irina Marsh irina.marsh@cbrneltd.com, and we will do our best to answer your query. We will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with.
If you still have concerns after talking to the project team and wish to complain formally, you can do this through the UKHSA Complaints Procedure. Please call the Complaints Manager on 0208 327 6629 or email complaints@phe.gov.uk for further details.

	Consent form	Please initial each box
1	I confirm that I have read and understand the information sheet for the above activity. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
2	I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without any adverse consequences or penalty.	
3	I understand that this project has been reviewed by, and received ethics clearance through, the UKHSA Research Ethics and Governance Group.	
4	I understand who will have access to data provided, how the data will be stored and what will happen to the data at the end of the project.	
5	I understand how this research will be written up and published (i.e., including only anonymized data).	
6	I understand how to raise a concern or make a complaint.	
7	I agree to take part in the research activity	
8	I understand that during focus groups, audio recording will take place. I give my permission for audio recordings to be taken of me during the interview. I understand that the audio recordings will be used for this study alone and will be deleted once they have been transcribed.	

Name of Participant	Date (dd/mm/yy)	Signature
Name of person taking consent		

Please can you provide us with your participant number, this is on your wristband.

Please have the current exercise scenario of the release of a hazardous chemical in mind when answering the following questions. Please respond to each statement by circling how much you agree or disagree with it.

- If a real incident of this type were to occur, I would know what actions to take to protect myself.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would know what actions to take to protect my loved ones.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel confident that I could successfully undertake appropriate actions in order to protect myself.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel confident that I could successfully undertake appropriate actions in order to protect my loved ones.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I think that the emergency services will treat people with respect during the decontamination process today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I think that the emergency services will treat people fairly during the decontamination process today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would expect emotional support from other members of the public who were involved.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would expect to receive help from other members of the public who were involved.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would be willing to help other members of the public.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I identify with the other volunteers who are taking part in the exercise today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I feel a sense of unity with the other volunteers who are taking part in the exercise today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I identify with the emergency responders who will be taking part in the exercise today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I feel a sense of unity with the emergency responders who will be taking part in the exercise today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel nervous.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel anxious.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel scared.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Did you read the pre-incident information for CBRNe incidents?

Yes	No

- If a real incident of this type were to occur, I think that taking the actions recommended in the pre-incident information sheet would be an effective way to remove a contaminant from my skin.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel comfortable taking the actions recommended in the pre-incident information sheet.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel embarrassed taking the actions recommended in the pre-incident information sheet.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I think I would find it easy to take the actions recommended in the pre-incident information sheet.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would be willing to taking the actions recommended in the pre-incident information sheet.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel the need to seek further treatment after taking the actions recommended in the pre-incident information sheet.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

17. APPENDIX 3: POST-EXERCISE QUESTIONNAIRE

Dortmund Post Exercise Questionnaire

Please can you provide us with your participant number, this is on your wristband.

- If a real incident of this type were to occur, I would know what actions to take to protect myself.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would know what actions to take to protect my loved ones.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel confident that I could successfully undertake appropriate actions in order to protect myself.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel confident that I could successfully undertake appropriate actions in order to protect my loved ones.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I went through decontamination in the exercise.

Yes	No

- My disability/condition/vulnerability impacted my interaction with the first responders.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- My disability/condition/vulnerability impacted my ability to undergo a decontamination shower.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If yes, please describe any ways in which accessibility impacted your ability to undergo a decontamination shower?

- I think that the emergency services treated people with respect during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I think that the emergency services treated people fairly during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would expect emotional support from other members of the public who were involved.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would expect to receive help from other members of the public who were involved.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would be willing to help other members of the public.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I was willing to help other members of the public during the decontamination process today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I felt nervous during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I felt anxious during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I felt scared during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I felt nervous during the exercise.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I felt anxious during the exercise.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I felt scared during the exercise.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If you felt anxious, stressed or scared during this exercise, please describe what the main reason for this was:

- I identified with the other volunteers who took part in the exercise today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I felt a sense of unity with the other volunteers who took part in the exercise today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I identified with the emergency responders who took part in the exercise today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I felt a sense of unity with the emergency responders who took part in the exercise today.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Did you use the pre-incident information during the exercise?

Yes	No

- Did you discuss the pre-incident information with other volunteers during the exercise?

Yes	No

- If a real incident of this type were to occur, I think that taking the actions recommended in the pre-incident information sheet would be an effective way to remove a contaminant from my skin.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel comfortable taking the actions recommended in the pre-incident information sheet.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel embarrassed taking the actions recommended in the pre-incident information sheet.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I think I would find it easy to take the actions recommended in the pre-incident information sheet.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would be willing to taking the actions recommended in the pre-incident information sheet.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If a real incident of this type were to occur, I would feel the need to seek further treatment after taking the actions recommended in the pre-incident information sheet.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Are there any changes that could be made to improve the pre-incident information?

- Do you think the pre-incident information would be helpful to the public if it was provided to people before this type of incident occurred?

- If the exercise had been a real emergency situation, I would have felt able to work with others to take appropriate actions to reduce the danger we were in.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Emergency responders explained clearly what was happening during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I found it easy to communicate with emergency responders during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I felt that emergency responders were open about what was happening during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Emergency responders gave me sufficient information about why decontamination was necessary.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I understood why I was being asked to go through the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Emergency responders provided sufficient practical information about what we were supposed to do during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I was clear about what I was supposed to do at each stage of the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I found it difficult to understand the information provided by the emergency responders.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I had to ask emergency responders to repeat the information they provided.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Please explain any ways in which you feel communication from emergency responders during the decontamination process could have been improved.

- I trusted that the emergency responders who took part in this exercise knew how to manage the situation appropriately.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I feel confident that emergency responders are prepared to deal with a real incident of this kind.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Emergency responders took appropriate actions to manage this incident.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Please describe any ways in which emergency responders could have managed the decontamination process better.

- I had sufficient privacy during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I saw volunteers co-operating with each other during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Volunteers were courteous to each other during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- Sometimes volunteers needed other volunteers to help them during the decontamination process.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I felt emotionally engaged during this exercise.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- I took this exercise seriously.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If this exercise had been real, I would have complied with the instructions of the emergency responders.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If this exercise had been real, I would have been willing to undergo a decontamination shower.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If this exercise had been real, I would have been willing to be naked during the decontamination shower.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

- If you would not be willing to undergo a decontamination shower during a real incident or would not be willing to be naked inside the decontamination showers in a real incident, please explain why.

18. APPENDIX 4: FOCUS GROUP GUIDE

PROACTIVE: Dortmund Focus Groups

1. Introductions

- First, I just want to thank you all for your time today.
- I am just going to pass round this paper and if you can write down your participant number that is on your wristband, we don't need you to write down your name just the number. *Hand out participant number paper*
- If I just introduce myself - My name is …… and I am a ……. and I am one of the members of the PROACTIVE project.
- So if we go round and you introduce yourselves, we aren't recording yet so none of this is being used it's just so we can introduce ourselves.

2. Blurb

I just want to start with explaining the reasons we are running the focus group. In this focus group, we are interested in understanding your experiences of the exercise that you just did, there are no right or wrong answers it's about your experiences and the information you provide will you be used to develop procedures and policy.

I'd just like to remind you that all information that you give will be confidential, and any published data from these focus groups will be anonymous. I'd also like to remind you that we are recording these focus groups [using Dictaphones] these will only be used to allow us to analyse the data collected.

3. House rules

So I am just going to go over the housekeeping and rules for this focus group

- Respect each other's opinions – challenge and disagree but be respectful
- There are no wrong or right answers – we are interested in understanding your experiences of the exercise
- Do not talk over each other – can raise your hand if someone is talking and you would like to talk next
- Don't hold back – be honest as this is a safe space to do so, there are no right or wrong answers
- Answers will remain anonymous - except for disclosing any information that we think means you or someone else is at risk of harm – this also means you can't withdraw once we start as you won't be identifiable
- With this don't say anything during focus group that will make you identifiable so don't say any identifiable information
- Confirmation that you will know begin the recording

4. *Start recording focus group and state your (focus group leader) name*

5. Run focus group using the following questions and prompts

**= the more important / higher priority questions*

General Experiences*

- Tell me about your experience of the exercise
    - Do you have any initial reflections?
    - How do you feel it went?
    - Was there anything that went particularly well?
    - Was there anything that went particularly badly?

Focus on Vulnerabilities*

- Did you feel that the emergency responders identified any vulnerabilities during the exercise?

- *[If yes to identified vulnerabilities]* Did you feel emergency responders understood these vulnerabilities?
- [If yes to identified vulnerabilities] Did the emergency responders make any modifications based on vulnerabilities?
    - How did you feel about these modifications?
    - Do you feel vulnerabilities were treated with respect?
    - Are there any other modifications or considerations that were not mentioned?
- [If yes to identified vulnerabilities] Were these modifications enough to allow vulnerable individuals to go through decontamination?
    - Why/ why not?
    - Is there anything emergency responders could have done different or in addition to aid vulnerable individuals through the decontamination process?

- *[If no to identified vulnerabilities]* What do you feel that the emergency responders missed?
- [If no to identified vulnerabilities] How could they make sure that they identified vulnerabilities in a real incident?
- [If no to identified vulnerabilities] What modifications would you have liked to see emergency responders make based on vulnerabilities?

Perceptions of Responders

- Did you feel that emergency responders managed the exercise effectively?
    - Did this match your expectations of how they would manage the exercise?
    - How did you expect emergency responders to manage the exercise?
- How did you feel about the procedures emergency responders used to manage this exercise?*
    - Did you feel confident they would be effective?
    - Do you feel these procedures included people with vulnerabilities?
    - Are there any changes to procedures that you would recommend based on your experiences?
- How do you think emergency responders would behave during a real incident of this type?
    - Would they treat you fairly/ with respect?
    - Why / why not?

Communication and Information Needs

- Did you use the pre-incident information during the exercise?
    - If yes, what did you use and how?
- Tell me about any interactions that you had with the emergency responders
    - How did the emergency responders communicate with you?
    - What kind of information did they give you?
    - How did you feel about the interactions and communications with the emergency responders?
- What do you think of the information that you received during the exercise?
    - Do you think it would be enough information for you to know what to do during a real incident?
    - Would it be enough information for you to feel willing to follow responders' instructions if this was a real incident?
    - If not, why?
- Was it easy to understand the information provided?
    - Why?
    - Did you find the information provided was inclusive?
- Is there any further information that you would want if this were a real incident?
    - If yes, what information?

Perception of Decontamination

- How did you feel about going through a decontamination shower during the exercise?
    - Did you feel comfortable?
    - Did you know how to go through the shower?
    - Did you face any challenges when going through the shower?
- If a real incident of this type were to occur, would you be willing to remain at the scene and undergo a decontamination shower?
    - Would you feel comfortable undergoing a decontamination shower?
    - Would you find it easy to go through a decontamination shower?
    - Would you be willing to remove your clothes in order to undergo a decontamination shower during a real incident?
    - Do you think effort would be made to protect your privacy during decontamination?
- Would you want to seek further treatment after undergoing a decontamination shower?
    - If so / not, why?
    - Would you feel confident that you were clean after undergoing a decontamination shower?

Interactions with Volunteers

- Tell me about any interactions that you had with other volunteers, or observed between volunteers, during the exercise
    - How did you interact with each other?
    - What did you talk about? What did you do?
    - Did you notice anything about the way that individuals were interacting with each other? Was it friendly? Unfriendly? Helpful? Unhelpful? [these prompts might not be ideal but they or a version of them could be used with other sub-questions here]
- Is there anything else you would like to talk about in relation to the exercise that we haven't already covered?

Thank participants for their time and state their answers have been helpful in understanding the experiences during exercises.

19. APPENDIX 5: OBSERVER GUIDE

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

PROACTIVE Observer Guide

Dortmund Field Exercise

7 May 2022

1. INTRODUCTION

Welcome to our joint field exercise between the Dortmund Fire Brigade, eNOTICE & PROACTIVE projects. Your job as an observer is to watch the exercise unfolding from the observer's room, where a livestream will take place. You will benefit from a narrator who will explain what is happening. PROACTIVE consortium members are also here to help you.

We recommend reading through the questions in this observer guide before the exercise takes place, so you become fully aware of what kinds of information to look for. Feel free to also take any notes as you see fit. We are hoping to collect your impressions of the exercise. Specific details (such as the time an action occurs or the exact person who performs a task) are not required.

Please **do not take any photos of the exercise**. Official photos will be released after the event.

A key role you will play during the exercise is as a user of the PROACTIVE app. Please use the PROACTIVE app to look for information about the incident, as if you were a witness. We ask that you also use the app to Report an Incident (feel free to use the feature of submitting a photo with your report, just not one of the exercise).

Make sure you have downloaded and installed the app:

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The PROACTIVE objectives for this field exercise are:

No.	Objective
1	To involve and engage with Civil Society (members of the public as volunteers) in CBRNe exercises with at least 15% of these representing vulnerable groups.
2	To evaluate the effectiveness of First Responders to recognise vulnerable people during a CBRNe incident.
3	To evaluate the effectiveness of First Responders in supporting and assisting vulnerable people during the CBRNe incident phases, through response measures (e.g. tools, equipment, procedures) which are adapted to the needs of vulnerable persons.
4	To evaluate the effectiveness of PROACTIVE pre-incident information and awareness during emergency communication with the public.
5	To evaluate if communication with the public during the incident is pitched at an appropriate level in terms of language, complexity and channels.
6	To test the technical aspects of the PROACTIVE App in a live exercise environment.
7	To investigate whether the app is used or not (No. of times the CBRNe information was accessed via the App / No. of times the incident updates were accessed via citizens, etc.)
8	To evaluate the effectiveness of the app re: notifications (appropriateness of the info provided, timeliness of the information, etc.)
9	To develop the understanding of factors that influence public compliance during CBRNe incidents.

2. TELL US ABOUT YOURSELF

Instruction: Choose / tick the answer which best suits you.

1. I represent:

□ Civil society organisation
□ Law enforcement agency
□ Firefighting brigade
□ Military
□ Emergency medical responder
□ Civil protection
□ Other, please specify: _____

2. In general, how familiar are you with the topic of CBRNe?

□ Very familiar
□ Rather familiar
□ Neither unfamiliar nor familiar
□ Rather unfamiliar
□ Very unfamiliar

Comments, if any:
_____
_____
_____
_____

3. I have attended a CBRNe field exercise before (either as an observer or a participant):

□ Yes □ No

4. Before today, had you read the PROACTIVE Pre-incident Information Materials?

□ Yes □ No

5. How familiar are you with the PROACTIVE app?

□ I do not use smartphone apps
□ Very unfamiliar (I have only downloaded it)
□ Somewhat unfamiliar (I have downloaded it and have had a look around)
□ Rather familiar (I have tried the different features, e.g., reporting an incident)
□ Very familiar (I have spent a lot of time on it)

3. QUESTIONS ABOUT THE FIELD EXERCISE

Instruction: Choose the answer which best reflects your impression (for each question tick only one option).

6. The exercise was in line with my expectations

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples. Describe anything which may have surprised you:

7. I feel confident about reporting on what I observed

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer:

8. Overall, the first responders managed the affect persons effectively

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

9. The first responders communicated effectively with the affected persons

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

10. The first responders were effective in recognising vulnerable persons

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

11. The first responders were effective in supporting and assisting vulnerable people

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

12. The PROACTIVE Pre-incident Information materials seemed to be of help for those affected

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

13. First responders were respectful of the assistive technologies used by persons with vulnerabilities

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

14. The equipment used by first responders was adapted for persons with vulnerabilities

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

15. The unfolding of the exercise was realistic

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

16. Please share at least three examples of good practice that you observed in today's exercise and that will you take home with you and/or to your organisation

17. Please share at least three examples of the how emergency response unfolded during the exercise could have been improved?

18. Do you have any further observations about today's field exercise to share with us?

Continue to next section.

3.1. For Civil Society Organisations

Instruction: Skip this section and go to section 3.2. if you are a practitioner.

19. The treatment of affected persons reflected how I would expect to be treated during a CBRNe incident decontamination

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

20. Thanks to this exercise, I will be better prepared to deal with first responders in a CBRNe incident.

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

3.2. For Practitioners

Instruction: Skip this section if you are a member of the civil society and go to section 4.

21. In my organisation there are SOPs that take vulnerable groups into account.

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please briefly describe the SOP. Is it different/similar to what you've seen here today?

