Quick Response for Operational Centers

D5.2 - OC Trainee profile and needs with descriptive presentation on the training material

WP number and title	WP5 – Training & validation including (CBRN-E) attacks
Lead Beneficiary	EUC
Contributor(s)	PPBW, VESTA
Deliverable type	Report
Planned delivery date	31/01/2020
Last Update	28/01/2020
Dissemination level	PU

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The QROC Consortium consists of the following partners:

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3	THE NATIONAL POLICE OF THE NETHERLANDS	NPN	LEA	NL
4	AEORUM ESPANA S.L.	AEORUM	SME	ES
5	POLICEJNI PREZIDIUM CESKE REPUBLIKY	PPCR	LEA	CZ
6	MINISTRSTVO ZA NOTRANJE ZADEVE REPUBLIKE SLOVENIJE, POLICIJA	MNZRS	LEA	SI
7	MINISTERIO DEL INTERIOR	MIR-ES	LEA	ES
8	INSPECTORATUL GENERAL AL POLITIEI ROMANE	IGPR	LEA	RO
9	HELLENIC POLICE	HP	LEA	GR
10	EUROPEAN UNIVERSITY CYPRUS	EUC	UNI	CY
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17	CYPRUS POLICE	CYPOL	LEA	CY
18	MINISTRY OF DEFENSE / KMAR	MINDEF	LEA	NL

Document History

VERSION	DATE	STATUS	AUTHORS, REVIEWER	DESCRIPTION
V0.1	06/01/2020	Draft	Evangelos Katsaros (EUC), Leng Cheng Pericles (EUC), Kleio Kioumourtzi (EUC)	First draft with TOC
V0.2	25/01/2020	Draft	Evangelos Katsaros (EUC), Leng Cheng Pericles (EUC), Kleio Kioumourtzi (EUC)	Editing Sections 2-3-4-5
V0.3	29/01/2020	Draft	Evangelos Katsaros (EUC)	Version ready for peer review
V0.4	30/01/2020	Draft	George Kioumourtzis (DITSS), Jacques van Wersch (DITSS)	Corrections, final review and Quality assurance
V1.0	31/01/2020	Final	Patrick Padding (DITSS)	Final approval and submission

Definitions, Acronyms and Abbreviations

ACRONYMS / ABBREVIATIONS	DESCRIPTION
QROC	Quick Response for Operational Centers
LEA	Law Enforcement Agency
PMC	Project Management Committee
PCG	Project Coordination Group
QC	Quality Control
NGO	Non-governmental Organization
NPO	Non-Profit Organization
RTO	Research & Technology Organization
SME	Small- and Medium-sized Enterprise
UNI	University

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Executive Summary

This report describes the QROC OC trainee profile and needs with descriptive presentation on the training material as it formulated after discussions with LEAs participating in the project, seeking of good practices and collection of questionnaires filled in by partners' staff. Emphasis is on staff serving at National Operational Centers, position that underlines the training requirements needed for CBRN-e evets management.

Based on the discussions among partners it was acknowledged that some issues concerning planned training needed further clarification. Therefore, EUC created a questionnaire that partners' personnel completed to identify in details the trainees' profile. In addition, an analysis of needs to place to complete the trainees' profile and the specific training needs for the following topics:

-Data sharing and communication and

-Technology capability and change management, in relation to each scenario.

Three scenarios have been initially identified: a) manhunt scenario, b) cross border CBRN-e attack c) public spaces protection integrated scenario sharing elements with a) and b) scenarios.

The interaction between the initially identified topics and the three scenarios defined the training modules, which will be the following:

- CBRN-e Training
- Information Sharing
- Incident Management

As most scenarios' challenges refer to cross border cooperation of national operational centers, we identified the factors for the existing gap in transnational cooperation – identified also by real past events- to include them in training and exercises. Our worries were far exacerbated by the fact that in most cross border cooperation cases, regional operational centers would be involved, which means that an analysis of potentially different characteristics of staff should be considered for training activities. Our work concluded that there is one generic profile for trainees that does not change depending on the specific scenario and the fact that personnel may work at national or regional operational centers. Any additional training needs for niche training elements, will be identified during the exercises. Evaluation of training will help achieving that goal while self-assessment of entities engaged in cross border crises management must be implemented frequently to optimize level of readiness for transnational cooperation.

Present deliverable describes the purpose and objectives of trainees, their profile and the structure of the training curricula. Theoretical bases on learning theory, strategies and evaluation methodology have been provided to sustain QROC training activities and mainstream its findings into LEAs' regular training programmes. The answers provided to questionnaires allowed us to assess theoretical findings. They were in line.

An analysis of cross border cooperation challenges followed, especially since in real events (a cross border CBRN-e attack) other (than LEAs) entities will be engaged (i.e. civil protection authorities). It is evident from past events that sharing culture is missing and there exist many interacting parameters to optimize the transnational cooperation framework. Especially if it has to take an official structured form, with specific plans and procedures. The cross border cooperation analysis identified the main factors that hinder cross border cooperation. Training activities will address those issues prior, during and after the table top exercises. Findings of present deliverable fed the scenarios development which is in progress.

After the interactive analysis in the first four chapters, in chapter 5 the actual training framework is presented. Training modes with theoretical and practical training, user roles and other useful elements.

Training modules presentation follows for each one of the specified topics: a) CBRN-e management, b) Information sharing and c) incident management. Contents of each module include a variety of training aspects that will be further analyzed during elaboration of training material, and detailed elaboration of table top exercises scenarios.

The conclusion are discussed in final chapter as a basis for making cross border cooperation of National Operational Centers a regular, effective activity. QROC can significantly contribute, in cooperation with other similar projects and the cooperation of LEAs international associations. Present deliverable is a dynamic one that will be updated / enriched after the actual training and exercises implementation as well as after interaction with other European initiatives and entities working on National Operational Centers cross border cooperation.

1   Introduction

This Section describes the scope of the QROC training activities along with the training objectives and the rational of the training curricula. The curricula aim at increasing the preparedness of OC's staff against improved international communication means and against upcoming technologies in the event of future attacks. Furthermore, the trainee profile is clearly depicted in this section.

1.1   Purpose of QROC Training

The upper purpose of the QROC training is to act as a self-training tool, so that the users of QROC should have an overall understanding of all the aspects related to Incident Management and CBRN-e threats and the way information sharing should be done among the various LEA Operational centers and especially in neighboring Member States in cross-border scenarios. The main scope is increasing the preparedness of OC's staff against improved international communication means and against upcoming technologies in the event of future attacks. This is done in a focused and efficient set of training sessions including Asynchronous training modules (E-Learning) and serious games (tabletop exercises combined with TRL6 demonstration techs), involving all LEA partners and inviting National Commanders to join and actively take part of the training procedure.

1.2   Training Objectives

The educational objectives of the QROC project are analysed into two basic categories (Fig.1), as follows:

General Objectives (concern all the QROC educational system, e-learning system, contents, educational material etc.):

1. Design and development of dedicated training on data sharing and communication capability (WP3 results), and Technology and Change Management (WP4 results).
2. To raise end-user awareness and share the knowledge related to incident management and information sharing, especially at cross border level.
3. To teach and train users on how to operate and share information related to CBRN-e incidents and other cross-border terrorist related operations.
4. To evaluate QROC platform during the training and contribute to its refinement.
5. To provide all training curricula and materials to EU agency CEPOL, responsible for LEA training, for further exploitation by the Agency
6. Elaboration and specification of three scenarios, including on CBRN-e-attacks, to be used for testing and training. All three scenarios will test the cross-border communication application; the developed technologies will be linked to the relevant scenarios, as follows:
   a. The manhunt scenario will focus on a direct and immediate response to collect the information of the perpetrator of a terrorist attack, activating all operational staff with the sole purpose to arrest the terrorist, making use of technology, skills and experiences.
   b. The cross border CBRN-e attack will focus on a CBRN-e incident in which multi-disciplinary actions need to be taken to identify the risks, protect the public and build a dynamic security assessment among the EU Operation Centres.
   c. The public protection crowd management exercise is an integral scenario, which will re-use elements of the manhunt and the CBRN-e exercises. Due to its specific purpose and the way crowd management and public protection is connected, this training is a separate third real life scenario.