22. Thanks to this exercise, my organisation will be better prepared to deal with vulnerable groups

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

4. QUESTIONS ABOUT THE PROACTIVE APP

4.1. App usability

Instruction: Choose the answer which best reflects your impression (for each question tick only one option). Please do not consider the actual wording of the messages sent in the notifications/incident updates.

23. I felt confident using the app

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

24. The app design is easy-to-use

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

25. Most people would learn to use the PROACTIVE app quickly

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

26. The app has effective accessibility features

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

27. The app respects my privacy (e.g., the privacy statement, GDPR obligations)

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

28. The amount of text displayed was appropriate

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

29. The visualisations were appropriate

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

30. The PROACTIVE app enhances the situation awareness of the population on CBRNe events

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

31. I was confident that the incident information I saw on the app was the most recent update

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

32. It was easy to find critical information about the incident (e.g., time, location, severity)

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

33. I was able to find information resources/ materials on the topic of CBRNe

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

34. I would use the PROACTIVE app in the case of a real CBRNe incident

Strongly disagree	1	2	3	4	5	6	Strongly agree

Please explain your answer and give examples:

35. Based on today's experience, how many stars would you give the app, out of five? *Please mark (fill in) each star that you are giving. (Five stars is the best rating).*

4.2. App features

Instruction: Please rate the following app features in terms of their usefulness during a CBRNe incident. For each question choose only one answer:

36. In-app notifications

Not at all useful	1	2	3	4	5	6	Very useful

Please explain your answer and give examples:

37. Incident list

Not at all useful	1	2	3	4	5	6	Very useful

Please explain your answer and give examples:

38. Maps showing incidents

Not at all useful	1	2	3	4	5	6	Very useful

Please explain your answer and give examples:

39. CBRNe Information Library

Not at all useful	1	2	3	4	5	6	Very useful

Please explain your answer and give examples:

40. Please describe any new feature(s) you would like to see in the app:

41. Please provide any other suggestions on how to improve the app:

5. QUESTIONS ABOUT THE ORGANISATION OF THE EVENT

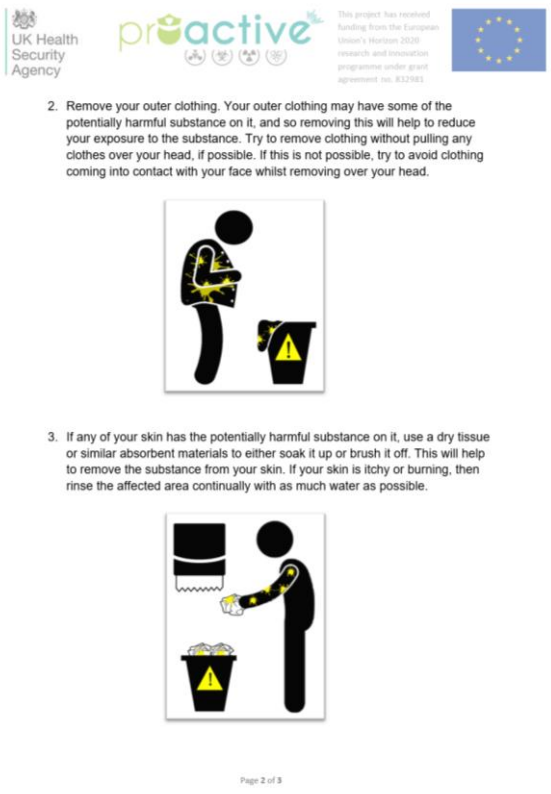
42. Please provide any suggestions on how we might improve the organisation of your participation as an observer in a similar exercise in the future:

43. Please provide any additional notes or comments about your experience observing this exercise:

20. APPENDIX 6: PROACTIVE PRE-INCIDENT INFORMATION MATERIAL

4. When emergency responders arrive, they may ask you to remove your clothing to your underwear and then wash yourself all over in a shower system that they will set up at the scene.

5. You should not put your old clothes back on after removing the substance from yourself. Emergency responders will help to provide you with clean, uncontaminated clothing.



2. Remove your outer clothing. Your outer clothing may have some of the potentially harmful substance on it, and so removing this will help to reduce your exposure to the substance. Try to remove clothing without pulling any clothes over your head, if possible. If this is not possible, try to avoid clothing coming into contact with your face whilst removing over your head.

3. If any of your skin has the potentially harmful substance on it, use a dry tissue or similar absorbent materials to either soak it up or brush it off. This will help to remove the substance from your skin. If your skin is itchy or burning, then rinse the affected area continually with as much water as possible.

Pre-Incident Public Information Materials for CBRNe Incidents

If you think you have been exposed to a potentially harmful substance, you should move away from the hazard as soon as possible to prevent further exposure.

You should remain near the scene as emergency responders will soon arrive to help you. While you are waiting:

1. Get fresh air if possible – this can help with any symptoms you may be experiencing. Do not eat, drink, smoke or touch your face to avoid swallowing any of the potentially harmful substance.

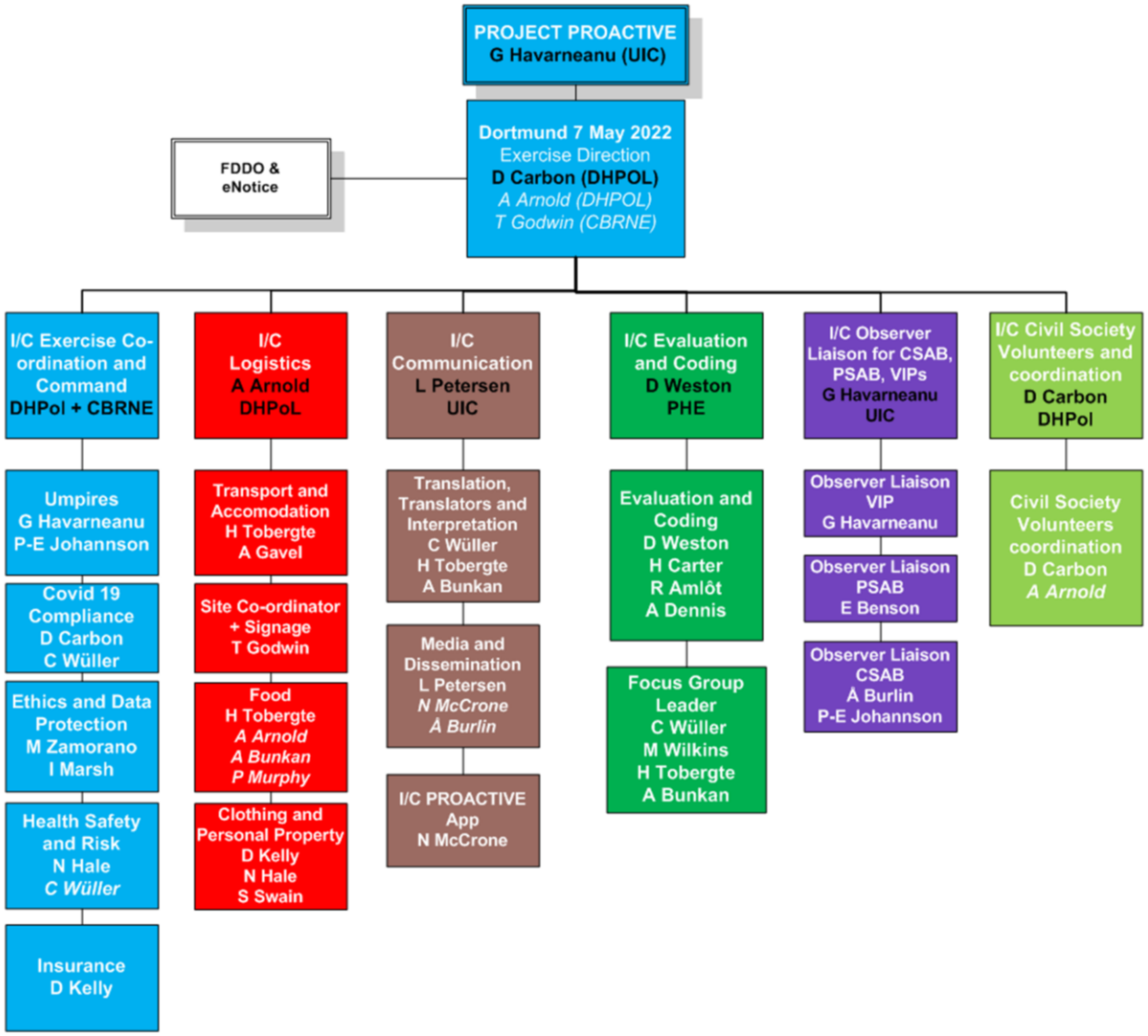
21. APPENDIX 7: DEFINITION OF ROLES AND RESPONSIBILITIES

Role	Definition
Exercise Director	Overall responsibility for the tactical coordination of the Field Exercise
Assistant Exercise Director	To providing support to the Exercise Director and resilience in command structure
Umpires	To ensuring those taking part in the exercise stick to their roles and responsibilities and arbitrating in the event of disagreement on exercise rules.
Covid-19 Compliance	To ensuring those participating in the Field Exercise are both complying with the national regulations of the country in which the exercise is taking place. To coordinating the logistics for (i) and (ii) above
Ethical related actions and Data Protection	To ensuring all ethical matters are properly considered and addressed. To ensuring all data pertaining to those participating is complied with withing the parameters of the GDPR regulations
Ethics External Advisor	To provide independent oversight of the ethical actions being undertaken by the field exercise organisers.
I/C Health and Safety and Risk Coordination	To ensuring the field exercise is carried out in a safe and compliant manner and that risk is managed commensurate with the aims and objectives of the exercise. To Liaise with the eNOTICE host Risk Manager regarding exercise safety procedures and requirements
Assistant Health and Safety and Risk Coordination	To support the person in charge of health, safety, and the management of risk
Head of Logistics	Is the person in overall charge of matters relating to logistics considered to include: Transport and Accommodation Signage and exercise demarcation areas Food Clothing and robing Management of personal property
Transport and Accommodation	To coordinate the transportation of the volunteers and any accommodation deemed necessary. Coordinate the meet and greet procedures to ensure the volunteers can report to the location of the field exercise at the correct time. Also, to enable the volunteer's return to home.
Site Coordinator (Signage and Exercise Demarcation areas)	To work with the eNOTICE host of the field exercise site ensuring the participants under the control of Project PROACTIVE are clear in their understanding of where they are allowed to be during all phases of the exercise

Role	Definition
Food	To coordinate with the eNOTICE host organiser the provision of food and liquids to the PROACTIVE participants and all volunteers. Special attention should be paid to volunteers needing special assistance with the catering.
Clothing, robing and the management of personal property.	To ensure the volunteers arrive wearing the correct garments for the duration of the exercise bearing in mind the weather and the possible need to wear swimming costumes underneath their clothing for the purposes of a wet decontamination. To ensure the safe keeping of any clothes and personal property belonging to the volunteers if not being worn. This may involve bagging the possessions and ensuring they are kept secure until returned to the owner. To manage the requirements, storage, and distribution of any specialist clothing required by participants
Translation, Translators and Interpreters	To identify the requirements of non-German speaking players in the field exercise to understand relevant activities and script. To coordinate the various translation functions for the field exercise as identified in the operational plan
Media and Dissemination	To implement the media plan during the exercise in partnership with the eNOTICE host. To identify and leverage all possible public relation opportunities in respect to the field exercise, Project PROACTIVE and the EU Commission. To disseminate the aims, objectives and results of the field exercise to all stakeholders. To manage the videographer team.
App Director	To direct the use of the PROACTIVE Tool Kit.
I/C Evaluators and Coding of Volunteers and Coding of Observers,	To design and carry out an evaluation of the field exercise to provide the necessary data for the collation of findings and to generate recommendations in line with the DoA specification To coordinate the hot debrief procedures at the conclusion of the field exercise and arrange appropriate follow up engagement as necessary.
Assistant Evaluators and Coding of Volunteers and Coding of Observers	To carry out the instructions of the In Charge organisation for the evaluation of the field exercise.
Focus Group Leader	To manage the focus groups with volunteers including the pre-exercise and post-exercise survey. To collect the surveys and conduct the focus group interviews.
I/C Observer Liaison CSAB PSAB VIPs	To organise, sustain, direct and care for the official CSAB, PSAB and VIP observers invited to the field exercise. To collect and coordinate their views and opinions as a contribution to the evaluation of the field exercise.
Observer Liaison CSAB	To support the organisation in charge of “Observers” in relation to the CSAB.
Observer Liaison PSAB	To support the organisation in charge of “Observers” in relation to the PSAB.

Role	Definition
Observer Liaison VIPs	To support the organisation in charge of “Observers” in relation to the VIPs
I/C Civil Society Volunteers Coordinator	To organise, sustain, direct and care for the Civil Society Volunteers invited to the field exercise. To collect and coordinate their views and opinions as a contribution to the evaluation of the field exercise under the direction of the organisation in charge of the Evaluation. To work with the eNOTICE host to ensure reasonable adjustments are made at the exercise location to support the needs of vulnerable groups
Assistant Civil Society Volunteers	To support the organisation in charge of the Civil Society Volunteers
I/C (external) Umpires	To organise, sustain, direct and care for the Umpires invited to the field exercise.

22. APPENDIX 8: PROACTIVE ORGANOGRAM



23. APPENDIX 9: INFORMATION PACK FOR VOLUNTEERS - CONSENT FORM

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

ANNEX 2 PROACTIVE INFORMED CONSENT TEMPLATE

PARTICIPANT CONSENT FORM

PROACTIVE Project Ethics Officer Approval Reference: PEO 13/15.03.22

PROACTIVE 1st exercise, DORTMUND, 7th of May 2022

Project PROACTIVE aims to **improve how well prepared you and emergency workers are in the case of an accident involving harmful materials**. We aim to do this by encouraging common approaches across the EU. We are especially interested in helping people who may have additional needs because of things like age, illnesses, disabilities or other items.

We will get the information we need by having three exercises (which we will watch and examine) and talking to the public and the emergency services.

This study is funded by project number 832981 PROACTIVE (project funded by the European Commission).

Context and purpose of exercise

The first PROACTIVE exercise will take place in Dortmund on Saturday, 07.05.2022. PROACTIVE is represented by the German Police University (DHPol) who cooperates with the Dortmund Fire Brigade. The exercise will examine the behaviour of a group of the population that unexpectedly comes into contact with a hazardous substance due to an accident and is therefore to be decontaminated. For this purpose, a fictitious but realistic scenario will be set up to simulate the accident and the release of the substance (Note: **no hazardous substances are used in the exercise and there is no risk for the participants to come into contact with hazardous substances during the exercise**).

During the exercise, two aspects are observed and documented: first, **the behaviour of the participants** before, during and after the decontamination through observers, and second, the **behaviour of the decontaminating unit**. The behaviour of the emergency forces is significant, as they have to adjust individually to each participant due to the inclusion of a cross-section of the population (i.e., civilians of different ages, different origins, with and without disabilities, etc.).

	Please initial only the box related to the statement to which you consent	
1	I confirm that I have read and understand the information sheet for the above research activity. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	
2	I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without any adverse consequences. I understand that I can retract my consent in the future and request that my data is no longer processed and removed	
3	I understand that this project has been reviewed by, and received ethics clearance through, the Project Ethics Officer of project PROACTIVE	
4	I understand that research data collected during the study may be looked at by authorised people outside the research team. I give permission for these individuals to access my data	
5	I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project	
6	I understand how this research will be written up and published (i.e., including only anonymised data)	
7	I consent to being audio recorded for research purposes	
8	I consent to being video recorded for research purposes	
9	I consent to having Internet Protocol (IP) and password data collected for research purposes (only for PROACTIVE App)	
10	I consent to being video recorded for dissemination purposes	
11	I consent to having my photo taken for dissemination purposes	
12	I consent to having my video taken for training purposes	
13	I understand how audio recordings / videos / photos will be used in research outputs	
14a	I agree to the use of anonymised quotes in research outputs **OR**	
14b	I do not wish my anonymised quotes to be used in research outputs	
15	I understand how to raise a concern or make a complaint	
16	I agree to take part in the research activity	

Name of Participant	Date (dd/mm/yy)	Signature
Name of person taking consent		

24. APPENDIX 10: INFORMATION PACK FOR VOLUNTEERS - INFORMATION SHEET

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

ANNEX 3 PROACTIVE INFORMATION SHEET TEMPLATE

PROACTIVE 1st exercise, DORTMUND, 7th of May 2022

PARTICIPANT INFORMATION SHEET

PROACTIVE PROJECT ETHICS OFFICER (PEO) Approval Reference: PEO 13/15.03.22

Background and aims of the research activity:

This study is funded by project no 832981 PROACTIVE (project funded by the European Commission)

Project PROACTIVE aims to **improve how well prepared you and emergency workers are in the case of an accident involving harmful materials**. We aim to do this by encouraging common approaches across the EU. We are especially interested in helping people who may have additional needs because of things like age, illnesses, disabilities or other characteristics.