Specific Objectives (concerning all the pedagogic issues):

In particular, the specific objectives of the training are distinguished in the following areas:

A. **Theoretical Training** (E-learning context)

Every trainee should:

- Have a clear understanding of all the concepts, the relative technologies and applications of QROC's subject matters
- Be familiar with the eLearning platform

B. **Practical Training** (Tabletop exercises)
- Practice on real-life threats (scenarios) that relate to the different types of organisations involved in the QROC project and identify other entities that may be engaged in a real events
- Demonstrate an understanding of QROC's topics
- Demonstrate the preparedness of the participants for specific types of incidents and their roles in response operations
- Provide feedback for better understanding of well and dysfunctions
- Evaluate the procedure and the outcome after each exercise.
- Capitalize on the findings and improve existing plans and procedures

1.3 Trainee Profile

One of the most important aspects of any educational training procedure is the identification of the audience and the establishment of the trainee profile. Failure to correctly identify the audience of the educational material may lead to issues such as not providing the required skills needed by the trainees, including material that is irrelevant to the skills required or providing training that does not match the participants learning background (Office of Technology Assessment. (1990). Worker Training: Competing in the New International Economy). This section tries to identify the profiles of the trainees and provide the necessary input to the developers of the training courses so that they can design the most effective training curriculum possible.

Due to the specific topics of the QROC project and the high level of expert, the audience need to be a focused target group that has experience and great interest in the specific subject matters the project deals with. Furthermore, the audience need to relate to QROC in their daily workspace, their specific interests and experience. Thus, the most adequate and mostly interested in these topics are Law enforcement agencies.

LEAs make great audience due to their experience and the challenges they face in their daily workplace and their professional interest in these matters. Even though LEAs are the general audience category, it is important to set some basic characteristics for the trainee profiles, in order to make the learning procedure adaptive to the learners' needs and to establish a trainee profile that is of high level and able to fulfil the objectives in order to secure a successful outcome.

In adult audience, a factor of great importance is the previous experience each learner has prior to participating in the project's training procedure. In order for the training designer to be informed about each participant's previous experience, questions such as the list below should be answered by the trainees:

- Country of origin
- Organisation of work
- Organisation type (specify)
- Position in the organisation
- Title
- Have you received any previous training related to the QROC learning topics? (if yes, specify)

- What is your knowledge level related to QROC learning topics (chose between no knowledge at all, basic, medium and expert)

After taking in consideration the experience factor, it is important to learn about the interest the audience has in the topics. To do that, the audience need to express the challenges and the reasons they have to participate in the training procedure of QROC. Additionally, of great importance is to know what the trainee expects desire to gain from the QROC training.

Apart from having LEAs of various categories as trainees, it is obligatory and great necessity for the participants to have a good knowledge of the English language and some interest on the QROC training topics.

To make sure the trainee profile is as accurate as possible; a questionnaire was elaborated and shared with partners. Fifteen answers were collected, that are enough at this stage of the project. The answers presented below in Graphs indicate that at training events one trainee profile must be taken into consideration and that this profile does not change if the trainee is staff of national or regional operational centers. However, the actual training and exercises will define further needs in training based on specific scenarios and potential differentiations of trainees regarding their position.
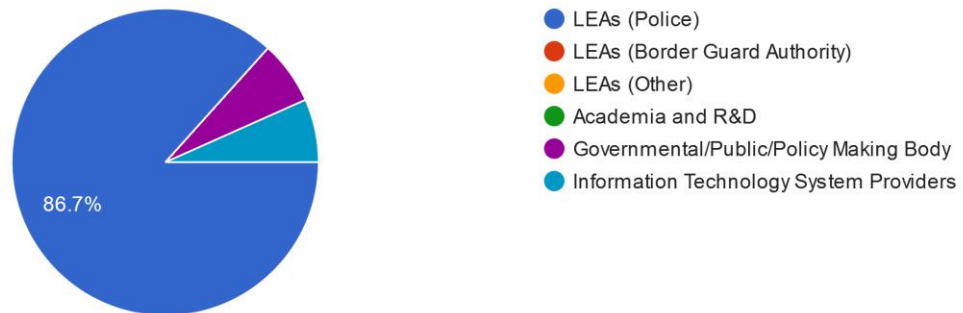
1.4   Trainee Profile Questionnaire Analysis

In an effort to maximize the educational impact of the material that will be presented in the training modules, a questionnaire was created so that the educators can have a better understanding of the trainee profiles. Knowing who the trainees are and what kind of educational background they have, as well as what their expectations are from the training can help in producing learning material that is clear and highly beneficial.

The questionnaire was made up of fourteen questions starting with some demographic questions, including location, position and previous educational experience and then continued with some training preference questions.

Demographic Information

In the first question we received answers from all the participating countries and as it is shown in Figure 1, most of the participants are from Law Enforcement Agencies and especially from the Police force. There are also some participants from Governmental/Public or Policy Making Bodies and from Information Technology System Providers.

Organization Type

15 responses

- LEAs (Police)
- LEAs (Border Guard Authority)
- LEAs (Other)
- Academia and R&D
- Governmental/Public/Policy Making Body
- Information Technology System Providers

86.7%

Figure 1: Organization type of trainees

In the next question, the participants were asked if Information Sharing technologies were part of their specific interest, duties, responsibility or authority. Figure 2 shows that only 60% feel that information sharing technologies are in their interest or duties. This might need a little more clarification though because the question was too broad adding responsibility and authority. Policemen may want to use information sharing technologies, but it is not their responsibility, or they have the authority to implement them. This is an interesting aspect that may need to be further examined to ensure that we are targeting the right audience for these trainings.

Do the technologies that enhance Information sharing between Police or National Operational Centers belong to your specific interest/duties/responsibility/authority?

15 responses

- Yes
- No

40%

60%
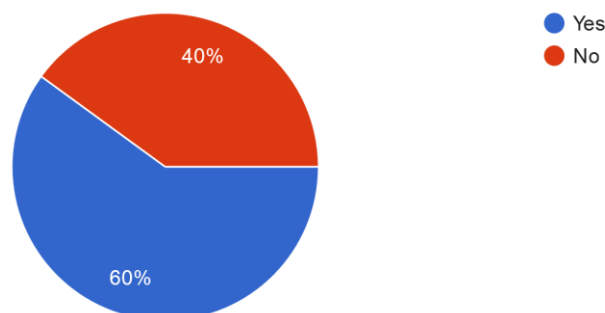
Figure 2: Information sharing technologies and jurisdiction

The next question asked if participants had any prior training related to the topics that will be covered in QROC so that the trainers can adjust their material to trainees that are more advanced. The majority of respondents have stated that they did not receive any other training so this allows the trainers to create learning material that are geared towards entry-level trainees (Figure 3).

Have you received any previous training related to the QROC learning topics?
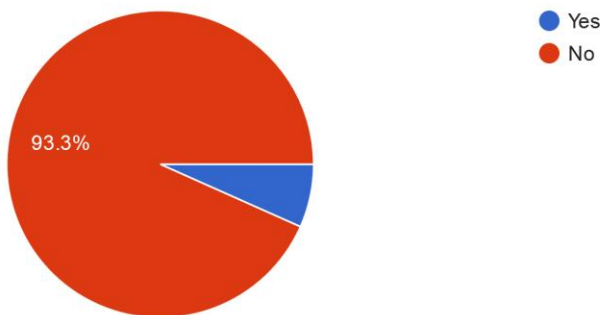
15 responses

Figure 3: Previous training on QROC learning topics

One of the most important questions in the questionnaire (Figure 4) is the educational background of the trainees. Having a solid educational background means that trainees can follow learning material that is of a higher level and can easily understand more complex concepts. The results of this question showed that all participants have at a minimum a university degree and this will allow the learning material to be more advanced.

What is your academic background?

15 responses
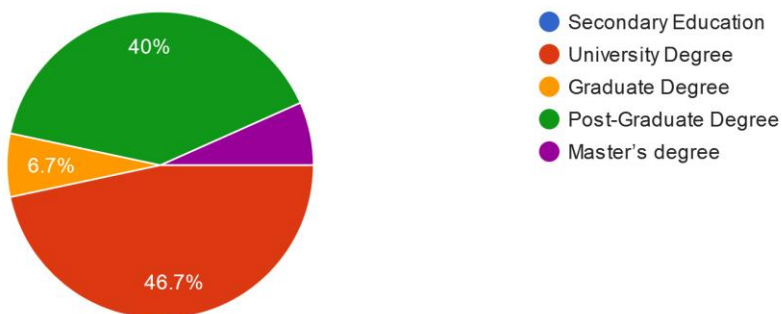
Figure 4: Trainees' academic background

Training preferences

The following questions are helpful in understanding what the preferences of the trainees are and what their expectations from the training modules are. The table below shows the scale of the answers with 1 being the lowest importance and 4 being the highest importance.

Importance (1 is the lowest importance and 4 is the highest importance) of the following requirements:

1. Won't have. These requirements would be nice to be included, but the training procedure will be fully effective even without them.

2. Could have. These requirements are desirable to be included. However, their exclusion will have a small impact on the training procedure.
3. Should have. These requirements are important for the training procedure, not vital, but they will add a significant value to the training procedure.
4. Must have. Without these requirements the training procedure will be completely ineffective

The first question in the training preferences asked the trainees what training format was the most appealing for them. The first option of Classroom training was considered good to have but with a small impact if not provided. A workshop event was considered favorably due to participants having hands-on experience with learning concepts. E-Learning was also considered favorably whereas webinar presentations were not considered important. The biggest impact was seen in a combination of e-learning and classroom education with a high response rate in both 3 and 4. This indicates that the trainees like to work online at their own time but are also interested in some hands-on training to enhance their learning. Finally, trainees had an overwhelming agreement that training should not be once off, but it should have repeating versions of the learning material from entry-level to more advanced uses.

Which of the following training formats are more appealing to you?
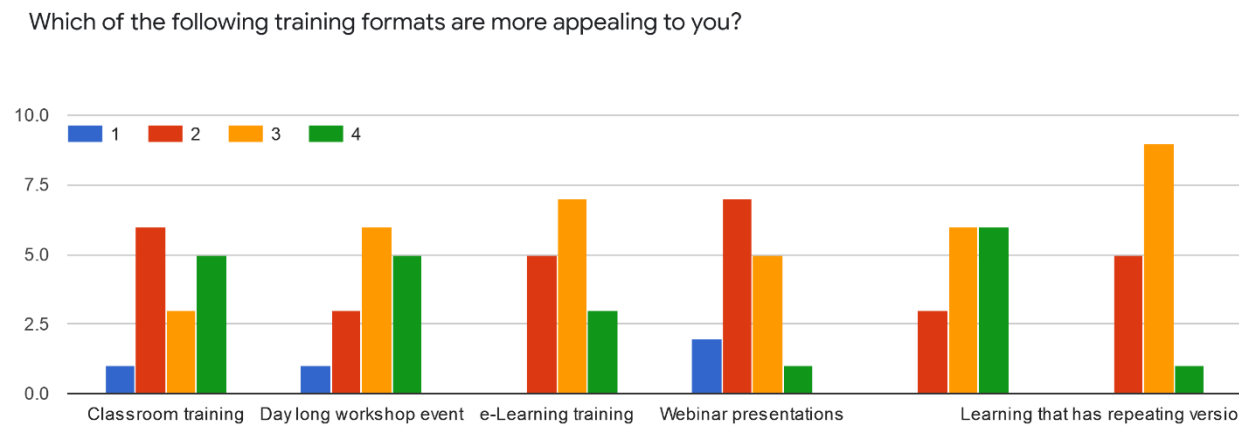
Figure 5: Training format preferences

In the question, which training procedure is more appealing to the trainee, the answers were clearly focused on participant interaction. Most of the trainees supported the need for interaction with other participants and also in interacting with the instructor. This means that the developers of the training platform need to incorporate such e-learning tools that can promote interaction. These can be online forums in the courses, and chat modules that can allow participants to exchange ideas and communicate both online and offline.

What makes the training procedure more appealing to you?

Figure 6: Most appealing training procedures

When asked what the trainees expect to gain from the training it seems that all the subjects had a high request. The most important gain though seems to be the work on realistic scenarios and how to share information amongst eac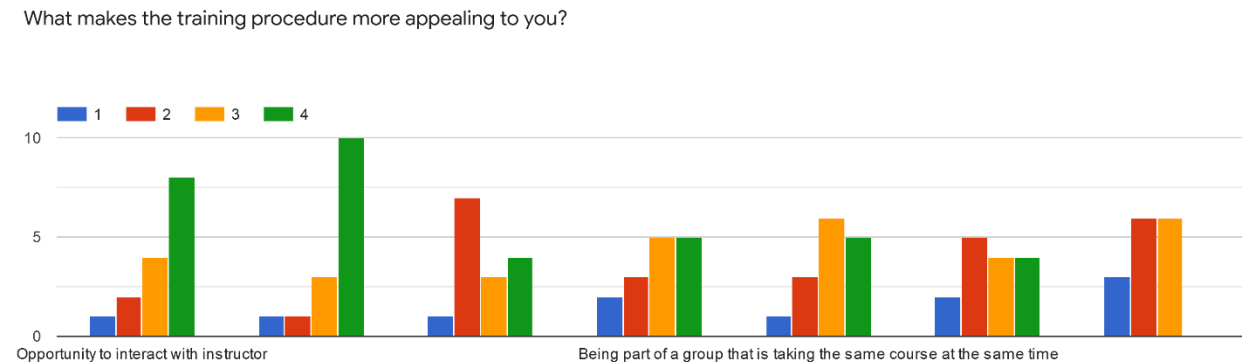h other. This is very important for this project since the modules that are being prepared are built on realistic scenarios and there is also a training module for information sharing.

What do you expect to learn during the QROC training?
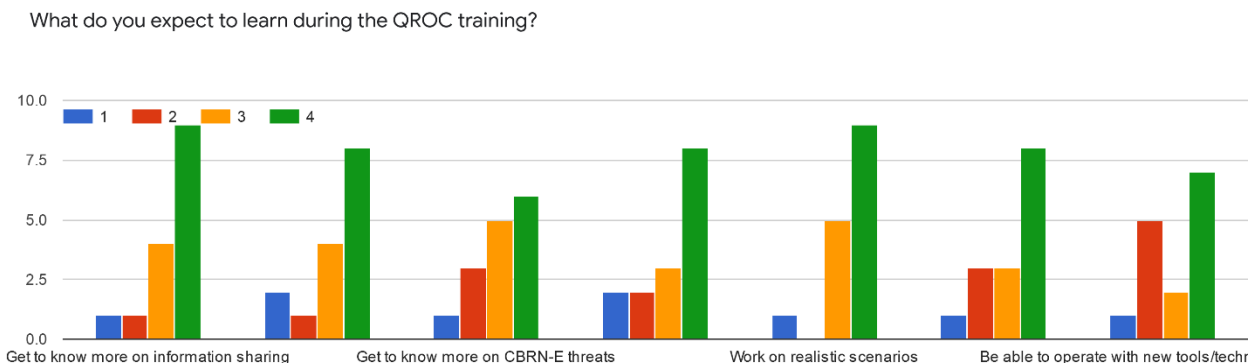
The final question of the questionnaire was based on the evaluation of the training. It is apparent that the trainees would like to have some kind of assessment during the training and the capability of providing feedback on the performance of the trainee. This can be provided through online test which can immediately provide basic feedback and the trainers can also provide frequent feedback. It is also clear that trainees would like to receive some sort of certificate in the end of the training.