We will get the information we need by having three exercises (which we will watch and examine) and talking to the public and the emergency services.

Why is this research being conducted?

The exercise in Dortmund will examine how emergency forces manage a simulated chemical accident. The first PROACTIVE exercise will take place in Dortmund on Saturday, 07.05.2022. PROACTIVE is represented by the German Police University (DHPol) who cooperates with the Dortmund Fire Brigade. The exercise will examine the behaviour of a group of the population that unexpectedly comes into contact with a hazardous substance due to an accident and is therefore to be decontaminated. For this purpose, a fictitious but realistic scenario will be set up to simulate the accident and the release of the substance. (Note: **no hazardous substances are used in the exercise and there is no risk for the participants to come into contact with hazardous substances during the exercise**.)

Why have I been invited to take part?

You have been invited because you applied as a volunteer to the fist PROACTIVE exercise, and you satisfy the criteria, including the age limit **age 18+**. About 40 civilian volunteers have been invited, 10 of whom represent the particularly vulnerable groups within a society, for example, those with mobility restrictions, hearing and visual impairments, or no knowledge of the local language.

Do I have to take part?

No. You can ask questions about the research before deciding whether or not to take part. If you do agree to take part, you may withdraw yourself from the study at any time, with no consequences and without giving a reason by advising Danielle Carbon or Andreas Arnold (registration_dortmund22@dhpol.de) of this decision. All your personal data will be deleted from the PROACTIVE project databases if you withdraw your participation within one month of receipt of the

request. Depending on the nature of your withdrawal of consent, we may us your personal data for the part of the processing for which your consent has been withdrawn or for any of the purposes.

What will happen to me if I take part in the research?

The exercise will take place outdoors and within a secured and controlled area. It is based on a **simulated accident** according to the following description:

The accident triggers a hazardous substance spill. Due to its rapid spread, you will come into contact with the imaginary hazardous substance. From a medical and tactical point of view, the characteristics of the hazardous substance and the amount spilled and thus absorbed by you require decontamination to prevent further damage. Decontamination must take place on site so that no distribution and transfer of the hazardous substance to other people takes place. In order to make the situation more tangible for all participants, a white, harmless fog is used at certain points to simulate the release of the hazardous substance. **No hazardous substances are used in the exercise**, i.e., there is no risk for you to come into contact with hazardous substances during the exercise.

Various response units of the Dortmund Fire Brigade are alerted, in particular the decontamination unit for injured people. Realistically, this unit carries out the decontamination. The alarmed firefighters gradually arrive at the scene. The firefighters will treat the simulation like a real case and equip themselves accordingly with their personal protective equipment. Thus, they will wear their personal protective equipment including a respirator and gloves. The commanders will explore the situation, coordinate the operation and determine the further measures applied by the units. As soon as the decontamination unit is ready for action, the decontamination of the study participants begins.

In the decontamination tent, firefighters will give you instructions on how to decontaminate, assist if necessary and, if self-decontamination is not possible, they carry out the shower routine. The exercise follows a realistic CBRNe operation, i.e., you are "cleaned" wet. For this reason, you have to wear swimwear under your street clothes. For the decontamination, you will undress down to your swimwear and remove everything that could be contaminated. The items are stored in clothing bags and returned to you after decontamination. To make the scenario as realistic as possible, non-heated water will be used.

After the decontamination shower, the exercise is finished. You will receive blankets and it is ensured that you can get dry immediately. Afterwards, you can dress again in a heated room.

Following the exercise, you will be questioned about your experience during the exercise via questionnaires and interviews. Afterwards, the exercise day is scheduled to end.

When you arrive at the site of the exercise, the organisers will talk you through the exercise procedures and give you the chance to ask any questions. Please notice that you have to be **double vaccinated and boostered** to participate in the exercise. Furthermore, a COVID-19 antigen test will be conducted on site at the day of the exercise. Since the fire brigade is a critical infrastructure, a mask (FFP 2, KN95 or N95) must also be worn throughout the exercise. The mask can, of course, be removed for the food and drink breaks.

Your participation in the exercise should take **approximately 6 hours**. You will be offered regular breaks. You can ask to withdraw from the exercise at any time.

If you decide to take part, the organisers will answer your questions before the registration process as you sign the consent form.

proactive

Will I be photographed / filmed?

The organisers will video and audio record the exercise for research and dissemination purposes. Also, photographs will be taken during the exercise. These images will be used for the following purposes:

My personal data collected	Why is my data collected?	How is my data used?
Video/Images, password and IP Address.	These data are collected for PROACTIVE research and dissemination purposes	If you consent, videos and images will be used to analyse your behaviour during the exercise and publicize the project results online. On the one hand, all research data will be anonymized before publication or release. On the other hand, if you consent, your images collected during the demonstration will be used to disseminate the project. Lastly, registration details and users' logs will be collected purely to allow you to test the PROACTIVE App and Web App (you can check its Privacy Policy for more information).
Name, signature, email, health data (allergies status and food preferences).	These data are collected for research and logistic purposes.	If you consent, these data will be used to organise the exercise. Health data will only be accessed by DHPol, UIC and PHE. These data will only be used for logistic purposes (including access control), pseudonymized by DHPol and will be deleted after the established retention period. PHE will only access pseudo anonymised data. They cannot link your health data to your name or the other personal data.

Are there any potential risks in taking part?

The risks associated with you taking part are those associated with **breaches of confidentiality** (regarding your personal data), **physical risks** associated with moving around the exercise area and being decontaminated and **psychological risks** associated with being involved in an exercise that simulates an accident.

To reduce any potential risks, we have carried out detailed risk assessments and have provided protection and safety measures. You will be advised in detail of all of these before the exercise. For those who are vulnerable, we have also consulted with advisory bodies.

Furthermore, all your personal data collected for research purposes (i.e., pictures, names, audios, etc.) **will be anonymised before publication** or any spreading outside the PROACTIVE project consortium. Only your consent data will be kept during the stated retention period. Lastly, only if you agree, your pictures and videos will be used to disseminate the PROACTIVE project online.

Are there any benefits in taking part?

By participating, you will help improve disaster management in Germany and beyond. In particular, the participation of particularly vulnerable people helps to improve the inclusivity of response measures.

Optional: Expenses and compensation

You will receive a voucher for participation, which will consist of a 30 euros coupon for acquiring goods (Querschenker). Food and beverages will be provided free of charge during the day of the exercise.

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What happens to the data provided?

The information you provide during the study can include **PROACTIVE project research and dissemination data**. Any data from which you can be identified, directly or indirectly, (name, email address, age, possible vulnerabilities (mobility restrictions etc, audio & video recording) is known as personal data.

Personal and sensitive data (such as personal data revealing racial or ethnic origin or health data) **will be stored on DHPol, Rinisoft, PHE and UIC premises**, encrypted before data sharing within the PROACTIVE consortium. The project organisations will store data in a secured space with only limited access. The research team's computers are protected by a firewall and secure passwords. To minimize the risk of data loss, regular backups of the data are made.

Personal data collected for research purposes is **pseudo anonymised for research purposes by corresponding data collecting organisations (DHPol, UIC and Rinisoft) and anonymised before publication or sharing outside the PROACTIVE consortium**. The only exception relates to sharing your personal data (audio, videos and pictures) for research purposes with members of the project advisory boards and under specific security conditions stated in the Data Processing Agreement. These data and other research data (including consent forms) will be kept for 5 years after the finish date of the Project PROACTIVE, with the exception of DHPol who will keep data for 10 years.

In the attached consent form, specific consent is obtained for all communication, training & dissemination activities as per the ethical rules of project PROACTIVE. All persons who partake in the exercise will be required to give consent for communication, training & dissemination purposes as well as research purposes. All filming, audio recording and photography will be done following the rules of the General Data Protection Framework of the EU.

You should note that, as part of PROACTIVE data management, your personal data in pseudonymised format (including videos, and sensitive data) will be transferred to, and stored at PHE premises, a destination **outside the European Economic Area, in the UK**. Identifiable data will be removed within the established data retention period, and any data transfer will be done securely and with a similar level of data protection as required under UK law.

Concerning third parties, personal data that PROACTIVE has collected could only be shared with the Dortmund Fire Brigade (FDDO) as they may be responsible for the access control on the day of the exercise. Participants should be aware that the Dortmund Fire Brigade also intends to collect data, such as photographs to be used for dissemination purposes, and participants will be asked to sign a consent form created by the Dortmund Fire Brigade. Lastly, you should note that the Dortmund Fire Brigade may collect other access control data which does not fall under the scope of this consent protocol, such as your vaccination status.

Will the research be published?

The research data will be used to prepare a report for the European Commission, which will summarise the findings of the exercise in Dortmund. The anonymised research may be published in academic publications (including open-access), at conferences and expositions, and the PROACTIVE and DHPol websites.

Who has reviewed this study?

This study has been received ethics clearance through the Project Ethics Officer of Project PROACTIVE and External Ethics Advisory Board (EEAB) (Reference number: PEO 13/15.03.22).

Whom do I contact if I have a concern about the study or I wish to complain?

If you have a **concern about any aspect of this study**, please contact Andreas Arnold or Danielle Carbon (registration_dortmund22@dhpol.de) or PROACTIVE PEO Irina Marsh (irina.marsh@cbrneltd.com), and we will do our best to answer your query. We will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with.

Data Protection

DHPol, RINI, PHE and UIC are joint data controllers with respect to your personal data, and as such will determine how your personal data is used in the study.

The PROACTIVE project partners will process your personal data for the purpose of the research outlined above. Research is a task that is performed in the public interest. The legal basis for the processing of your data is your consent.

Our Data Protection Officer (DPO) oversees compliance with our data protection policy, ensuring that individual rights are properly treated and deals with any doubt, suggestion, complaint or claim from participants. You can contact the Data Protection Officer at DHPol by writing to registration_dortmund22@dhpol.de

Further Information and Contact Details

If you would like to discuss the research with someone beforehand (or if you have questions afterwards), please contact:

Danielle Carbon or Andreas Arnold

German Police University
Zum Roten Berge 18-24, 48165 Münster, Germany
Tel: +49 2501 806 817 or +49 2501 806 815
Email: registration_dortmund22@dhpol.de

25. APPENDIX 11: REGISTRATION PACK FOR VOLUNTEERS – BRIEFING

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

Registration Pack Dortmund Field Ex 2022 - Briefing

Registration

Please fill in the attached registration form and send it to registration_dortmund22@dhpol.de until the **20th of April 2022.**

Timeline

07th May 2022 6.30 am (Meeting point Dortmund Central Station)

7.30 am -12.30 pm: Joint Field Ex Dortmund and evaluation

You are kindly asked to organize your traveling arrangement on your own.

Regulations concerning Covid-19

While planning your trip, please consider the current information for travelers in Germany. (https://www.bundesgesundheitsministerium.de/en/service/gesetze-und-verordnungen/guv-19-lp/coronavirus-einreiseverordnung.html)

Please also be aware of the current Covid-regulations set by FDDO. All rules and exceptions can be found in the **'Briefing pack - Vaccination information'**. Only guests with approved status are allowed to enter the training center. Take your vaccination certificate with you.

Prior to entering the FDDO training center, you are asked to undergo a Covid testing let by the German Red Cross. DHPol will provide sufficient masks (FFP2, KN95 or N95 masks). All guests of the training center must wear the mask inside and outside since the Fire Brigade is a critical infrastructure.

Arrival

By train

- **Dortmund Central Station**, Königswall 15, 44137 Dortmund

By plane

- **From Düsseldorf Airport (DUS) to Dortmund Central Station**
  Take the Terminal Train to Düsseldorf Airport Train Station (free)
  Options: InterCityExpress (ICE/IC), RegionalExpress (RE) or S-Bahn
  The RegionalExpress offers the best balance between time and price: approx. 45-55 min.; non-stop; €17.00-22.00: RE6 -> Minden (Westf) or RE1 -> Hamm (Westf)
  DB website: https://www.bahn.com/en/view/index.shtml
- **From Dortmund Airport to Dortmund Central Station**
  Option: AirportExpress: approx. 25 min.; non-stop; €9.00
  Airport website; https://www.dortmund-airport.com/bus-and-train

By car

- There are different public parking options available in Dortmund: https://www.parkopedia.de/parken/dortmund/?arriving=202203311530&leaving=202203311730

Accommodation

There are many hotels located in close distance to the main train station of Dortmund which we can suggest:

- **Hotel NH Dortmund**
  Königswall 1, 44137 Dortmund
  Phone: +49 231 90550
  Mail: nhdortmund@nh-hotels.com
  Website: https://www.nh-hotels.com/hotel/

- **Leonardo Dortmund**
  Burgwall 11-13, 44135 Dortmund
  Phone: +49 211 7771977
  Mail: res.dortmund@leonardo-hotels.com
  Website: https://www.leonardo-hotels.de/dortmund/

- **B&B Hotel Dortmund City**
  Burgwall 5, 44135 Dortmund
  Phone: +49 231 58989970
  Mail: dortmund-city@hotelbb.com
  Website: https://www.hotel-bb.com/en/de
  Use Code 'Exercise Dortmund' for a booking discount': 64,50€ (room/night) incl. BF

- **Hotel Esplanade**
  Burgwall 3, 44135 Dortmund
  Phone: +49 231 58530
  Mail: hotel@esplanade-dortmund.de
  Website: https://www.esplanade-dortmund.de/en/

Arrival to exercise premise

The exercise takes place at the **FDDO training center** (Feuerwehr Dortmund, 37/5 Ausbildungszentrum (ABZ); Seilerstraße 15, 44147 Dortmund) in the North of Dortmund.

By tram

- Volunteers are asked to meet in front of the Dortmund Central Station. The exact meeting point and time will be confirmed the week prior to the exercise by e-mail. DHPol will purchase group tickets in advance for everyone. Together with PROACTIVE partners you take the tram to the station (U) near the training center (see picture below). The tram comes every 8 minutes and takes 20 minutes, taking the U41 Direction "Brambauer", exit at Güterstraße (6th stop). The stop is barrier free.

By car

- Please note that FDDO does not want guests to arrive by car due to limited parking options on site. Exceptions could be made for transportation purposes only. In this case, please get in touch with us for further clarification (see registration form).

Additional information

Please consider appropriate clothing for the exercise: Your clothes can get dirty and damaged. Therefore, choose old clothes. As far as possible, leave valuables at home. If you need to carry glasses or similar fragile items, please think of suitable cases to keep them safe. Don't forget to wear swimming costumes under your clothes. Changing facilities are available on site. Sturdy shoes are recommended.

If you have any questions or if you need help with the travel arrangements, please feel free to contact us:

Danielle Carbon or Andreas Arnold

German Police University
Zum Roten Berge 18-24, 48165 Münster, Germany
Tel: +49 2501 806 817 or +49 2501 806 815
Email: registration_dortmund22@dhpol.de

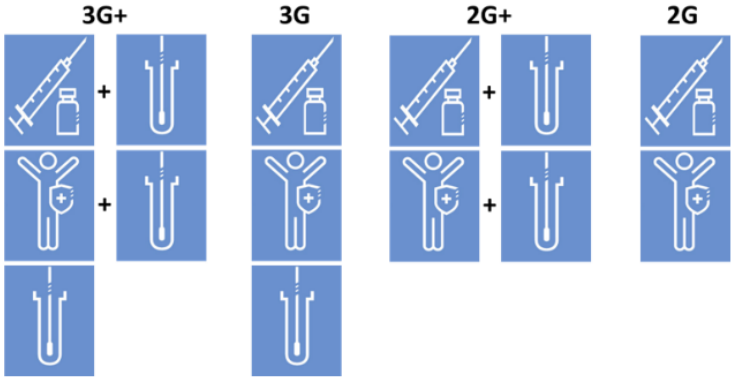
26. APPENDIX 12: REGISTRATION PACK FOR VOLUNTEERS - COVID-19 REGULATIONS

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

Registration pack Dortmund Field Ex 2022
Covid-19 Regulations

Covid-19 regulations in Germany

Germany has established the G-System called '**G**eimpft, **G**enesen, **G**etestet' (*Vaccinated, Recovered, Tested*). It covers different levels for preventive infection control:



You might come across those rules during your stay in Dortmund (e.g. hotel, restaurant, public transport etc.).