Training evaluation procedure
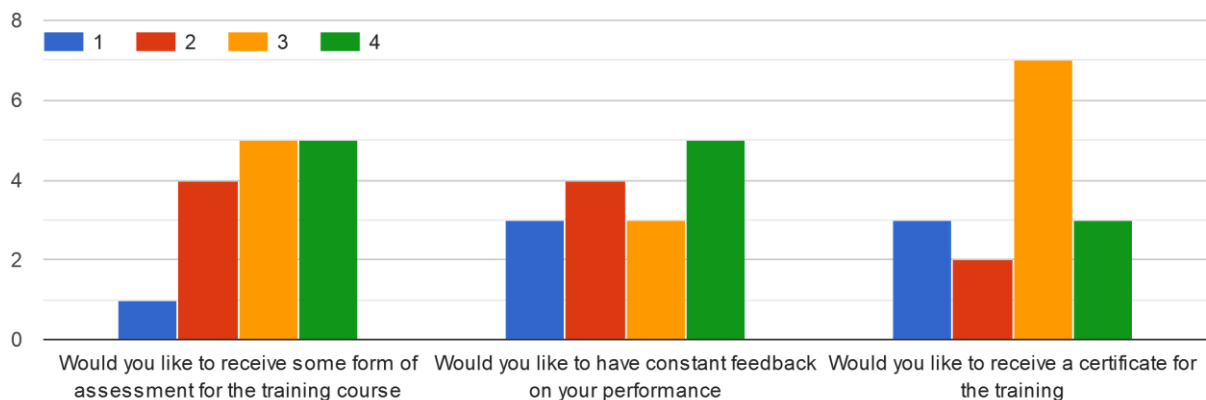
Figure 7: QROC learning expecteations and evaluation procedures

Overall, the questionnaire was able to provide the material developers with helpful insight on how to structure the educational modules and what kind of involvement the participants are looking for. In addition, the questionnaire provided a way for the project leaders to identify the needs of the trainees and aim the training towards fulfilling those needs.

1.5 Structure of the Training Curricula

The structure of the training curricula will be described in this section of the deliverable. For the needs of the QROC project, three main modules are established: CBRN-e, Information Sharing Web Tool and Incident Management. Each module will have an e-learning session followed by a practical session in the form of a tabletop exercise, as depicted in the following Figure 8. Evaluation will occur after each one of the three learning modules, as well as after every one of the three tabletop exercises. Final evaluation will take place when the entire learning procedure is complete, in order to assess the overall outcome.

Figure 8: QROC Training Framework.

2 Theoretical Foundation

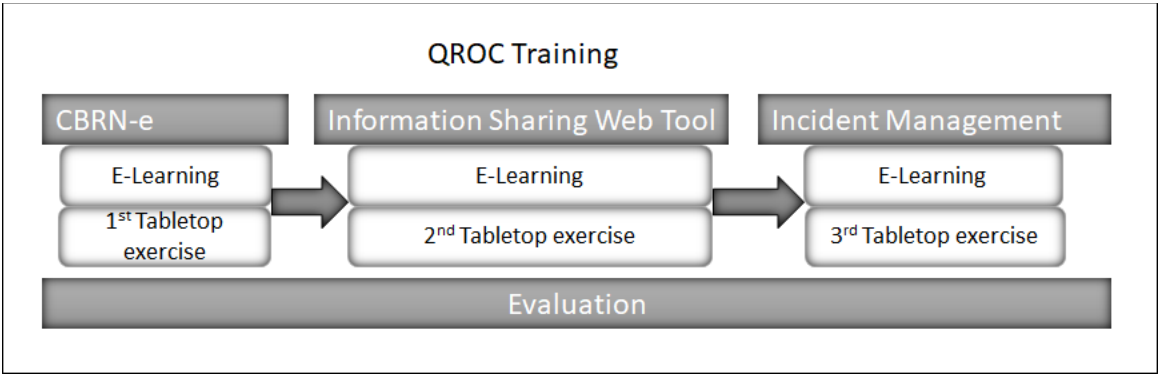When designing a learning course, it is necessary to set the learning objectives, to choose a learning theory that will help plan the course during conception, development, and execution, in a way that will facilitate the learning process, and to apply certain evaluation techniques, in order to measure if the desired goals are achieved.

The presence of a learning theory serves as guidance to create relevance by mapping courses with perceived learner needs, to devise instructional strategies in alignment with real learning contexts, to choose the technology that best supports the instructional strategy and to plan instructional strategies relevant for digital-age and on-the-go learners. The purpose of a learning theory is to assist the instructional designer to create effective learning experiences for the learner and lead towards the fulfilment of the training objectives.

Every learning theory is supported by a set of learning strategies. These strategies can have various forms, such as dual-coding, scaffolding, etc. and they serve as specific actions, steps, or techniques used to enhance the learning procedure.

2.1 Learning Theory

For this specific training course, the adult learning theory applied is the Experiential Theory of David Kolb. Experiential learning is an engaged learning process whereby students "learn by doing" and by reflecting on the experience. Kolb supports that the learning abilities needed for successful adult learning are:

- Concrete experience (awakening)
- Reflective observation (observing)
- Abstract conceptualization (practicing)
- Active experimentation (applying)

These abilities are part of a learning cycle that repeats itself again and again.
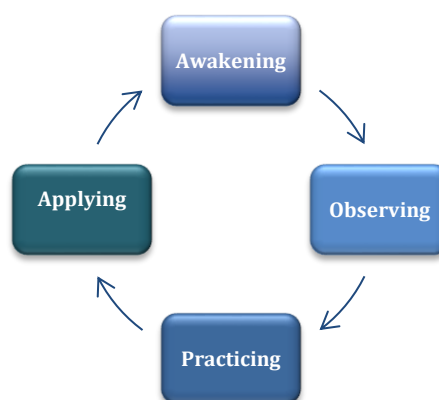
Figure 9: The Experiential Learning Cycle.