2G+ rule for Dortmund field exercise

Note: Version 14 of the Coronavirus Operational Plan of the Dortmund Fire Department, dated 24.03.2022, provides information on the topic of visitors at fire and rescue stations. It states:

"Visits to fire and rescue stations are possible if the visitors are vaccinated or recovered and at the same time provide proof of a daily rapid test (these are not provided by the fire brigade). These conditions must be checked and documented by the inviting party."

Please note that upon your arrival at the FDDO training centre on the morning of the exercise, **the Red Cross will perform a rapid test in front of the entrance gate for all PROACTIVE partners, guests and civil volunteers**.

Vaccination

Vaccines approved in the European Union:
Biontech (Comirnaty®), Moderna (Spikevax®), Astra Zeneca (Vaxzevria®), Johnson&Johnson (Janssen®), Novavax (Nuvaxovid®/NVX-CoV2373).[1]

Biontech (Comirnaty®)

Vaccination protection if:

- booster vaccination (second dose) was given more than 14 days but not more than 6 months ago
- booster vaccination (third dose) has been given with an mRNA vaccine licensed in the European Union

Moderna (Spikevax®)

Vaccination protection if:

- booster vaccination (second dose) was given more than 14 days but not more than 6 months ago
- booster vaccination (third dose) with an mRNA vaccine licensed in the European Union has been carried out.

Astra Zeneca (Vaxzevria®)

Vaccination protection if:

- booster vaccination (second dose) was given more than 14 days but not more than 6 months ago
- booster vaccination (third dose) has been given with an mRNA vaccine licensed in the European Union

Johnson&Johnson (Janssen®)

Vaccination protection if:

- booster vaccination (second dose) was given more than 14 days but not more than 6 months ago.
- booster vaccination (third dose) with an mRNA vaccine licensed in the European Union has been given

[1] Information on vaccinations based on information provided by the Federal Ministry of Health (BMG), the Robert Koch Institute (RKI) and the Paul Ehrlich Institute (PEI) (https://www.zusammengegencorona.de/informieren/alltag-und-reisen/aktuelle-regelungen/)

Recovery

Protection if:

- an infection (proof via the positive PCR test) more than 28 days but no longer than 90 days ago.
- booster vaccination with an mRNA vaccine licensed in the European Union has been carried out and no longer than 6 months have passed.
- booster vaccination with an mRNA vaccine authorised in the European Union has been carried out

Decision support vaccination status

27. APPENDIX 13: REGISTRATION PACK FOR VOLUNTEERS - REGISTRATION FORM

Registration Form

The Horizon2020 Joint Dortmund Field Exercise 2022 on May 7 will take place at the FDDO Training Centre (ABZ) in Dortmund. The event will include a decontamination exercise and an evaluation workshop with volunteers.

To confirm your attendance to the PROACTIVE Joint Activity please send the form completed to registration_dortmund22@dhpol.de **before 20th April 2022**

Information and Instructions

Type of activity:	Horizon2020 Joint Dortmund Field Exercise 2022			
Location:	**Address:**	Seilerstraße 15		
	City:	Dortmund	**Zip code:**	44147
	Country:	GERMANY		
Timing:	**Begin:**	07.05.2022 6.30 am (Meeting point Dortmund Central Station) 7.30 am (Meeting point ABZ)		
	End:	07.05.2022 12.30 pm		

Registration data

Organization:	*(if applicable)*		
Department:	*(if applicable)*	**Function:** *(if applicable)*	
Name:	xxx		
Gender:	Gender		
Date of Birth:	dd.mm.yyyy		
Communication:	Email:	xxx	
	mobile phone – used only in case of emergency:	Country code + number	
Address:	**private**	**or**	**business**
Street and Nr.:	Street / Nr.		Street / Nr.
Postcode/City:	Postcode / City		Postcode / City
Country:	Country		Country

PROACTIVE – GA no. 832981 Page 1 of 3

Arrival / Departure

(Please note that travel arrangements are participants' responsibility)			
Assistance with travel arrangements required	☐ yes	☐ no	☐ only assistance requiered with: xxx
Location of Arrival: *(Please note the information on arrival by car)*	Meeting point Dortmund Central Station ☐ Meeting point ABZ ☐		
Hotels (if applicable):	Enter hotel name		
Options for cost coverage must be to be clarified in advance!	Street / Nr.		
	City / Postcode		
Nr. of nights:	numbers		
Date and Time of Arrival:	dd.mm.yyyy tt.tt am/pm		
Date and Time of Departure:	dd.mm.yyyy tt.tt am/pm		

Other / Comments (optional)

Dietary requirements:	e.g. vegetarian, vegan, nut allergy etc.
Personal belongings to be considered:	e.g. wheelchair
Special needs to be considered:	e.g. certain assistance necessary
Accompanying person:	Name, Date of Birth, role during the day
Comments and Requests:	Please note that FDDO does not want guests to arrive by car due to limited parking options on site. Exceptions could be made for transportation purposes only. In this case, please indicate your **request here** so we can get in touch with you for further clarification.

I have understood that my registration cannot be considered without a signed Consent Form ☐

I voluntarily consent to sharing my personal information with DHPol and FDDO for this information to be used for registration and catering organisation. ☐

If you have any questions, please feel free to contact us:

Danielle Carbon or Andreas Arnold

German Police University
Zum Roten Berge 18-24, 48165 Münster, Germany
Tel: +49 2501 806 817 or +49 2501 806 815
Email: registration_dortmund22@dhpol.de

28. APPENDIX 14: INFORMATION PACK FOR OBSERVERS - CONSENT FORM

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

PROACTIVE 1st field exercise, Dortmund, 7th of May 2022

Feuerwehr Dortmund, 37/5 Ausbildungszentrum (ABZ); Seilerstraße 15, 44147 Dortmund

A. Information sheet

Background and aims of the activity.

The goal of project PROACTIVE is to enhance societal CBRNe (Chemical, Biological, Radiological, Nuclear and explosive) preparedness by increasing first responder's ability to effectively manage large, diverse groups of people. This will be accomplished by fostering common approaches between European safety and security Practitioners, in particular Law Enforcement Agencies (LEAs) and CBRNe First Responders. These are to be evaluated and validated against the needs and requirements of the civil society, especially considering vulnerable groups of citizens. These groups reflect the most important societal aspects, in line with the European Security Model (e.g., perception of security, possible side effects of technological solutions, gender- and age-related behaviour, and disabilities). In that respect, the project PROACTIVE methodology is **consultation** with Practitioner-Stakeholders (e.g., Law Enforcement Agencies, CBRNe First Responders) and Citizens (through appropriate methods such as surveys, interviews and focus groups), followed by **detailed examination** of selected tools and procedures and the subsequent provision of **three field exercises** to evaluate their effectiveness via an effective, realistic, legal and ethical research platform.

Project PROACTIVE has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981.

What is this exercise?

The exercise in Dortmund will examine how emergency forces manage a simulated chemical accident. The first PROACTIVE exercise will take place in Dortmund on Saturday, 07.05.2022. PROACTIVE is represented by the German Police University (DHPol) who cooperate with the Dortmund Fire Brigade. The exercise will examine the behaviour of a group of the population that unexpectedly comes into contact with a hazardous substance due to an accident and is therefore to be decontaminated. For this purpose, a fictitious but realistic scenario will be set up to simulate the accident and the release of the substance. (Note: **no real substances are used in the exercise and there is no risk for the participants to come into contact with hazardous substances during the exercise.**)

Why have I been invited to take part?

You have been invited to take part as an Observer of the exercise.

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Do I have to take part?

No. You will have the opportunity to ask questions via email before deciding whether or not to take part. If you do decide to take part, you may withdraw yourself at any time either prior to the exercise commencing, or at any part during the exercises, without giving a reason. The exercise will be video recorded; therefore, it will not be possible to withdraw information once it has been provided.

What will happen during the exercise?

The exercise will take place outdoors and within a secured and controlled area. It is based on a **simulated accident** according to the following description:

The accident triggers a hazardous substance spill. Due to its rapid spread, the volunteers come into contact with the imaginary hazardous substance. From a medical and tactical point of view, the characteristics of the hazardous substance and the amount spilled and thus absorbed by the volunteers require decontamination to prevent further damage. Decontamination must take place on site so that no distribution and transfer of the hazardous substance to other people takes place. In order to make the situation more tangible for all participants, a white, harmless fog is used at certain points to simulate the release of the hazardous substance. **No hazardous substances are used in the exercise**, i.e., there is no risk for you or the volunteers to come into contact with hazardous substances during the exercise.

Various response units of the Dortmund Fire Brigade are alerted, in particular the decontamination unit for injured people. Realistically, this unit carries out the decontamination. The alarmed firefighters gradually arrive at the scene. The firefighters will treat the simulation like a real case and equip themselves accordingly with their personal protective equipment. Thus, they will wear their personal protective equipment including a respirator and gloves. The commanders will explore the situation, coordinate the operation and determine the further measures applied by the units. As soon as the decontamination unit is ready for action, the decontamination of the volunteers begins.

After the decontamination shower, the exercise is finished.

During the exercise, you, as Observer, will observe the exercise from the observer's area, will use the PROACTIVE app, and will fill in the Observer Guide. Afterwards, the exercise day is scheduled to end.

When you arrive at the site of the exercise, the organisers will talk you through the exercise procedures and give you the chance to ask any questions. Please notice that you have to be **double vaccinated and boosted** to participate in the exercise. Furthermore, a COVID-19 antigen test will be conducted on site at the day of the exercise. Since the fire brigade is a critical infrastructure, a mask (FFP 2, KN95 or N95) must also be worn throughout the exercise. The mask can, of course, be removed for the food and drink breaks.

Your participation in the exercise should take **approximately 6 hours**. You will be offered regular breaks. You can ask to withdraw from the exercise at any time.

Will I be photographed / filmed?

The organisers will video and audio record the exercise for research and dissemination purposes. Also, photographs will be taken during the exercise. These images will be used for the following purposes:

My personal data collected	Why is my data collected?	How is my data used?
Video/Images, email, password and IP Address.	These data are collected for PROACTIVE research and dissemination purposes	If you consent, videos and images will be used to publicize the project results online. All the data will be anonymized before publication or release. Registration details will be collected to allow you to participate in the live field exercise. Should you choose to test the PROACTIVE App and Web App you will be required to also register with your email address and a password (you can check its Privacy Policy for more information).
Name, signature, email, health data (allergies status and food preferences).	These data are collected for research and logistic purposes.	If you consent, these data will be used to organize the exercise. Health data will only be accessed by DHPol, UIC and UK HSA. These data will only be used for logistic purposes (including access control), pseudonymized by DHPol and will be deleted after the established retention period. UK HSA will only access pseudo anonymised data. They cannot link your health data to your name or the other personal data.

Are there any potential risks in taking part?

The risks associated with you taking part are those associated with **breaches of confidentiality** (regarding your personal data).

To reduce any potential risks, we have carried out detailed risk assessments and have provided protection and safety measures. You will be advised in detail of all of these before the exercise. For those who are vulnerable, we have also consulted with advisory bodies.

Furthermore, all your personal data collected for dissemination purposes (i.e., pictures, names, etc.) **will be anonymised before publication** or any dissemination outside the PROACTIVE project consortium. Only your consent data will be kept during the stated retention period. Lastly, only if you agree, your pictures and videos will be used to disseminate the PROACTIVE project online.

Are there any benefits in taking part?

There will be no direct or personal benefit to you from taking part. However, by participating, you will help improve disaster management in Germany and beyond. The participation of particularly vulnerable people helps to improve the inclusivity of response measures.

What happens to the information provided?

The information you provide during the exercise will be stored securely and only shared with members of the PROACTIVE project team.

Information provided (including consent forms) will be stored for 5 years after the end of the PROACTIVE Project.

Will findings from the exercise be published?

Findings including those from the Observer Guide may be published in academic publications and PROACTIVE Deliverables.

Who has reviewed this work?

This work has been approved by the Project Ethics Officer of Project PROACTIVE.

Who do I contact if I have a concern about the exercise or I wish to complain?

If you have a concern about any aspect of this field exercise, please contact PROACTIVE PEO: Irina Marsh irina.marsh@cbrneltd.com. We will do our best to answer your query. We will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with.

Data Protection

PROACTIVE 1st exercise, 7th of May, Dortmund
Below you will find information about the **processing of your personal data (pictures and video)** collected during PROACTIVE 1st exercise

Data Controllers: DHPol, UIC and RINISOFT.

Types of Personal data:

- Data necessary for the organisation and management of PROACTIVE exercise and other project activities such as: name, surname, organisation, position, e-mail addresses, signature;
- Image, video and voice (via photos and audiovisual recordings) and location (via the PROACTIVE app)

Purposes of the Processing:

- the purpose of the processing of personal data is the **management and organisation of PROACTIVE project activities** (e.g., information sharing, drafting of minutes, keeping of attendance list). These data will not be released outside the consortium.
- the **scientific research** purposes of assessing the PROACTIVE toolkit and testing its technical capabilities, as well as its compliance with legal requirements and social impact. All research data will be anonymized before any sharing outside the PROACTIVE consortium or publication.
- **dissemination and communication** activities (in printed and/or digital form to be published offline and/or online in various channels, e.g., print publications, websites, posters banners, social media, conferences, workshops.). These data will be released outside the consortium under your consent only.

Legal basis: Personal data which are collected for the drafting of minutes and information sharing among the Consortium is processed based on the PROACTIVE Consortium Agreement and Grant Agreement. Processing is necessary for the performance of these contracts. Personal data which are collected for research, dissemination and communication purposes and for development of the PROACTIVE toolkit are processed based on your consent.

Data Controllers coordinator: DHPol as the exercise organiser and UIC as the project's Coordinator are the contact points to coordinate the communication between data subjects, controllers and the data protection officers.

Contact Point: The Consortium partners have appointed internal Data Protection Officers who will be immediately notified through UIC, email: dpo@uic.org acting as a central contact point from UIC, in case any queries arise. Therefore, dpo@uic.org is the central e-mail account to which you can send your emails if you have any questions relating to this consent form or the way we are planning to use your information. You can refer to this address if you want to exercise your data protection rights, especially if you wish to withdraw your consent to processing your personal data.

Recipients: The PROACTIVE Consortium partners. With respect to (screen) photos, they will be uploaded online, fully or partially, onto the PROACTIVE website and its social media accounts, accessible to the general public worldwide.

Storage Period: Your Personal Data will be securely stored and retained for as long as necessary. They will be kept for a maximum period of 5 years after the end of the project, namely until August 2028 at the latest, in the project image and media bank, which is accessible to the Consortium members and will be safely deleted afterwards. Photos and videos uploaded on PROACTIVE website and its social media accounts will be retained so long as the site and the social media account exist according to the website's 'Terms of Use' and 'Privacy Policy', but for a maximum period of 5 years after the end of the project and will be safely deleted afterwards.

Your Rights: You have the right to:

- Request information about whether, how and why we hold your personal information.
- Request access to your personal information and receive a copy.
- Request rectification of your personal information.
- Request erasure of your personal information.
- Request the restriction of processing of your personal information.
- Request transfer of your personal information in an electronic and structured form to you or to another party (right to "data portability").
- Lodge a complaint with a supervisory authority
- Withdraw your consent, at any time, by sending an e-mail to *dpo@uic.org*.

Please, note that the withdrawal does not affect the processing of your data which is based on the consent you have given before the withdrawal.

B. Informed Consent

PARTICIPANT CONSENT FORM

PROACTIVE Project Ethics Officer Approval Reference: no15/ 26.04.22

PROACTIVE 1st exercise, Dortmund, 7th of May 2022 (purpose of the study)

PROACTIVE aims to improve how well-prepared citizens and emergency workers are in the case of an accident involving harmful materials. We aim to do this by encouraging common approaches across the EU. We are especially interested in helping people who may have additional needs because of things like age, illnesses, disabilities or other things. In this context, we will get the information that we need by having an exercise with practitioners and individuals directly affected by these events.

This study is carried out by project PROACTIVE (project funded by the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981).

		Please initial each box
1	I confirm that I have read and understand the information sheet for the above research activity. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
2	I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without any adverse consequences or penalty.	
3	I understand that research data collected during the study may be looked at by authorised people outside the research team. I give permission for these individuals to access my data.	
4	I understand that this project has been reviewed by, and received ethics clearance through, the Project Ethics Officer of project PROACTIVE.	
5	I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project.	
6	I understand how this research will be written up and published (i.e., including only anonymized data).	
7	I understand how to raise a concern or make a complaint.	
8	I consent to being video recorded for research purposes.	
9	I consent to having my photo taken and video recorded for dissemination purposes.	
10	I understand how / videos / photos will be used in PROACTIVE outputs.	
11	I agree to take part in the research activity	

Name of Participant	Date (dd/mm/yy)	Signature
Name of person taking consent		

29. APPENDIX 15: LOGISTIC PACK FOR OBSERVERS - PROGRAM OF THE DAY

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

Logistic Pack Dortmund Field Exercise – 7 May 2022 Timeline

6.30 am Meeting point at Dortmund Central Station

↓

Transportation to FDDO Training Centre

↓

Registration and Covid-19 testing at Main Gate of FDDO Training Centre

↓

Briefing in Briefing Rooms

↓

Breakfast in Hall

↓

Preparations for livestream in Observation Room

↓

Start of DECONTAMINATION EXERCISE in Exercise Area

↓

Exercise observation via observer guides in Observation Room

↓

Debriefing and collection of observer guides in Observation Room

↓

Lunch in Hall

↓

Wrap-up of exercise by FDDO in Hall

↓

Farewell

↓

2.00 pm Thanks and departure

30. APPENDIX 16: LOGISTIC PACK FOR OBSERVERS - MAP OF TRAINING CENTRE (ABZ)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

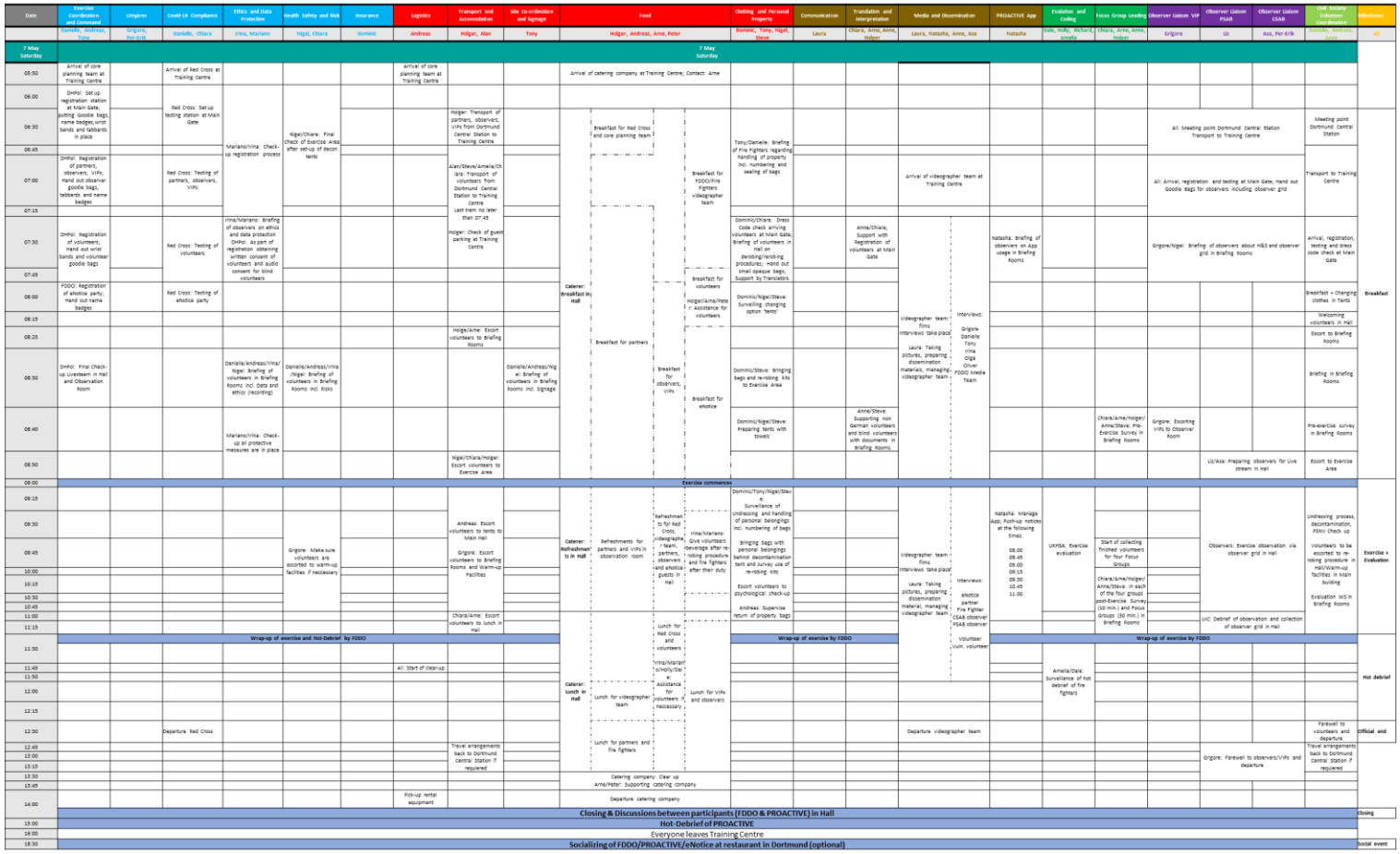
Logistic Pack Dortmund Field Ex 2022
Map of FDDO Training Centre (ABZ)

31. APPENDIX 17: EXERCISE TIMELINE

Time schedule

Dortmund Field Exercise May 7, 2022

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981



Date	Exercise Coordination and Command	Umpires	Covid-19 Compliance	Ethics and Data Protection	Health Safety and Risk	Insurance	Logistics	Transport and Accomodation	Site Co-ordination and Signage	Food	Clothing and Personal Property	Communication	Translation and interpretation	Media and Dissemination	PROACTIVE App	Evaluation and Coding	Focus Group Leading	Observer Liaison VIP	Observer Liaison PSAB	Observer Liaison CSAB	Staff Victim/ Volunteer Coordination	Milestones
	Daniele, Andreas, Tony	Grigore, Per-Erik	Daniele, Chiara	Irina, Mariano	Nigel, Chiara	Dominic	Andreas	Holger, Alan	Tony	Holger, Andreas, Arne, Peter	Dominic, Tony, Nigel, Steve	Laura	Chiara, Arne, Anne, Holger	Laura, Natasha, Anne, Ass	Natasha	Dale, Molly, Richard, Amelia	Chiara, Arne, Anne, Holger	Grigore	Uli	Ass, Per-Erik	Daniela, Andrea, Anne	All	
7 May Saturday	7 May Saturday																					
05:50	Arrival of core planning team at Training Centre		Arrival of Red Cross at Training Centre				Arrival of core planning team at Training Centre			Arrival of catering company at Training Centre, Contact: Arne												
06:00	DHPol: Set up registration station at Main Gate; putting Goodie bags, name badges,wrist bands and tabbards in place		Red Cross: Set up testing station at Main Gate					Holger: Transport of partners, observers, VIPs from Dortmund Central Station to Training Centre										All: meeting point Dortmund Central Station Transport to Training Centre			Meeting point Dortmund Central Station	
06:30				Mariano/Irina: Check-up registration process	Nigel/Chiara: Final Check of Exercise Area after set-up of decon tents					Breakfast for Red Cross and core planning team	Tony/Daniele: Briefing of Fire Fighters regarding handling of property incl. numbering and sealing of bags										Transport to Training Centre	
06:45								Alan/Steve/Amela/Chiara: Transport of volunteers from Dortmund Central Station to Training Centre														
07:00	DHPol: Registration of partners, observers, VIPs; Hand out observer goodie bags, tabbards and name badges		Red Cross: Testing of partners, observers, VIPs							Breakfast for FDDO/Fire Fighters videographer team				Arrival of videographer team at Training Centre				All: Arrival, registration and testing at Main Gate, Hand out Goodie Bags for observers including observer grid				
07:15								Last tram no later than 07:45														
07:30	DHPol: Registration of volunteers, Hand out wrist bands and volunteer goodie bags		Red Cross: Testing of volunteers	Irina/Mariano: Briefing of observers on ethics and data protection DHPol: As part of registration obtaining written consent of volunteers and audio consent for blind volunteers				Holger: Check of guest parking at Training Centre			Dominic/Chiara: Dress Code check arriving volunteers at Main Gate; Briefing of volunteers in Hall on deroling/reroling procedures; Hand out small opaque bags; Support by Translators		Anne/Chiara; Support with Registration of volunteers at Main Gate		Natasha: Briefing of observers on App usage in Briefing Rooms			Grigore/Nigel: Briefing of observers about H&S and observer grid in Briefing Rooms			Arrival, registration, testing and dress code check at Main Gate	
07:45										Breakfast for volunteers												
08:00	FDDO: Registration of eNotice party; Hand out name badges		Red Cross: Testing of eNotice party						Caterer: Breakfast in Hall	Holger/Arne/Peter: Assistance for volunteers	Dominic/Nigel/Steve: Surveilling changing option 'tents'										Breakfast + Changing clothes in tents	Breakfast
08:15														Videographer team: films interviews take place							Welcoming volunteers in Hall	
08:25								Holger/Arne: Escort volunteers to Briefing Rooms		Breakfast for partners				Laura: Taking pictures, preparing dissemination materials, managing videographer team	Interviews: Grigore Daniele Tony Irina Olga Oliver FDDO Media Team						Escort to Briefing Rooms	
08:30	DHPol: Final Check-up Livestream in Hall and Observation Room			Daniele/Andreas/Irina/Nigel: Briefing of volunteers in Briefing Rooms incl. Data and ethics (recording)	Daniele/Andreas/Irina /Nigel: Briefing of volunteers in Briefing Rooms incl. Risks				Daniele/Andreas/Nigel: Briefing of volunteers in Briefing Rooms incl. Signage	Breakfast for observers, VIPs	Dominic/Steve: Bringing bags and re-roling kits to Exercise Area										Briefing in Briefing Rooms	
08:40				Mariano/Irina: Check-up of protective measures are in place						Breakfast for eNotice	Dominic/Nigel/Steve: Preparing tents with towels		Anne/Steve: Supporting non German volunteers and blind volunteers with documents in Briefing Rooms				Chiara/Arne/Holger/Anne/Steve: Pre-Exercise Survey in Briefing Rooms	Grigore: Escorting VIPs to Observer Room				Pre-exercise Survey in Briefing Rooms	
08:50								Nigel/Chiara/Holger: Escort volunteers to Exercise Area											Uli/Ass: Preparing observers for Live stream in Hall			Escort to Exercise Area	
09:00	Exercise commences																					
09:15											Dominic/Tony/Nigel/Steve: Surveillance of Undressing and handling of personal belongings incl. numbering of bags										Undressing process, decontamination, PSNV Check up	
09:30								Andreas: Escort volunteers to tents to Main Hall		Refreshments for partners and VIPs in observation room					Natasha: Manage App; Push-up notices at the following times: 08.00 08.45 09.00 09.15 09.30 10.45 11.00						Volunteers to be escorted to re-roling procedure in Hall/Warm-up facilities in Main building	Exercise + Evaluation
09:45					Grigore: Make sure volunteers are escorted to warm-up facilities if necessary			Grigore: Escort volunteers to Briefing Rooms and Warm-up Facilities	Caterer: Refreshment's in Hall	Refreshments for observers, and eNotice's guests in Hall	Bringing bags with personal belongings behind decontamination tent and survey use of re-roling kits			Videographer team: films interviews take place			Start of collecting finished volunteers for four Focus Groups				
10:00																					Evaluation WS in Briefing Rooms	
10:15										Irina/Mariano: Give volunteers cleverage after re-roling procedure and fire fighters after their duty	Escort volunteers to psychological check-up			Laura: Taking pictures, preparing dissemination material, managing videographer team	Interviews: eNotice partner Fire Fighter CSAB observer PSAB observer		Chiara/Arne/Holger/Anne/Steve: In each of the four groups post-Exercise Survey (10 min.) and Focus Groups (30 min.) in Briefing Rooms					
10:30																						
10:45											Andreas: Supervise return of property bags											
11:00								Chiara/Arne: Escort volunteers to lunch in Hall														
11:15	Wrap-up of exercise and Hot-Debrief by FDDO										Wrap-up of exercise by FDDO						Wrap-up of exercise by FDDO		UIC: Debrief of observation and collection of observer grid in Hall			
11:30									Caterer: Lunch in Hall	Lunch for Red Cross and volunteers												
11:45							All: Start of clean-up			Irina/Mariano/Holly/Del ia						Amelia/Dale: Surveillance of hot debrief of fire fighters						Hot debrief
11:50										Assistance for volunteers if necessary												
12:00										Lunch for VIPs and observers												
12:15										Lunch for videographer team												
12:30			Departure Red Cross											Departure videographer team							Farewell to volunteers and departure	Official end
12:45										Lunch for partners and fire fighters												
13:00								Travel arrangements back to Dortmund Central Station if required										Grigore: Farewell to observers/VIPs and departure			Travel arrangements back to Dortmund Central Station if required	
13:15																						
13:30										Catering company: Clear up Arne/Peter: Supporting catering company												
13:45							Pick-up rental equipment															
14:00										Departure catering company												
	Closing & Discussions between participants (FDDO & PROACTIVE) in Hall																					Closing
15:00	Hot-Debrief of PROACTIVE																					
16:00	Everyone leaves Training Centre																					
18:30	Socializing of FDDO/PROACTIVE/eNotice at restaurant in Dortmund (optional)																					Social event

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32. APPENDIX 18: PROCESS MAP

Process Map for disrobing and rerobing at Dortmund Field Exercise

33. APPENDIX 19: H&S RISK REGISTER SUMMARY TABLE

#	Hazard / Event Type	At Risk	Commentary	Unmitigated			Existing Mitigation in plans	Further mitigation measures to be considered	Responsibility	Mitigated Risk			Status
				Prob	Impact	Risk				Prob	Impact	Risk	
1	Slips, trips and falls within the exercise area	All	Recognised as a risk by FDDO - it is highlighted in their Safety Rules example. Sturdy shoes are prescribed. Area is generally flat and will be cleared of objects before exercise.	Low	Medium	Low	1. Sturdy footwear. 2. For further review during site visit - site visit confirms low risk, apart from Canal and below-ground storage area - see item 21 below.	Final site inspection immediately before exercise.	Exercise directors and Risk Managers,	Low	Low	Low	Closed
2	Slips Trips and Falls during event but outside of the exercise area	All	Should be a lesser risk than in the exercise area proper, but additional facilities (tents etc) are still to be identified; locations now agreed. Need to ensure that exit/entry routes are clear (especially given potential additional needs of **vulnerable** groups)	Low	Medium	Low	1. Locations identified during site visit - low risk office space. 2. First aider will be available from FDDO 3. Ambulances are next door to the training site 4. Exercise area is to be clearly defined and marked - see FDDO Safety Rules example. 5. Final check of site on exercise day.	Final site inspection immediately before exercise.	Exercise directors and Risk Managers	Low	Low	Low	Closed
3	Crushing during exit from areas?	All	e.g. as a result of a real emergency within the exercise area. There could be a significant number of people present (FDDO + volunteers + eNOTICE+ PROACTIVE + External guests +EC).	Low	High	Medium	1. Exit routes to be reviewed during site visit 2. Exit routes to be identified to all at site briefing on exercise day 3. FDDO already identified that escape routes are to be kept free 4. Areas are generally spacious and well laid out. Observers etc are in a separate area from the from incident. 5. Remote viewing via drones is to be supplied.	Final site inspection immediately before exercise.	Exercise directors and Risk Managers	Low	Medium	Low	Closed
4	Falls associated with entry and egress from bus / train.	All	Do not yet know the nature of the train / bus arrangement and if this is an issue or not.	Low	High	Medium	1. Exercise to start as if people have already got off train/bus; the vehicles are just 'background'. 2. Site visit confirms no steps etc	Final site inspection immediately before exercise.	Exercise directors and Risk Managers	Low	Low	Low	Closed
5	Vehicle / Person collision in exercise area	All	Traffic management rules already identified in FDDO safety rules, and that the region of vehicles is to be considered as a danger zone. Volunteers and some PROACTIVE will have to crossroad from offices to exercise area.	Low	High	Medium	1. Volunteers will be supervised by FDDO and PROACTIVE during the exercise. 2. Attendees asked to use public transport rather than own vehicles. 3. Demarcated exercise area (see FDDO Safety Rules) 4. No vehicles other than FDDO in exercise area 5. Road between offices and exercise area is a dead-end. 6. Escorts identified.	Final site inspection immediately before exercise.	Exercise directors and Risk Managers	Low	High	Medium	Closed
6	Injury during decontamination (cold water?)	Volunteers	People will be cold water decontaminated by FDDO in a temporary decon unit (MD1) - vulnerable group may be at higher risk from cold water than others.	Low	Medium	Low	1. FRS trained in decontamination 2. Purpose designed national standard decon unit 3. Warm weather in May. 4. All players to be briefed how they can indicate real need to help - to be confirmed in joining note and at briefing on the day. 5. Dis-robe and re-robe packs provided.	1. Final site inspection immediately before exercise. 2. Weather forecast check in days before exercise.	Exercise directors and Risk Managers	Low	Low	Low	Closed