In the following figures there is a clear presentation of what each step of Kolb's learning theory expects of the learner and the course instructor respectfully.
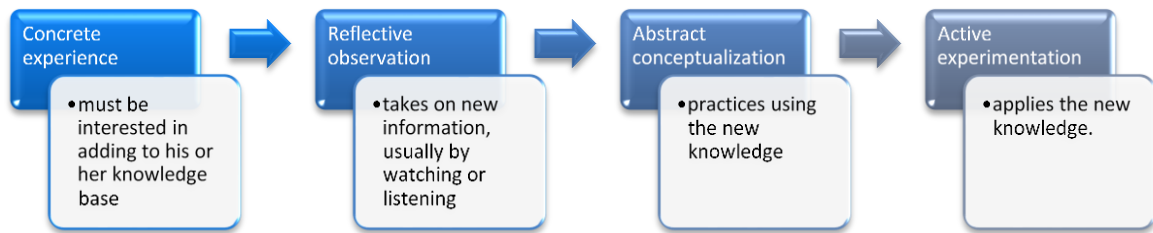
Figure 10: The expectations of the learner according to Kolb's theory.
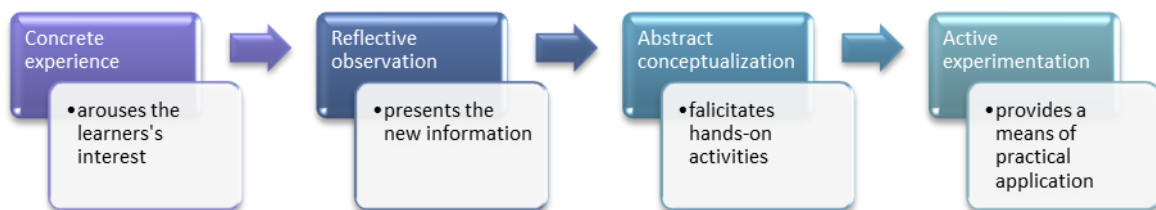
Figure 11: The expectations of the instructor according to Kolb's theory.

In QROC's case, the training procedure has been designed according to the Experiential Learning Theory as depicted in Figure 9. Every step of the learning theory is matched to a specific training objective and every activity serves one or more objective(s). The evaluation process takes place as both formative and summative assessment. The following learning process occurs in a linear order and evolves step by step. The main roles are the course creator, the course administrator, the trainers and the end-users. The end-users make up the participants who are Police Officers serving in Operational Centres.
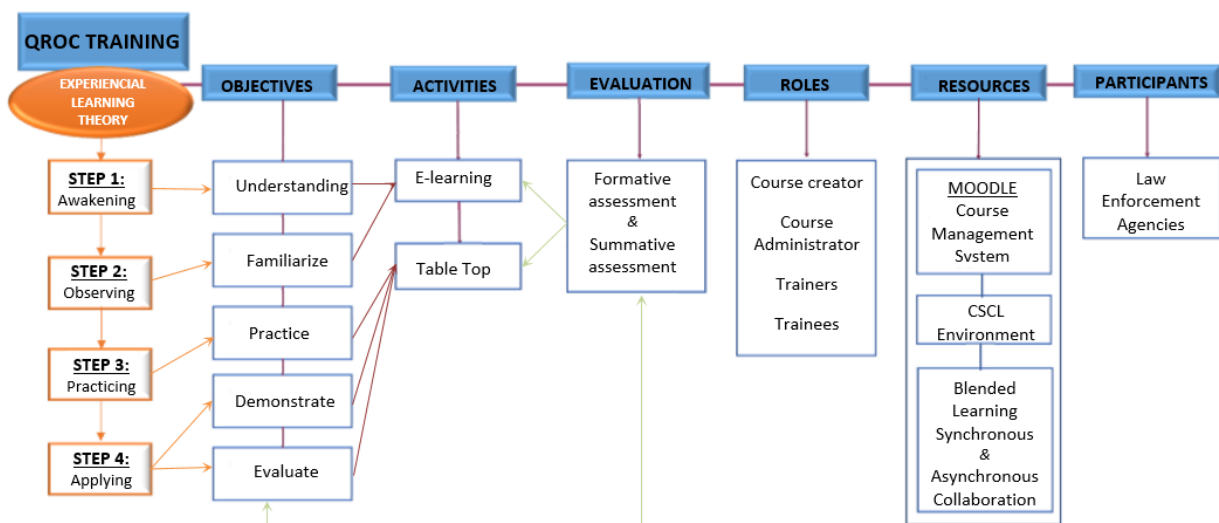
Figure 12: QROC training procedure

2.2 Learning strategies

Every learning theory, in order to be effective, is supported by certain learning strategies, as mentioned previously. For the needs of QROC, the Experiential Learning Theory includes the following learning strategies: demonstrations, text material, audio-visual material and games in the form of tabletop exercises.

2.3 Evaluation Methodology

When education takes place, there is always need for evaluation. It serves as a tool for measuring not only for the trainees' performance, but also the fulfilment of the learning objectives and the effectiveness of the learning procedure. Evaluation can take place in numerous ways and in various time periods during the educational procedure. In QROC's case, the evaluation will proceed as formative assessment (on-going evaluation, during each phase of the training procedure) and as summative assessment (final evaluation, at the end of the entire learning procedure). For the formative assessment, certain types of exercises (multiple choice, matching, short quizzes, activities etc.) will be used. For the summative assessment, a final evaluation questionnaire will take place. In the end, all the feedback will sum up to make the overall outcome of the entire training procedure.

3 Training Framework

The framework illustrated in the following Table 1 gives an overview on what is trained and how.

More specifically includes the following:

- The content that will be used by the training program in form of training modules.
- The organization and structure of the modules in groups related to QROC's training objectives (Theoretical and practical).
- The training methods and forms that will be applied.
- The sequence in which the training of the modules will take place: (i.e. 1st: e-learning theoretical sessions on knowledge modules, 2nd Tabletop exercises).
- The evaluation of the the QROC training program from the end-users after each training session, the results of which will contribute to the refinement of the training program itself.

TRAINING CURRICULA FRAMEWORK	THEORETICAL TRAINING	PRACTICAL TRAINING	EVALUATION
	e-LEARNING	TABLETOP EXERCISES	ALL
MODULES	(1)	(2)	
CBRN-e	X		X
Information sharing web tool	X		X
Incident management	X		X
1st Tabletop exercise		X	X
2nd Tabletop exercise		X	X
3rd Tabletop exercise		X	X

Table 1: QROC Training Framework

3.1 Organisation of Content

The training content is organized in modules serving the previously defined major objectives, which are related to the content/knowledge and to QROC'S operations respectively.

Raising awareness related content is theoretical with no need for practicing, whereas operations which are related not only to content but to users' and systems' functions and processes involve both theoretical and practical training. Analysis of the training modules is done in Chapter 5. The training content will be tailored accordingly for the targeted user groups depending on their corresponding use, needs and requirements.

3.2   Training Modes

The training includes both theoretical and practical methods in the form of e-classes and face-to-face sessions according to the content of the training modules.

All training modules will be concluded providing Testing Resources & Material, taking Knowledge Testing, and submitting Reports & Statistics.

3.2.1   Theoretical Training

The Theoretical Training includes Distance (e-learning) courses using online platform such as open source Learning Management System (LMS). E-Learning sessions will enable large number of geographically spread users to participate and have anytime, anywhere on-line access to the training material.

3.2.1.1   E-learning

For the needs of QROC, an e-course is designed, developed and will be implemented. There are various environments where this training could take place but after research, the most adequate tool for this e-course is decided to be the online learning environment Moodle. Everything done on the Moodle platform is designed based on the adult learning theory of Experiential Learning and on every one of its phases.

Moodle is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalized learning environments. It is a free and open-source software learning management system written in PHP and distributed under the GNU General Public License. Developed on pedagogical principles, Moodle is used for blended learning, distance education, flipped classroom and other e-learning projects in schools, universities, workplaces and other sectors

With customizable management features, it is used to create private websites with online courses for educators and trainers to achieve learning goals. Moodle (acronym for modular object-oriented dynamic learning environment) allows for extending and tailoring learning environments using community-sourced plugins

The stated philosophy of Moodle includes a constructivist and social constructionist approach to education, emphasizing that learners (and not just teachers) can contribute to the educational experience. Using these pedagogical principles, Moodle provides an environment for learning communities

In addition, the platform gives the opportunity to the instructional designer to implement it in ways that will give certain access to each student according to his or her role and to the appropriate level of difficulty for each one.