#	Hazard / Event Type	At Risk	Commentary	Unmitigated			Existing Mitigation in plans	Further mitigation measures to be considered	Responsibility	Mitigated Risk			Status
				Prob	Impact	Risk				Prob	Impact	Risk	
7	Dehydration, hunger etc	Volunteers and Mentors and Directing Staff	Exercise day is notionally from 8 till 4 and weather is likely to be warm.	Low	Low	Low	1. Welfare arrangements have been provided 2. All players to be briefed how they can indicate real need to help - to be confirmed in joining note and at briefing on the day. 3. Breakfast and snacks / drinks are to be provided by caterers on site.	1. Final site inspection immediately before exercise.	Exercise directors and Risk Managers	Low	Low	Low	Closed
8	Fire / other external incident	All	A fire could lead to a real emergency and need for evacuation	Low	High	Medium	1. Emergency evacuation and fire arrangements are not adversely impacted by the exercise scenario 2.FDDO are present, and it is their site 3. Players can be alerted to a real emergency by controllers and Umpires. 4. END EX will be called. 5. Emergency services already in attendance and adjacent. 6. No significant fire sources or loadings will be introduced by PROACTIVE	1. Final site inspection immediately before exercise.	Exercise directors and Risk Managers	Low	Medium	Low	Closed
9	Electrocution (tools, laptops etc)	Office users	No high-powered tools or equipment are envisaged from CBRNE Ltd or PRACTICE partners (only laptops, cameras and the like).	Low	Low	Low	1. Individual organisations responsible for ensuring suitability of equipment supplied to their staff. 2. Site visit did not identify other electrical hazards.	1. Final site inspection immediately before exercise.	Exercise directors and Risk Managers	Low	Low	Low	Closed
10	Sunburn/ hypothermia	Volunteers and Mentors and Directing Staff	Decon volunteers may be standing around outside for a while.	Low	Medium	Low	1. Disrobe packs/clothing will provide some protection 2. Volunteers will only be 'undressed' for short periods, initial changing into swimwear (if needed) will be indoors within tented areas. 3. First aiders present. 4. Supervision/observation by FDDO and PROACTIVE at all times.	1. Weather forecast check in days before exercise, sun-cream and hats for staff who may be outside for longer period? 2. Ensure that drinking water is available in the exercise area (bottles of water).	Exercise directors and Risk Managers	Low	Low	Low	Closed
11	Real injury / emergency	All	Not likely in such a small group but a possibility - age mix and abilities might be wide	Low	High	Medium	1. Supervisors and directors will be specifically looking out for things diverting from the plan and they will know who the fake casualties will be. 2. All players to be briefed how they can indicate real need to help - to be confirmed in joining note and at briefing on the day. 3. Emergency services are present / adjacent 4. System of tabards already identified by FDDO		Exercise directors and Risk Managers	Low	Medium	Low	Closed
12	Inadequate assessment of the H&S needs of vulnerable persons	Vulnerable people	This group must be considered to be at a potentially greater risk than others	Low	Medium	Low	1. Needs of vulnerable groups have been discussed with volunteer representatives prior to the exercise. 2. Rest and recovery areas are available at the training centre, good access for people with restricted mobility.	1. Final site inspection immediately before exercise 2 Use of chaperones where required.	Exercise directors and Risk Managers	Low	Medium	Low	Keep under review

#	Hazard / Event Type	At Risk	Commentary	Unmitigated			Existing Mitigation in plans	Further mitigation measures to be considered	Responsibility	Mitigated Risk			Status
				Prob	Impact	Risk				Prob	Impact	Risk	
13	Manual Handling Injury	PROACTIVE Team	PROACTIVE team will be responsible for the handling and movement of volunteers belongings. These are unlikely to be significantly heavy items but they may be bulky, difficult to handle and numerous. Need to move disrobe and re-robe kits to decon areas.	Low	Medium	Low	1. Volunteers to be pre-warned to minimise the number of items they bring with them 2. Those handling items to be fit and suitable to the task. 3. Area is generally flat and well surfaced. 4. Items will be moved in small numbers (1 or 2) and only short distances.	1. Final site/ facility inspection immediately before exercise. 2. Staff to be briefed about taking care when handling items.	Exercise directors and Risk Managers	Low	Low	Low	Closed
14	Covid 19	All	Possible that volunteers or other's present may be at a higher risk from Covid 19 and that they may require additional protection. Also risk of infection of attendees from attendee who is positive for Covid.	Low	High	Medium	1. COVID arrangements discussed in detail with FDDO. 2. Red Cross testing all at entrance to site.	1. Germany and FDDO COVID measures to be followed.	Exercise directors and Risk Managers	Low	Medium	Low	Closed
15	Unauthorised and un-briefed personnel gain access to exercise area (e.g. press, activists).	All	Potential for interference with the exercise, control measures and safety arrangements.	Low	Medium	Low	1. FDDO Safety Rules identify limited number of access points and these are controlled by them. 2. ID required at the entrance gate 3. List of all participants to be provided to FDDO by PROACTIVE. 4. A suitable system for the identification of authorised visitors will be provided (tabards / hats / lanyards /badges etc) 5. Site visit has confirmed site security.	1. PROACTIVE to supply lanyards / ID holders. 2. PROACTIVE to supply Orange tabards for all non FDDO working in the exercise area.	Exercise directors and Risk Managers	Low	Low	Low	Closed
16	Psychological distress caused by the exercise or by the FDDO volunteers who are tasked as needing psychological support	All	It is possible that even though the exercise is a simulated incident that our volunteers may find is stressful and that they may need psychological support. This might be exacerbated by the presence of FDDO actors who are specifically there to test the Psychological support teams.	Low	Medium	Low	1. The FDDO psychological support teams can respond to real issues should they arise. 2. All to be briefed on use of code-words to notify real concerns.	1. PROACTIVE to agree code-words with FDDO prior to exercise.	Exercise directors and Risk Managers	Low	Medium	Low	Closed
17	Reduced visibility caused by fog being introduced - slips, trips, fall, breathing	All	Only very small amount to be released, no visual hazard expected. Agent identified a mixture of Triethyleneglykol and Propan-1,2-diol - both are considered to be low risk.	Low	Low	Low	1. COSHH assessment (UK Regulations standard) 2. Briefing to identify to volunteers that fog is non-hazardous but to notify FDDO if any concerns on the day.		Exercise directors and Risk Managers	Low	Low	Low	Closed
18	Welfare facilities (toilets, rest areas, worship areas etc) unknown	All	Need to identify and address welfare needs of group	Low	Medium	Low	1. Good existing facilities at the site.	1 Discuss with volunteers on the day.	Exercise directors and Risk Managers	Low	Medium	Low	Closed
19	FDDO intend to use drones - potential for impact with attendees	All	Potential for impact in case of drone failure / pilot error. Only small/Med drones and these will not be permitted to fly above people.	Low	Low	Low			Exercise directors and Risk Managers	Low	Low	Low	Closed

#	Hazard / Event Type	At Risk	Commentary	Unmitigated			Existing Mitigation in plans	Further mitigation measures to be considered	Responsibility	Mitigated Risk			Status
				Prob	Impact	Risk				Prob	Impact	Risk	
20	Allergies from food / soap / materials	All	Potential for allergic reactions to food and/or cleaning products used by FDDO during decon and/or clothing provided.	Low	High	Medium	1. FDDO to use water only 2. External caterers 3. Questionnaires have identified special needs	1 Discuss with volunteers on the day.	Exercise directors and Risk Managers	Low	Medium	Low	Closed
21	Excavations etc on site	All	Site visit shows a 'canal' excavation and a below ground storage area. Both are barriered off.	Low	Medium	Low	1. Emergency services are on-site. 2. Barriers to be inspected prior to exercise. 3. excavation is remote from exercise area. 4. Volunteers to be escorted at all times.	1. Final site inspection immediately before exercise. 3. PROACTIVE / FDDO to discuss additional barriers if required after inspection.	Exercise directors and Risk Managers	Low	Medium	Low	Closed
22	Volunteers need for medications etc.	Volunteers	Possible deprivation of access to personal medications.	Low	Medium	Low	1. Volunteers will only be separated from their personal belongings in the period between undressing and re-robing. Their belongings will be close to them during this period and easily accessible. 2. FDDO responders are first aid trained and emergency services are immediately available.		Exercise directors and Risk Managers	Low	Medium	Low	Closed

34. APPENDIX 20: RISK REGISTER SUMMARY TABLE

Concern	Risk	Status
1. *Illness: Covid 19 / Influenza etc / Other outbreaks.*	*Medium*	Ongoing
2. *Involvement of unspecific vulnerable groups in exercise*	*Low*	Closed
3. *Scenario is unspecified in detail*	*Low*	Closed
4. *National/ regional security incident requires Host Staff*	*Low*	Watch
5. *Incident (inc nat disaster and extreme weather or other Force Majure)*	*Low*	Ongoing
6. *Lack of suitable resources for PROACTIVE Tools (power etc)*	*Low*	Closed
7. *H&S Hazards at site are unknown*	*Low*	Closed
8. *Ethical issues*	*High*	Ongoing
9. *Identification of players/ staff volunteers*	*Low*	Closed
10. *Limited accommodation available near to site.*	*Low*	Closed
11. *Lack of clarity regarding insurance boundaries and scope*	*Low*	Closed
12. *Vehicles and Parking*	*Low*	Closed
13. *Volunteers, host staff and planners have different languages*	*Low*	Closed
14. *Lack of a press management plan*	*Low*	Ongoing
15. *Loss of goods and materials through theft*	*Low*	Closed
16. *Other event in area – transport issues*	*Low*	Ongoing
17. *Insufficient attendance on day of exercise*	*Low*	Ongoing
18. *Damage to personal property due to decon process (water damage)*	*Low*	Ongoing

35. APPENDIX 21: RISK ASSESSMENT OF USE OF SMOG

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

Simple risk assessment for the use of fog by the FDDO during exercise at Dortmund ABZ on 7 May 2020.

Background

FDDO have provided documentation saying that they will use HAAGEN SMOKE LIQUID – See Reference Doc 1.

It is intended that this will be used with a smoke generating machine (Like the one in Reference Doc 2) to cause a harmless fogg near the area that the volunteers are to be evacuated from.

People will not be required to walk through the fog but it could nevertheless drift into the area where they are located and they could inhale it.

Ref 1 says that the liquid is <40% Triethylene Glycol and <40% Propylene Glycol.

Triethylene Glycol

Ref 3 says that Triethylene Glycol is a substance of low concern and that Vapour and liquid are unlikely to cause harm. This is consistent with the fact that there is no entry for it in EH40 (Ref 4). But Reference 5 gives an 8h TWA limit of 100mg.m^{-3}.

Propylene Glycol (Propane-1,2-diol)

Propylene Glycol is widely used in cosmetics and personal care products and is also considered to be a low hazard substance. Nevertheless Ref 1 gives an 8h TWA exposure limit of 474mg.m^{-3} (from EH40). Reference 6 gives an 8h TWA limit of 10mg.m^{-3}.

There is clearly some inconsistency in targets but it looks like a target of 10mg.m^{-3} would be an appropriate conservative target to use for both components.

Method

Assume that the smoke generator runs for an hour – reference 2 says that it can run at 12ml/minute for 20 minutes. This would release 60*12/1000 = 0.72 litres of liquid.

Assume that this whole release sits in a 4m radius hemisphere above the ground – volume of (2/3)*3.141*4^3= 134m^3.

Then the density of the liquid (assuming it is homogenous whereas it would drift, disperse and settle) would be 0.72/134 = 5.37(-3) l.m^{-3} or 5.37(-3) mg.m^{-3} (assuming that the fogg liquid has a starting density of water, i.e. 1g.cm^{-3}).

Clearly this is much much lower than the 10mg.m^{-3} limit (a factor of safety of 1860).

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References

1 SICHERHEITSDATENBLATT Ausgabe: 7. September 2012 Handelsname: HAAGEN SMOKE LIQUID Seite: 1 von 12 Version: 2.0

2 SG1000™ SMOKE GENERATOR – see https://www.lionprotects.com/fire-training-smoke-machine-sg1000

3 Triethylene glycol | C6H14O4 – PubChem

4 EH40/2005 Workplace exposure limits - Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations 2002 (as amended) London: TSO EH40/2005 (Fourth Edition 2020).

5 CISCO Caroline International Sales Co. Safety Data Sheet Triethylene Glycol.

6 https://tera.org/OARS/#reservations

Nigel Hale

NEBOSH Cert, 22/4/22.

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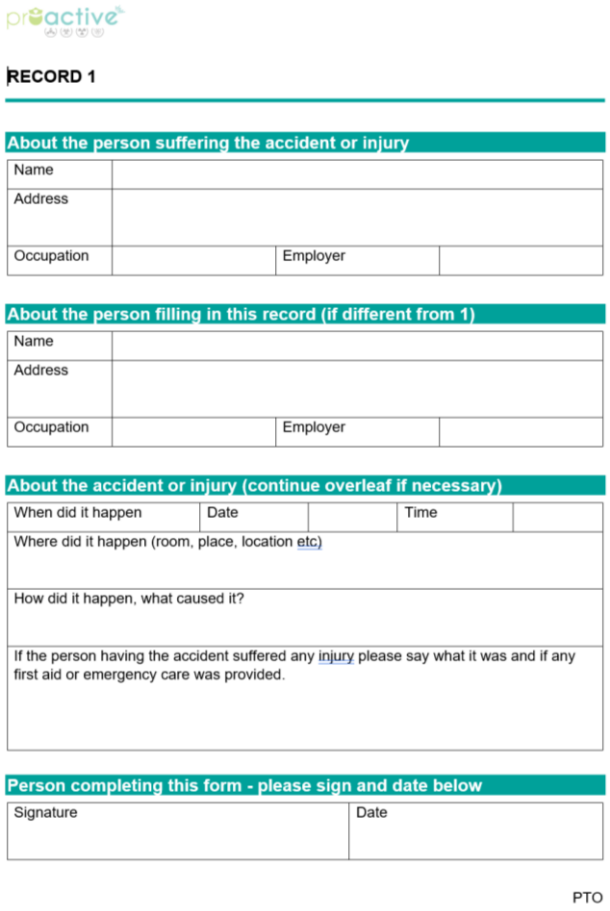
36. APPENDIX 22: EXERCISE DAY CONTINGENCY AND RESPONSE PLAN

Item	Potential Issue	Response / Action
Extreme weather (wind, rain, cold, sunshine)	Volunteers may be outside in their normal clothing for a while – damage to clothing, property and personal injury	**Use waterproof clothing in re-robing kits.** **Offer sun cream.**
Live incidents	Need to curtail or modify exercise	**Use code words. Follow FDDO guidance.** *Note: There are no provisions in the event that the exercise cannot be held at all.*
COVID-19	Positive test result from Red Cross testing.	**Ask volunteers to follow existing German COVID regulations for response to a positive flow test and for them to leave the site.** *Note: there are no single vulnerable volunteers who will require transport assistance.*
Participant absence	Poor exercise result	**No further action needed.** *Note: No back-ups are in place for severe non-attendance on the exercise day, but there is a reasonable number of volunteers and a plan to recruit locally in days before hand if this seems likely to be a problem (see Project Risk Register)*
Communications failures	Difficulty obtaining and giving advise / support *Note: Exercise is not critically dependent on use of radios or other electronic devices.*	**Use direct verbal communication and human relays / use mobile phones / hand signals / code words / raising hands.**

Item	Potential Issue	Response / Action
Public Transport or infrastructure failure	Difficulty getting volunteers to site.	**Use PROACTIVE van** **Use FDDO mini-bus**
Personal Injury	First aid / emergency support required. *Note: FDDO responders are all first aid trained as a minimum, additional emergency support is available at site.*	**Volunteers use code words 'REAL REAL REAL' and/or hand signals. Follow FDDO guidance.** **PROACTIVE contact FDDO for support and follow their guidance.** **Complete the Accident Book**
Theft or Serious Ethical Issue	Theft of belongings Physical / Sexual Abuse Unauthorised photography, data breach etc	**Interview by S Swain (+ FDDO + Translator + I Marsh if appropriate). Full written record to be produced.** **Police to be contacted in case of a serious criminal matter.** **Written record to be sent to DK for insurers.**