3.2.2   Practical Training

The Practical Training will be organised in three (3) face-to-face sessions as integral part of table top exercises. During these sessions, the practical training that will take place will be in the form of tabletop exercises where participants will get actively involved. Each session will be dedicated to one of the three scenarios mentioned previously in the objectives. All three scenarios will test the cross-border communication application and the developed technologies that will be linked to the relevant scenarios.

The first practical training session will handle the manhunt scenario that will focus on a direct and immediate response to collect the information of the perpetrator of a terrorist attack, activating all operational staff with the sole purpose to arrest the terrorist, making use of technology, skills and experiences.

The second practical training session will deal with the cross border CBRN-e attack which will focus on a CBRN-e incident in which multi-disciplinary actions need to be taken to identify the risks, protect the public and build a dynamic security assessment among the EU Operation Centres.

The third and final practical training session will apply the public protection crowd management exercise, which is an integral scenario that will re-use elements of the manhunt and the CBRN-e exercises. Due to its specific purpose and the way crowd management and public protection is connected, this training is a separate third real life scenario.

3.3 User Roles

The main roles that exist within the QROC training are the ones of the trainers and the trainees. Concerning the QROC learning platform, some users will have different roles with different access control and command levels with their corresponding skills required to be developed through training in order to plan, manage, configure, administer, maintain, operate and monitor the modules and their components, but the dominant role will be the one of the trainee.

Analysis of these user roles, responsibilities, clearance, authorization and access levels and operation privileges with the associated skills will be included in the next training curricula version.

Furthermore, during the entire training process, the trainees will be given the choice of the level of difficulty that corresponds to their previous knowledge and their needs and this will make the learning course adaptive.

In all cases, the aim is to capitalize on training findings to improve existing plans and procedures to achieve optimization of operational centers cross border cooperation.

4 Cross Border Cooperation

4.1 Challenges in Cross Border Disaster Management

This section aims to identify some challenges proposed in the relevant literature regarding the cross-border dimension of disaster management; a category including QROC related scenarios, especially CBRNe. This is of significance taking into account that each challenge is usually associated with opportunities that will allow for the "*coordinated, effective and efficient response to disasters*". Specifically, addressing the growing number of extreme events (including terrorism) affecting more than one country at once –in cross border cases- , involves multiple different and complex challenges and objectives that may be hard to address due to their association with national sovereignty as well as relationships between European and national policies. Such complexity is also highlighted by Bossong and Hegemann (2015), who have noted that "*functional pressures for centralization and trans-nationalization exist alongside deep rooted and potentially conflicting political interests and cultural traditions, not to forget cross-cutting trends towards more decentralized societal resilience*".

However, as Becking (2017) suggest issues may go beyond policy and cultural differences but may even include structural differences. Specifically, after conducting interviews with officials in four different countries in the wider Benelux region, he identified major differences regarding administrative structures, differences which were highlighted by the interviewees as obstacles to cross-border in disaster management. For instance*, in **Germany** being a federal state the structure is complex and while legislative power for disaster management can be found at the state level, executive power can be found at the level of rural districts and district-free cities* (Becking, 2017). *On the contrary, in the **Netherlands** the administrative structure is significantly simpler as any decision made at a national level apply to the whole country* (Becking, 2017). Such differences complicate the formulation of cross-border collaborative agreements at regional and municipal levels, which may require the existence of prior framework agreements. This is due to a possible ambiguity, when no such framework agreements are in place, on which responsible institution and at which administrative level is to sign an agreement or execute its decision (Becking, 2017). Therefore, it comes without surprise that Becking's *interviewees mention a difficulty in identifying the exact counterpart in a neighboring country*. Finally, Becking (2017) highlights that *labor turnover makes regular communication even more difficult since involved stakeholders may change positions frequently.*

A second challenge identified by Becking (2017), which was perceived by his interviewees as the most difficult to overcome, revolves around legal differences. A first example of legal differences is a dispute on which actors have the competence to sign cross-border agreements based on existing conflicting legislation and bilateral agreements. Moreover, Becking's interviewees highlight a different perception between countries regarding data protection. For instance, Germany's strict handling of sensitive data limits the amount of information that may be shared during cross-border initiatives (Becking, 2017). Finally, minor legal issues may also cause issues. One example highlighted by Becking (2017) was the use of 'Feuerwehrführerschein' (fire brigade driver's license) in other countries, including the proper use of emergency lights and sirens that applies in cases of cross border CBRNe events.

A third challenge identified by Becking (2017) is related to differences in national disaster management structures. Specifically, competences and responsibilities in neighboring countries might differ and foundation plans regarding risk reduction might set different working priorities (Becking, 2017). Consequently, practices and procedures in cases of disasters may differ significantly constituting another obstacle to cross-border cooperation. *Another aspect of this problem has to do with different training standards that may result to varying competences of emergency personnel.*

A fourth challenge highlighted by Becking (2017) is associated with *communication systems and their crucial role in organizing emergency personnel during a disaster*. Difficulties may occur with cross-border radio communications both due to language barriers but more importantly due to technical difficulties. One example may be identified in the concurrent use of analog and digital radio by different parties. Moreover, analog and digital radios have issues associated with each individual technology. On the one hand, analog radio by itself has issue with range and topography, often requiring additional transmission masts. On the other hand, digital radio shuts communication channels completely when signal quality drops below a certain threshold. Finally, Becking (2017) mentions that due to aforementioned issues the use of mobile phones has also been observed.

A fifth challenge, as perceived by Becking (2017), regards language and cultural barriers. Becking's interviewees have, for example, highlighted cases where communication without an interpreter was not possible. Such an issue make communication on scene impossible and slows down communication between key stakeholders at a regional or state level. *Cultural differences may also hinder communication due to potential misinterpretations of received information.* These issues led Becking (2017) *to propose cross-cultural communication training programs.*

The last challenge identified by Becking (2017) deals with a different level of prioritization of cross-border cooperation between bordering countries. Becking's interviewees highlight that this difference may be the result of policy, personal motivation of officials, as well as population density of the potentially affected areas.

Another attempt at identifying challenges related to cross-border disaster management was undertaken in the context of the research project entitled "Enhancing Synergies for disaster Prevention in the EurOpean Union (ESPREssO)". In the process of identifying challenges in disaster management this project proposed three categorizations of challenges. One of the identified categories is closely related to the problem at hand and is entitled "*Strengthening transboundary crisis management in the EU*" (Albris et al., 2017). This category is further decomposed into various distinct challenges.

The first one, namely *"isolated national thinking and lack of political will",* is related to lack of will and motivation to collaborate with neighboring countries, in order to enhance transboundary policies, tools, and practices. This lack of will may be observed not only during events situated near or at borders but also when events within a country are solely managed by it without utilizing available supportive tools coming either from other countries or multinational/international institutions (e.g. EU support mechanisms). While such situations are not clearly under the scope of the issue at hand, they indicate a problematic attitude towards cooperation with one's neighbors.

The second challenge, namely *"absence of policies and tools for transboundary crisis management"*, which highlights the need for setting up adequately effective and useful international structures for transboundary crisis management. Although, as already stated, there are a number of bilateral and multilateral signed agreements between several countries for dealing with specific hazards (e.g. CBRNe events, floods, forest fires), there is often a lack of legal instruments and concrete policies that can be used by national, regional and local governments to effectively use transboundary aspects for crisis response (Albris et al., 2017).

The third challenge, namely *"lack of standardized forms of communication",* is related with recurring issue lack of standardized forms of communication between official agencies across countries. This issue also includes the concept of knowledge sharing beyond communication during an emergency or crisis. Characteristically, Albris et al. (2017) quote a Swiss official in saying that "*miscommunication problems may arise between two different political cultures*" with one potentially wanting "*to take their time in considering their options*". A different and more basic facet of this problem is the lack of clearly identifiable contact points across nations.