37. APPENDIX 23: ACCIDENT BOOK



RECORD 1

About the person suffering the accident or injury

Name			
Address			
Occupation		Employer	

About the person filling in this record (if different from 1)

Name			
Address			
Occupation		Employer	

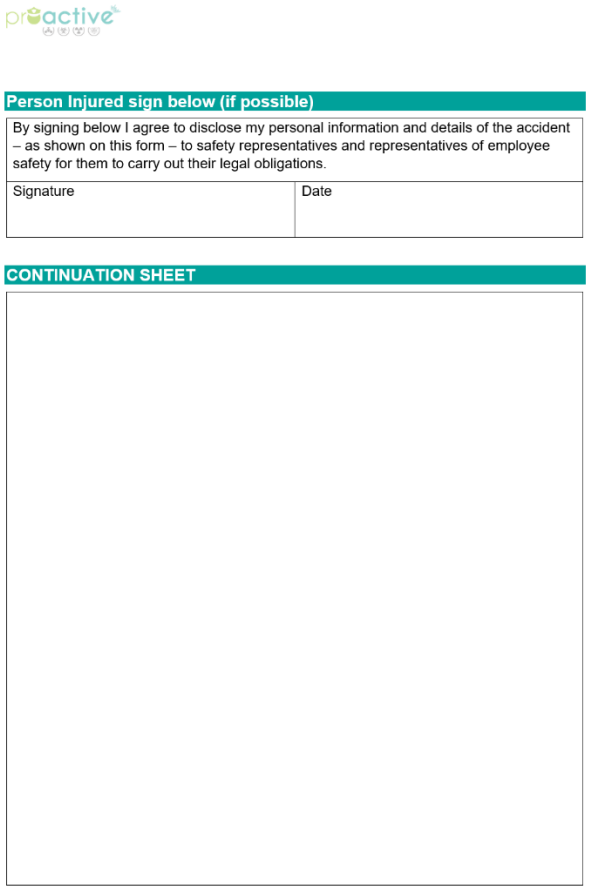
About the accident or injury (continue overleaf if necessary)

When did it happen	Date		Time	
Where did it happen (room, place, location etc)				
How did it happen, what caused it?				
If the person having the accident suffered any injury please say what it was and if any first aid or emergency care was provided.				

Person completing this form - please sign and date below

Signature	Date

PTO



Person Injured sign below (if possible)

By signing below I agree to disclose my personal information and details of the accident – as shown on this form – to safety representatives and representatives of employee safety for them to carry out their legal obligations.	
Signature	Date

CONTINUATION SHEET

38. APPENDIX 24: COMMUNICATION AND DISSEMINATION PLAN

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 832981

PROACTIVE & eNOTICE Joint Activity Communication & Dissemination Plan for Dortmund Exercise 2022

Laura Petersen[1]

1: UIC

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Project details

Project acronym	PROACTIVE
Project full title	**PR**eparedness against CBRNE threats through c**O**mmon **A**pproaches between security pra**CTI**tioners and the **V**ulneranbl**E** civil society
Grant Agreement no.	832981
Call ID and Topic	H2020-SU-SEC-2018, Topic SU-FCT01-2018
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Duration	52 Months
Coordinator	UIC – Grigore Havarneanu (havarneanu@uic.org)

Document details

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Dissemination level	Public

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Revision	Date	Description
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03	05/01/2022	Third Draft
04	13/01/2022	Fourth Draft
06	09/02/2022	Sixth Draft
07	09/03/2022	Seventh Draft
08	04/05/2022	Final Draft

Table of contents

1. INTRODUCTION

This document presents the communication, dissemination, and media plan for the joint activity field exercise from the PROACTIVE project side.

2. ETHICAL & LEGAL ISSUES – CONSENT

Consent will be obtained for all communication & dissemination activities as per the ethical rules of project PROACTIVE. Participants need to give their free and Informed Consent according to the best ethical practices and in compliance with the requirements of the GDPR. To comply with Article 13 of GDPR, consent forms including all the necessary information regarding the processing of their data will be produced. Participants also need to give Informed Consent regarding their expectations of the exercise, e.g. consent to take part, consent to undergo filming, etc.

Along these lines, all persons who partake in the exercise will be required to give specific, explicit, and informed consent for communication & dissemination purposes besides consenting data processing for research purposes (see the Information Sheet and Consent Form). All filming and photography will be done following the rules of the General Data Protection Framework of the EU. To ensure this, informed consent also details how dissemination data will be used after the exercises, allow to opt-out this processing without preventing participants from taking part in the process, and be available in local languages.

Only adults will take part in the exercise. However, there might be other reasons for exclusion concerning informed consent beyond minority of age. If people present who have a vulnerability preventing them from giving their Informed Consent in written form (for example, a visual disability), the consortium will have to find alternative methods enabling these people to give consent. For example, if individuals with a visual impairment take part in field exercises, they could be provided with the necessary information and give their Informed Consent orally (Recorded Audio Consent).

Moreover, research will be conducted following international standards and requirements for research with human subjects. In particular, the Nuremberg Code (1947), the Declaration of Helsinki (1964), and The Belmont Report (1979) will be observed. The Nuremberg Code underlined the need for guaranteeing and respecting the voluntary nature of human participation in research and pointed out the requirement of establishing mechanisms for Informed Consent, also ensuring people involved in research can withdraw from it at any time. Following the Code, researchers must ensure the welfare and protect the interests of participants. With this aim in mind, researchers must establish in advance mitigation measures for addressing any risk of harm for them.

Lastly, PROACTIVE researchers role in data management and ethics monitoring of human participants in the exercise will follow the four key ethical principles for responsible research established by the Belmont Report:

- respect for people: research subjects must be treated to protect their safety, respect their autonomy and ensure their consent on an informed basis;

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- beneficence: possible benefits for the participants will be maximised while possible harm or risk will be minimised;
- justice: any benefits and burdens derived from research must be balanced;
- competence: the limitations and boundaries of the researchers' competence must be recognised and made explicit.

3. AUDIENCE

1.1. General Public

One intended audience for the dissemination of the exercise is the general public. This is to help educate them about the realities of a CBRNe incident, to inform them about correct behaviours, and overall increase preparedness.

2. Practitioners

One intended audience for the dissemination of the exercise is other CBRNe practitioners. The dissemination materials from the exercise will allow them to extract lessons learned from including the general public and vulnerable citizens in a field exercise.

3. European Commission & other policy makers

Another intended audience for the dissemination material is to demonstrate the success of the PROACTIVE project in meeting its goals.

4. MESSAGES

Messages that **should not be shared on social media before and during the exercise** are pre-established here.

Before the event, no information will be shared directly with the media (e.g., press releases). This excludes the information given in the advertisements for participant recruitment. Participants will receive all relevant information.

Not to be shared beforehand (except for exercise participants):

- the exact timing of the exercise
- the location of the exercise

Not to be shared before or during:

- the SOP
    - Generalities about the event are ok (e.g., now the decontamination process has started), but avoid specifics!

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5. TOOLS - PROACTIVE

4. Photographs

PROACTIVE will have a professional photograph as part of the videographer team. Consortium partners would like to take photos on their mobile devices (smartphones).

PROACTIVE would like access to the FDDO media team photos.

5. Video

It is agreed that a videographer will be onsite. PROACATIVE has allocated budget for “provision of a camera crew.”

FDDO will see if it is possible to have a second PROACTIVE drone. However PROACTIVE may use FDDO drone footage in case it is not possible.

The FDDO media team will guide the videographer(s) through the whole exercise.

Video will be taken with two aims: 1) research and 2) dissemination. The same professional filming could be used for both aims.

5.1.1. PROACTIVE research video

PROACTIVE would like to hire a videographer and also take videos on consortium partners mobile devices (smartphones) for further observational coding of the event. Only four observers will be allowed to code the live exercise, therefore filming the exercise will allow for the inclusion of further research codes and help ensure all necessary objectives are measured.

5.1.2. PROACTIVE dissemination video

Exercise official video (3 – 5 minutes)

PROACTIVE would like to hire a videographer to create a documentary of the event. The videographer would need to be educated about certain milestones that should be captured.

This video will serve for the promotion of the exercise and the project. The video could also be used for re-training. This video will only be shared post-exercise. This will require an external editing professional alongside the camera crew.

This video will be closed captioned at least in English, and preferably as well in German. Ideally, we would include sign language interpretation as well. It is noted that FDDO has requested German subtitles.

The dissemination video will not contain any images of naked body parts in order to ensure participant dignity.

PROACTIVE interviews for key players (e.g., a firefighter, a volunteer, project coordinators):

Potential interviewee name	Potential interviewee role
Oliver Nestler	FDDO firefighter, Director
TBD (To Be Determined)	Representative from FDDO media team
TBD	Firefighter who was an active player
Olga Vybornova	eNOTICE Project Coordinator
TBD	eNOTICE observer
Grigore Havarneanu	PROACTIVE Project Coordinator
Danielle Carbon/Andreas Arnold	PROACTIVE exercise organiser
Tony Godwin	PROACTIVE exercise organiser
TBD	PROACTIVE LEA partner
TBD	PROACTIVE Observer (Civil society)
TBD	PROACTIVE volunteer
Irina/Mariano/EEAB	Ethical perspective

Consortium filming

PROACTIVE consortium partners would also like to take videos on consortium partners mobile devices (smartphones).

6. TOOLS – FDDO MEDIA TEAM

FDDO will share media (photos, film, etc.) after an internal review process with PROACTIVE. FDDO agrees to avoid disseminating images of naked bodies/body parts.

FDDO will see if it is possible to stream the footage being sent into the observer room on a secured online format for extra observers. It is not currently foreseen (is it technically possible?).

7. CHANNELS

6. Social Media

Do not post about the event on the day of the exercise on social media until after the event is ended (circa 16:00 CET). This is to avoid that more people show up on the site while the exercise is occurring. No “live tweeting” in this case.

7.1.1. PROACTIVE

PROACTIVE has social media accounts on Twitter and LinkedIn and will show all communication & dissemination materials on these sites (photos, short descriptions of what is happening, etc.).

PROACTIVE will not live tweet the exercise. The tweets will happen after the exercise is finished. Tweets are in English, with the possibility to have some translated into German by German consortium members. The hashtags #JointFTX and #Dortmund will be used for each tweet and each LinkedIn post. Each tweet will also tag @H2020_eNOTICE & @FW_Dortmund on twitter. If tweeting from a different account, @PROACTIVE_EU should also be tagged.

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7.1.2. FDDO

FDDO would like to tweet in German ("FDDO will support it, but there is the need that the information is in German – otherwise the "followers" will be confused"). FDDO is not required to retweet all our tweets. It would be nice to retweet one tweet that PROACTIVE drafts in German.

7. Press Release

FDDO and PROACTIVE will write one joint press release. The press release will be drafted before the exercise. It will be sent after the exercise. PROACTIVE & FDDO will use their respective media contacts.

7.1.1. PROACTIVE

PROACTIVE will make use of UIC's reach to publish one press release the morning of the exercise, explaining what will take place. This press release will be jointly drafted by all parties (FDDO, eNOTICE & PROACTIVE). UIC press releases are translated and sent out in English, French and German.

8. UIC eNews (PROACTIVE)

PROACTIVE will take advantage of the UIC eNews platform to publish a summary of the exercise after the event. This eNews will be sent to all relevant parties for approval before publishing (FDDO, eNOTICE, PROACTIVE). This eNews will be in English.

9. PROACTIVE Website

The PROACTIVE website has active links to the PROACTIVE Twitter account and the UIC eNews articles are directly published on the website. There is also the possibility to blog.

10. Scientific publications (academic journals) – PROACTIVE

The outputs from the exercise, especially the research video, will be used to create scientific publications going beyond the project deliverables. This will be done in line with the general PROACTIVE dissemination plan. It is not foreseen to require approval from FDDO for such publications.

1. Conferences and expos – PROACTIVE

The videos/photos from the exercise will be showcased as part of promotional materials of PROACTIVE at various conferences/expos, as per the general PROACTIVE dissemination plan. It is not foreseen to require approval from FDDO for such publications.

8. 3RD PARTY (JOURNALIST, MEDIA)

It is agreed that no third-party media will be present at the exercise.

39. APPENDIX 25: APP INFORMATION

The PROACTIVE App aims to provide you with information relating to CBRNe incidents. The term CBRNe refers to any Chemical, Biological, Radioactive, Nuclear and Explosive incidents and through the App you can:

- Report incidents live, including the ability to upload images and audio files
- Receive live notifications about ongoing incidents in your area
- Access our library of pre-incident CBRNe information
- Interact with Law Enforcement Agencies and Civilian Organisations

The PROACTIVE App is still in development, if you encounter any technical issues or would like to provide feedback on existing features or suggestions for new features, please contact natasha@rinicom.com

40. APPENDIX 26: LIVE APP NOTIFICATIONS

Notification #	Time	Notification - English	Notification - German
1	8,00	It is confirmed that an incident occurred around 07.00 this morning on the 7th May at the local railway station. Reports have been received of smoke near a train. Please avoid the area as much as possible. Further information is being collected, please check this App for further updates.	Heute Morgen, am 7. Mai, ereignete sich gegen 07.00 Uhr ein Zwischenfall auf dem örtlichen Bahnhof. Es liegen Meldungen über Rauch in der Nähe eines Zuges vor. Bitte meiden Sie das Gebiet so weit wie möglich. Weitere Informationen werden derzeit gesammelt. Bitte überprüfen Sie diese App auf weitere Aktualisierungen.
2	8,45	Confirmation received of a chemical substance leak requiring full decontamination. All people involved in the incident are being asked to remain calm, stay in the designated area indicated by the Fire Brigade and wait for instructions.	Es wurde bestätigt, dass eine chemische Substanz ausgetreten ist, die vollständig dekontaminiert werden muss. Alle an dem Vorfall beteiligten Personen werden gebeten, Ruhe zu bewahren, in dem von der Feuerwehr ausgewiesenen Bereich zu bleiben und auf Anweisungen zu warten.
3	9,00	People requiring First Aid are asked to make the authorities on site aware of their needs.	Personen, die Erste Hilfe benötigen, werden gebeten, die Behörden vor Ort auf ihre Bedürfnisse aufmerksam zu machen.
4	9,15	First responders have arrived on scene. A decontamination procedure is underway. Please keep calm and follow the instructions provided by the Fire Brigade on site.	Die ersten Einsatzkräfte sind vor Ort eingetroffen. Dekontaminationsmaßnahmen sind im Gange. Bitte bewahren Sie Ruhe und befolgen Sie die Anweisungen der Feuerwehr vor Ort.
5	9,30	The situation is now under control, the people affected are in the process of decontamination and no further risk to the public is perceived at this point. We continue to ask the public to stay away form the area until further notice.	Die Situation ist nun unter Kontrolle, die betroffenen Personen werden gerade dekontaminiert und es besteht derzeit keine weitere Gefahr für die Öffentlichkeit. Wir bitten die Öffentlichkeit weiterhin, sich bis auf Weiteres von dem Gebiet fernzuhalten.
6	10,45	People effected have been decontaminated and are being supported by the team on site. If you are looking for a loved one please contact your local authority through existing channels.	Betroffene Personen wurden dekontaminiert und werden vom Team vor Ort betreut. Wenn Sie nach einem Angehörigen suchen, wenden Sie sich bitte über die üblichen Kanäle an Ihre örtlichen Behörden.
7	11,00	The exercise is now over!	Die Übung ist nun beendet!

41. APPENDIX 27: ETHICAL SUPERVISION OF ACTIVITIES DURING PROACTIVE 1ST EXERCISE DORTMUND

To provide ethical oversight during the PROACTIVE 1st Field exercise, the Ethics and Data Protection Supervisor (EDPS) has been appointed. The role is fulfilled by the PROACTIVE PEO, Dr. Irina Marsh. The role of EDPS is to ensure The Dortmund field exercise is carried out in a manner that is ethically compliant with the relevant legislation set out in D8.1 Legal and ethical State-of the Art on CBRNe preparedness and response and D8.3 Materials and briefings for PROACTIVE exercises and will carry out an on-site evaluation of ethical aspects of the exercise seeking to ensure, in particular that:

- the Exercise is being carried out with respect for human dignity at all times;
- all proper authorisations have been obtained;
- the exercise briefings have been carried out in accordance with recommendations;
- volunteers have completed a consent form(s) as recommended;
- relevant legislation has been complied with.

The EDPS will be supported by the External Ethics Advisory Board (EEAB) members. The EEAB members will provide a consultative role for the exercise planning team and:

- will provide advice and guidance on the conduct of the exercise where it relates to the management of the volunteers, safety and risks;
- will review materials and advice on their content (e.g. information sheets, consent forms etc.);
- will work in close relation with the EDPS, exercise planning team and emergency services participating in the exercise.

During the day of the exercise, the EDPS will be supported by the ethics and legal expert of PROACTIVE and leader of WP8, and a member of the PROACTIVE External Ethics Advisory Board (EEAB). They will supervise and evaluate the Dortmund field exercise, part of the Task 8.4 *Ethical and Societal Assessment of PROACTIVE outputs*. The supervising and the evaluation process will follow the *Ethical impact assessment framework* established in D8.1 (sections 3.4 and 3,5) and the associated ethical documents:

- *PROACTIVE Ethics Impact Evaluation Framework*
- *PROACTIVE Ethics Risk Assessment Template*

The PROACTIVE Ethics Impact Evaluation Framework[14] is constructed as a package of interdependent values that underline the work of response teams and emergency medical staff when confronted with disaster situations. The document provides the knowledge background that supports understanding and interpretation of ethical issues that could arise during a CBRN incident.

[14] See PROACTIVE D8.1, section 3 and Stănciugelu et al., 2014

The PROACTIVE Ethics Risk Assessment Template[15] should be used in close relation with the PROACTIVE Ethics Impact Evaluation Framework. The Template serves as a heuristic tool. In other words, it provides the user with a framework to identify potential ethical issues associated with CBRN response tools and procedures. This is important because CBRN responses have traditionally been treated as primarily a technical and/or organisational challenge where technological advances were either generally understood as something positive or seen through a purely consequentialist ethical lens (that is: means and right secondary as long as outcome positive). However, CBRN response raise a wide range of issues touching upon the fields of disaster management ethics (e.g. individual liberty versus collective protection from cross-contamination), technology-related ethics (e.g. track & trace and privacy/data protection), research ethics (e.g. how to organise realistic exercises without violating rights of physical integrity), and others. The Template consists of a matrix: In the rows of the matrix, a catalogue of rights/norms is identified and categorised into five generic sections: fundamental rights, procedural rights, distributive rights, intergenerational issues, and informational rights. In the columns, questions of potentially arising/observed/undertaken ethical issues and their management in relation to the development of the exercise are listed.

PROACTIVE Ethics Impact Evaluation Template for Supervision and Evaluation of PROACTIVE 1st exercise, Dortmund, 7th of May 2022

CBRNE events raise important ethical issues in which fundamental principles have to be follow and competing values must be weighed. This Ethical Framework should be seen as a package of interdependent values that underline the work of response teams and emergency medical staff when confronted with disaster situations; The document provides the knowledge background that supports understanding and interpretation of ethical issues that could arise during a CBRN incident.

The Ethical Framework will be used to supervise and evaluate the PROACTIVE 1st exercise, Dortmund, 7th of May 2022.

Values to guide decision-making process during CBRN crisis

Substantive value / Description

- **Individual liberty:** in a CBRN crisis restrictions to individual liberty may be necessary to protect the public from serious harm. Restrictions to individual liberty should:
    - be proportional, necessary, and relevant;
    - employ the least restrictive means; and
    - be applied equitably.

- **Protection of the public from harm:** to protect the public from harm, first responders and public health authorities may be required to take actions that impinge on individual liberty. Decision makers should:
    - weigh the imperative for compliance;
    - provide reasons for public health measures to encourage compliance; and
    - establish mechanisms to review decisions.

[15] See PROACTIVE D8.1 section 3 and Krieger and Stanciugelu, 2014

- **Proportionality**: proportionality requires that restrictions to individual liberty and measures taken to protect the public from harm should not exceed what is necessary to address the actual level of risk to or critical needs of the community.

- **Privacy**: individuals have a right to privacy in health care. In a CBRN crisis, it may be necessary to override this right to protect the public from serious harm.

- **Duty to provide**: Category 1 and 2 Responders will have to weigh demands of their professional roles against other competing obligations to their own health, and to family and friends. Moreover, they will face significant challenges related to resource allocation, scope of practice, professional liability, and workplace conditions.

- **Reciprocity**: reciprocity requires that society support those who face a disproportionate burden in protecting the public good and take steps to minimize burdens as much as possible. Measures to protect the public good are likely to impose a disproportionate burden on category 1 and 2 responders, patients, and their families.

- **Equity**: all patients/victims have an equal claim to receive the health care they need under normal conditions. During a CBRN crisis, difficult decisions will need to be made about which health services to maintain and which to defer. Depending on the severity of the CBRN crisis, this could curtail not only elective surgeries, but could also limit the provision of emergency or necessary services.

- **Trust:** trust is an essential component of the relationships among first responders and citizens, staff and their organisations, the public and health care providers, or organisations, and among organisations within an emergency system. Decision makers will be confronted with the challenge of maintaining stakeholder trust while simultaneously implementing various control measures during an evolving crisis. Trust is enhanced by upholding such process values as transparency.

- **Solidarity**: each person makes a commitment not only to family and loved ones but also to the community. Solidarity means that each individual must consider the needs of others. When there are limited resources, each person has an obligation to care for the other, knowing that with limited resources, each person must consider the greater good of the community rather than one's own self-interest.

- **Fairness:** this value requires that health care resources be allocated fairly with a special concern that those most vulnerable are treated fairly. However, given the fact that there will be limited resources, the fair distribution of resources is governed not by what is best for the individual, but rather by the principle of "the greater good of the community." Given the fact that resources are limited, decisions will be made that result in certain people receiving these resources while others will not.

- **Respect for Person:** This value states that each person is a unique individual and is to be valued despite gender, ethnicity, age, religion, social status, economic value or any other variable. Since all persons are worthy of respect, it follows then that all persons must be treated fairly, justly and with dignity. With limited resources, some persons will receive full

treatment, some will receive limited treatment, and some will receive no treatment at all. No matter what level of care is administered, each person must know that they will always be respected and treated with dignity. In instances where individuals may not receive treatment, they should be assured that they will be provided with dignified comfort care.

- **Stewardship:** Those entrusted with governance roles should be guided by the notion of stewardship. Inherent in stewardship are the notions of trust, ethical behaviour, and good decision-making. This implies that decisions regarding resources are intended to achieve the best patient health and public health outcomes given the unique circumstances of the crisis.

Procedural values / Description

- **Reasonable**: decisions should be based on reasons (i.e., evidence, principles, and values) that stakeholders can agree are relevant to meeting needs in a CBRN crisis. The decisions should be made by people who are credible and accountable.

- **Open and transparent:** the process by which decisions are made must be open to scrutiny, and the basis upon which decisions are made should be publicly accessible.

- **Inclusive:** decisions should be made explicitly with stakeholder views in mind, and there should be opportunities to engage stakeholders in the decision-making process.

- **Responsive:** there should be opportunities to revisit and revise decisions as new information emerges throughout the crisis. There should be mechanisms to address disputes and complaints.

- **Accountable:** there should be mechanisms in place to ensure that decision makers are answerable for their actions and inactions.

Ethical challenges of specific activities

- **Communicating at the scene:** In CBRN events, citizens face very unfamiliar circumstances. Responders must communicate clearly, precisely, and reassuringly. Different people from different backgrounds will have different needs. The ‘worried well’ for instance, should not be treated as a nuisance, but as victims who require help (i.e. guidance and advice).

- **Evacuation and quarantine:** Evacuation and quarantine raise serious ethical issues and are liable to cause distress and fear. Support (practicalities like providing shelter and food and psychological and spiritual help) is called for. Quarantining may inadvertently cause harm if healthy people are quarantined alongside infected people. Moreover, quarantined people may be subject to stigma during or after the event. Feelings of isolation, abandonment and fear are likely. Decisions about evacuation and quarantine must be carefully scrutinized to protect people’s interest.

- **Decontamination and emergency triage:** Decontamination procedures are unfamiliar to the general public. Some groups may find it embarrassing or unacceptable to undress in public; some groups (e.g. children) may find the process frightening. Decontamination needs to be carried out effectively but sensitively – through what that means in practice requires

investigation. Decontamination, emergency and medical triage actions force responders to make life or death decisions. Dignity – including that of the dead and dying is a key consideration here.

- **CBRN crime scenes:** Although preserving and gathering forensic evidence is secondary to saving lives, victims – and society as a hole – have a right to justice. This may be critical component of restoring society to 'normal' after an event. Thus, gathering evidence is important. It will be necessary to appropriately accommodate criminal investigation needs.

Summary from the Ethics Risk Assessment: Dortmund exercise

No.	Human rights/ Ethical values and principles	Explanations/ details	Ex-posed Per-sons	Commentary / Possible issue	Risk (with the existing mitigation)	Existing Mitigation / Commentary
Basic human rights: These rights are individual rights that describe the human core (physical/mental integrity/life, freedom of action/choice, equal treatment, and property) that requires protection.						
1	Physical health	Avoid physical harm or, abuse, Promote physical well-being, Minimise health risk to individuals	All	Side-effects of showers with cold water H&S Risks on site.	Low	No significant adverse health impacts are expected, but these have been addressed in the H&S Risk Assessment (see Separate PROACTIVE document). All volunteers have been briefed about the intention to decontaminate them and have agreed to this process. Psychological support is available at the exercise (Via FDDO).
2	Mental health	No mental harm or abuse Enable learning	All	Psychological stress from exercise and from dealing with responders wearing PPE suits (especially face masks).	Low	All volunteers have been briefed about the fact that FDDO staff will be wearing masks. Psychological support is available at the exercise (Via FDDO).
3	Choice/ liberty of action	No constraints on choice of course of action Empowerment through knowledge of available courses of action	All	Containment on site	Low	All volunteers briefed that they are able to exit from the exercise at any time without any reasons or consequences for them. Volunteers will be escorted and supervised at all times. Transport off-site to public transport will be provided if needed.
4	Respect for person	Non-discrimination Empowerment of the most vulnerable	All	Undressing in a public setting	Medium	For those who may not wish to undress in public, disrobe kits will be supplied. Volunteer groups have already been consulted about the exercise and their views have been addressed.
5	Right to property	Minimise damage to property, reparatory payments	All	If personal property is damaged during response	Low	Volunteers advised to not bring any valuable equipment with them. Arrangements for the storage of items have been made. Insurance cover has been arranged. Process for recording loss or damage has been established (S Swain + D Carbon)

No.	Human rights/ Ethical values and principles	Explanations/ details	Ex-posed Per-sons	Commentary / Possible issue	Risk (with the existing mitigation)	Existing Mitigation / Commentary
Procedural rights: These rights concern the relation of technical/bureaucratic procedures and actions and the involved/affected individual.						
6	Proportionality	No excessive restraints on rights, or restrictions on personal freedom	All	Restrained access to the mobile phones	Low	Removal of access to mobile phones is necessary for the decontamination process, but this period has been minimised to the period of decontamination only.
7	Inclusiveness & fair and meaningful participation	Ensuring all relevant stakeholders are given voice, provision of resources such as information to ensure voice of even marginalised groups	All	Failure to take into account the opinions/ interests of some stakeholders	Low	Volunteer groups have already been consulted via CSAB about the exercise and their views have been addressed.
8	Transparency	Ensuring that interested/affected parties have access to tool information	All	Lack of knowledge on benefits and risks of participation.	Low	Informed consent is provided including comprehensive information about the exercise.
9	Accountability	Ensuring that there is a clear line of accountability	All	Who is in charge of organising of the exercise (agency, persons)? How can we reach them?	Low	Volunteers have already received some briefing on these issues and they will be re-informed during the briefing process.
10	Safety	Safety standards & regulations	All	Compliant with safety and health regulations?	Low	H&S Risk Assessments have been completed (See separate document) and have been acted upon. All residual risks assessed as low.
11	Legality of process, product, deployment	Respect of legal restriction on development, use and export	All	Property or data protection rights of participants could be violated.	Medium	Above security documents and protocols, including insurance, consent and data management plan in place.
12	Responsive-ness	If concerns are being voiced, are there mechanisms in place to answer to these concerns?	All	Lack of identified route for communication / language difficulties.	Low	Already addressed in project arrangements. See item 9. Translators available.
13	Informed consent	Have all the stakeholders been informed about the exercises details and asked for consent?	All	Lack of consent and risk awareness	Low	Consent forms have already been obtained. During on-site briefings before the exercise, volunteers will be re- advised of their right to cease to participate at any time.
14	Freedom of assembly and association	No restraint of rights for participants to the exercise	All	Volunteer's and observers' right to reject their participation could be affected.	Low	Consent forms have already been obtained. During on-site briefings before the exercise, volunteers and observers will be re- advised of their right to cease to participate at any time.
14	Right of withdrawal	If parties affected by the development/ deployment of a tool/ implementation of a procedure, have they been informed and given the opportunity to withdraw from the process?	All	If I decide to not continue taking part in a simulation exercise, is there an easy way out for me? Do the exercise protocols include safeguards?	Low	Consent forms have already been obtained. During on-site briefings before the exercise, volunteers and observers will be re- advised of their right to cease to participate at any time.

No.	Human rights/ Ethical values and principles	Explanations/ details	Ex-posed Per-sons	Commentary / Possible issue	Risk (with the existing mitigation)	Existing Mitigation / Commentary
Distributive rights: These rights concern the distribution of risks and benefits between affected/involved groups, as well as principles of exchanges risks/benefits between different groups.						
15	Reciprocity	Are those burdened by the use or exposure to a tool/ procedure being compensated by those that benefit from the tool's use?		Are the volunteers participating to the exercise compensated by those that benefit from the exercise?	Low	Volunteer's expenses are re-imbursed by PROACTIVE. A voucher is also offered.
16	Solidarity	Does a tool/procedure help care for others in need?		Does the exercise help to care for others in need (as for vulnerable people?	Low	The exercise will allow participants to access knowledge and tools to protect vulnerable groups in cases of CBRNe events. Addressing these issues are the main objectives of PROACTIVE.
17	Non-discrimination and equity	If a tool/procedure implies benefits or burdens to those using/affected by it, are there certain groups that do not get the benefits or get a disproportionate share of the burden?		The research sample could be built over unfair criteria.	Low	Fairness and equal access have been considered in the methodological approach. Addressing these issues are the main objectives of PROACTIVE.
Informational rights: CBRN response is likely to be information-intensive. Information can help improve responses but informational self-determination is also a fundamental right.						
18	Universal access	Are certain users excluded from access to the tool/ procedure?		No risks identified since PROACTIVE guidelines are aimed at enhancing the situation of vulnerable groups.	Low	Addressing these issues are the main objectives of PROACTIVE.
19	Accessibility	Is the tool/ procedure too complex to be used for some?		No risks identified since PROACTIVE guidelines are aimed at enhancing the situation of vulnerable groups.	Low	Addressing these issues are the main objectives of PROACTIVE.
20	Privacy& Data protection	Does the tool gather personal data? Is the personal data protected?		PROACTIVE App, research and dissemination data	Medium	All personal data is protected through restricted data processing, detailed and pre-established data flows, data security protocols and specific briefing before the exercise. This is also addressed in the Ethics Recruiting Protocol in D8.3. There is a redress process via the Project Ethics Officer.
21	Honest communica-tion and transparency about the performance limits of CBRN tools and the CBRN threat	Avoidance of ambiguous and/or exaggerated information about the protective performance of CBRN tools Avoidance of misleading and/or exaggerated information about the CBRN threat level in Europe		Volunteers mislead about the efficacy oy water decontamination for CBRNE incidents	Low	All risks and benefits of taking part in the exercise have been communicated during the recruitment process and also as part of the consent protocol.

No.	Human rights/ Ethical values and principles	Explanations/ details	Ex-posed Per-sons	Commentary / Possible issue	Risk (with the existing mitigation)	Existing Mitigation / Commentary
Intergenerational rights: This concerns rights of future generations.						
22	Minimal environmental impact	Use of materials/ substances/ processes that are not high polluting		Decontamination process could release polluting substances	Low	Only plain water is used. Site is an industrial site with appropriate drainage.
23	Sustainability	Does the tool adversely affect future generation's social, economic and environmental rights?		No issues identified	Low	

42. APPENDIX 28: DATA MANAGEMENT PLAN