For the fourth challenge, namely *"international cooperation across national government levels"*, Albris et al. (2017) state that a lack of policies and tools for intranational emergency management may have spillover effects and pose barriers for international cooperation.

4.2 Assessing readiness for cross border cooperation

This section presents a methodology developed by the Organization of Security and Cooperation in Europe (OSCE (2013)) for the self-assessment of nations in an effort to increase preparedness for possible ***cross-border implications of crises.*** The aforementioned methodology involves the assessment of several actors at multiple authority levels. The assessment is achieved through a 5-step process. Figure 2 depicts the steps of said approach in order.

Figure 13: The five-step approach for the self-assessment of readiness for cross-disaster management [Source: OSCE, 2013]

The first step encompasses the initiation of the process by the actor that is conducting the self-assessment. Ideally this actor is the one responsible for disaster management and a thorough review of the roles and responsibilities of all actors as well as mechanisms, procedures, and laws in place has already being conducted. The main actor is expected to coordinate with other actors in conducting an inter-agency self-assessment that provides an overview of national capabilities.

The second encompasses the conduction of a jointed assessment of all relevant border related agencies. It promotes contact between actors and is an awareness exercise on its own. It allows for officials from various backgrounds to identify differences between themselves and colleagues from other agencies.

The third step is facilitated by a series of predefined question sets. These questions are drafted in a way that a positive answer does not require further exploration. However, a negative answer indicates a gap where room for improvement exists. These questions are not meant to provide an overall score but to highlight areas of improvement.

The fourth step revolves around the communication of results with external international bodies with goal of a more in-depth assessment or the discussion of other possible types of cooperation.

The fifth step revolves around renewed inter-agency communication in an effort to communication lessons learnt and retain the momentum of this joined effort.

*Such paradigms, even if created initially for cross border natural disasters they apply for technological and man induced ones. Therefore in **QROC training activities** issues such as cross-border disaster management readiness of actors engaged in transnational cooperation must be examined during table top exercises. Such assessment aim at identifying gaps of individual countries to be addressed both individually by themselves as well as jointly with their neighbours.*

5 Training Modules

5.1 CBRN-e Training

Course Title
CBRN-E threats prevention and management
Course Description:
The training programme for CBRN-e provides a structure for a knowledge-based trainee curriculum, including pilot training courses for current and prospective staff members of LEAs. CBRN-e events (especially cross border) engage a variety of actors of different skills, capabilities and cultures (first responders, civil protection officials, local authorities etc) that increase the difficulty of successful management.   The purpose of such training is to ensure that first responders have a common knowledge base and a minimum level of preparedness when responding to CBRN incidents, especially at cross border area. Such training is designed to assist nations improve their civil emergency plans, complement national training systems and improve co-operation between first responders.   Since LEAs staff at Police National Operational Centers will coordinate (possibly in cooperation with other National Operational Centers (Civil Protection, Fire Brigade, Emergency Health Services, etc) the training course must include a variety of topics. Complete understanding of the situation and the requirements for successful management will allow LEAs staff to take correct decisions that will optimize the whole operations and facilitate all engaged entities to accomplish effectively their tasks.   THE CBRN-e CURRICULUM PRINCIPLES: 1. The CBRN-e Curriculum is divided into various learning outcomes (could be part of learning modules).   2. The learning outcomes can be used individually. Trainers can tailor the different learning outcomes of the curriculum to meet the individual needs of the target audience or to complement a national training course for first responders involving staff from other agencies.   3. Each learning outcome / module is built upon a number of learning objectives. These objectives consist of various components that support the overall outcome. Training, while not exhaustive, provides the understanding to achieve the learning objectives. Trainers may determine the exact content of each module and develop activities accordingly   ***As QROC exercises will be planned and the training material will be further developed, courses description will be more detailed and in alignment with integrated, permanent training needs of LEAs personnel.***
Learning Outcomes:
Training Programme Aim (general intent): To provide current and prospective LEAs staff and first responders with minimum knowhow for CBRN-e response so that they can include this understanding in improving civil emergency and crisis management plans (especially cross border ones), complementing existing or planned national training courses and improving civil-military cooperation during incidents that may be the case in terrorism related CBRN-e attackes. .

Programme Goal (study areas): To understand the context and potential consequences of CBRN incidents and the actions to take during first response (crisis management). **All learning outocomes –when possible- will be examined from the <u>cross border</u> cooperartion perspective** (*depending on the scenarios: initial and additional during QROC implementation period*).

Learning Outcome 1: Comprehend the context of CBRN response in relation to current national and international security concerns.

Learning Outcome 2: Comprehend awareness requirements in relation to CBRN response.

Learning Outcome 3: Comprehend protection requirements in relation to CBRN response.

Learning Outcome 4: Comprehend decontamination requirements in relation to CBRN response.

Learning Outcome 5: Comprehend first aid requirements in relation to CBRN response.

Learning Outcome 6: Comprehend detection requirements in relation to CBRN reponse.

Learning Outcome 7: Comprehend command and control requirements in relation to CBRN incidents.

Learning Outcome 8: Comprehend the implications of bilateral or multilateral assistance for local first responders.

Learning Outcome 9: Comprehend the implications of civil-military cooperation during CBRN response.

Learning Outcome 10: Comprehend the capabilities and limitations of local crisis / consequence management structures and key services.

Upon succesful completion of this course, trainees should be able to:

- Have the necessary knowledge for being part of the coordinating mechanism of Police National Operational Centers in cooperation with other National Operational Centers (Civil Protection, Fire Brigade, Emergency Health Services etc) at national and cross border and international levels.
- Use all technological advances to coordinate LEAs staff operating at regional and local levels and cross border areas.
- Be in position to assess situation and assistance needs (including initiating cross border / international cooperation).
- Be in position to exchange information and share data at interagencies level.
- Be able to handle communication with public/media, including rumors control.
- Coordinate security provision and risk communication to affected communities / population

In other words: **build an effective and interoperable work force at QROC participating LEAs.**

Textbook:

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EDEN (2014), "End-User Driven Demo for CBRNe,D83.3 Impact on Vulnerable Groups (Final V2)", available at: file:///C:/Users/ehgh/Downloads/Impact_on_vulnerable_groups.pdf , (last accessed 22/04/2018).

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Recommended Additional Readings:

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"Pediatric considerations in chemical exposures: are we prepared?", Pediatric Emergency Care, Vol. 20, No. 3, pp.198-208.

Manley, M., Kim, Y.S., Christensen, K., Chen, A. (2016), "Airport Emergency Evaluation Planning: An AgentBased Simulation Study of Dirty Bomb Scenarios", IEEE transactions on Systems, Man and Cybernetics, Vol. 46, No. 10, pp. 1390-1403.

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Course breakdown	
Lecture 1	Nature of possible CBRN-e attacks - International organizations responding to a terrorist attack using CBRN-e weapons and materials (i.e. INTERPOL)
Lecture 2	Surveillance - Early warning Identification and Response (including decontamination phase)
Lecture 3	Information Sharing - Overall assistance and coordination
Lecture 4	Joint expertise in investigation teams- Forensics – Law enforcement
Lecture 5	Public information and information sharing following a terrorist attack using CBRN-e weapons or material

5.2   Understanding LEAs' Information Sharing

Course Title
Understanding LEAs' Information Sharing
Course Description:
This course provides training for law enforcement regarding information sharing among police operational centers. Trainees will learn about the different modes of information sharing whilst becoming familiar with existing tools and practises that LEAs' currently use. In addition, they will analyse gaps in information sharing and understand barriers to effective information as well as the risks involved and ways to take better measures. New tools and methods that ensure the secure transmission of sensitive and restricted data is essential. Combining commonly used functionalities along with data protection in order to create a secure communication platform is also crucial. An example of which is Stashcat, a program that trainees will have the chance to learn more about throughout the course.
Learning Outcomes:
Upon successful completion of this course, students should be able to: • Define the importance of information sharing • Identify the benefits • Categorize the different approaches to sharing information and recognise their inherent strengths and weaknesses • Examine the barriers to effective information exchange • Analyse the risks in information sharing • Practice new ways to share information
Textbook:
"Information Sharing and Data Protection in the Area of Freedom, Security and Justice" Franziska Boehm, ISBN 978-3-642-22391-4, DOI 10.1007/978-3-642-22392-1, Library of Congress Control Number: 2011941399, 2012. "Police Information Sharing: All-crimes Approach to Homeland Security (Criminal Justice: Recent Scholarship)", Ernest D. Scott Jr. ISBN 978-1-59332-322-6,2009 "Police Administration", Gary W.Cordner, ISBN 978-1-315-69702-4, 2016
Recommended Additional Readings:
"Understanding law enforcement information sharing for criminal intelligence purposes", Rick Brown, Australian Institute of criminology, ISSN 0817-8542, Dec. 2018 "Improving Information-Sharing Across Law Enforcement: Why Can't We Know?", John S., RAND Corporation, the Police Executive Research Forum, RTI International and the University of Denver, 2015

"Law Enforcement Information Sharing: A Florida Case Study", K. Michael Reynolds, Pamala L.Griset, Ernest Scott, American Journal of Criminal Justice, No.1,2006

"Law Enforcement Information Sharing and the Implications for Local Government (A Technical Reference)", Todd Sander , Feb. 2010

"Towards Integrated C4I – NATO Experience in Building C4I Systems", Ralph D. Thiele, ISPSW Strategy Series: Focus on Defence and International Security, Issue No. 531, Jan. 2018.

"Law Enforcement Fusion Centres: Cultivating an Information Sharing Environment while Safeguarding Privacy" Jeremy G. Carter, David L. Carter, Steve Chermak, Edmund McGarrell, J Police Crim Psych (2017) 32:11–27, DOI 10.1007/s11896-016-9199-4, May 2016

Europol Information System (EIS)
https://www.europol.europa.eu/activities-services/services-support/information-exchange/europol-information-system

Secure Information Exchange Network Application (SIENA)
https://www.europol.europa.eu/activities-services/services-support/information-exchange/secure-information-exchange-network-application-siena

Schengen Information System (SIS II) | Data Protection Commission
https://www.dataprotection.ie/en/schengen-information-system-sis-ii

Council of the European Union | Prüm Convention
https://ec.europa.eu/anti-fraud/sites/antifraud/files/docs/body/prumtr.pdf

Law Enforcement Information Sharing
https://www.dni.gov/index.php/who-we-are/organizations/ise/ise-archive/ise-additional-resources/2142-law-enforcement-information-sharing

Course breakdown	
Lecture 1	Current practises and tools for LEA's information sharing
Lecture 2	Gaps in LEA's information sharing
Lecture 3	New methods and tools for efficient information sharing for LEA's

5.3   Incident Management

Course Title
Incident Management of CBRN-E Attacks
Course Description:
Whenever a crisis occurs it is important for law enforcement to have certain procedures to allow them to manage the crisis. This course provides law enforcement agents with the necessary information on how to formulate and execute their incident management plans. Trainees will learn how to prepare for incidents through the analysis of previous attacks and identification of vulnerabilities, how agencies are assigned responsibilities and how they can coordinate and manage the various actors in the incident response.
Learning Outcomes:
Upon successful completion of this course, students should be able to: - Understand how incident planning can help in mitigating attack impact   - Analyse previous attacks to identify management issues   - Categorize the different responsibilities according to the agency that will be assigned to them   - Learn how to examine incidents to gather data, assess them and then disseminate the information to the appropriate agencies   - Understand how to isolate and mitigate the effect of an attack   - Define ways of managing evacuation
Textbook:
"CBRN and Hazmat Incidents at Major Public Events: Planning and Response", Kaszeta, Dan. New Jersey: WILEY, 2013.
Recommended Additional Readings:
"Managing the Emergency Consequences of Terrorist Incidents", Interim Planning Guide, 2002   "Guidelines for First Responders To A CBRN Incident", NATO Civil Emergency Planning Civil Protection Group, 2014   "Chemical, biological, radiological and nuclear incidents: clinical management and health protection", Public Health England (PHE), 2018   "Crisis Management for Terrorist Related Events", CIPR & CPNI, 2019   "Basic Training Course on CBRN Emergency Management for Airport Emergency Handlers", NDMA, AAI and INMAS, 2018   "Eurojust CBRN-E Handbook", Eurojust, 2017

"Cyber and chemical, biological, radiological, nuclear, explosives challenges." Martellini, Maurizio, and Andrea Malizia. In Terrorism, Security, and Computation, p. 407. Springer International Publishing, 2017.

Course breakdown	
Lecture 1	Analysis and incident management planning
Lecture 2	Information gathering, scene management and evacuation management
Lecture 3	Communication and assignment of responsibilities of agencies

6 Conclusions

Differentiation among training needs and trainees' profile between staff at national operational centers and regional ones is not sufficient for the LEAs participating in QROC project. The analysis of past events fails to examine such dimension. From the initial scenarios elaboration we can also see that the cross border dimension is not a key element of working culture. Exercises' scenarios tend to focus at national territories and that explains the difficulties in cooperation between national operational centers once real cross border events happen.

One of the major problems in cross border cooperation is the difficulty to identify the exact counterpart in the neighboring country. Training exercises help address that problem. However, this is not enough. Staff turnover –in various positions- may communication more difficult and this is the reason that standard operating procedures and protocols have to be in place (and frequently tested and updated) for cross border cooperation.

Therefore, through QROC training we will focus on joint training in scenarios with strong cross border elements and with engagement of staff from entities different from LEA's. The aim is to formulate a basic trainee profile for staff working at operational centers that may be engaged in cross border management events, which will allow effective response, independently of the case. Then, based on the evaluation of the training and the capitalization of outcomes to improve plans and procedures QROC consortium will define the specific areas where training must differentiate. The suggestions will be included in the regular schedule of training / exercises by all LEAs in the consortium.

Training standards per participating LEA on cross border cooperation have to be compared and harmonized. In that case cultural differences may also hinder communication due to potential misinterpretations of received information. QROC will organize and propose regular cross-cultural communication training programs.

QROC initial findings are fully in line with a review that was conducted by Jeraj (2014) for the purposes of the 22nd OSCE Economic and Environmental Forum, identified best practices for bilateral and regional cooperation in disaster management based on the experiences of Slovenia. In the context of this review, Jeraj (2014) highlights the following points that should be considered for cross-border crisis management:

- *"The significance of close cross-border cooperation and regional cooperation should be recognized in strategic national documents, defining national disaster management policy and related sector policies"*
- *"Formal agreements, as well as procedures for close cooperation with neighboring and other countries should be concluded or other arrangements established"*
- *"Organizational structures and procedures to effectively implement bilateral cooperation should be established, i.e. joint committees, working/ expert groups, project teams, and other forms"*
- *"The cooperation should include different levels (national level, border regions, capitals, regions sharing similar risks, etc.) and organizations (police, fire brigade, health services, national disaster management organizations, rescue services, NGOs, research institutions, etc.)"*
- *"Examples of good practices should be promoted and experience shared"*

Moreover, Jeraj (2014) notes that areas of bilateral and regional cooperation should include the following:

- *"Early warning, notification and mutual exchange of information on hazards and occurrence of emergency situations and disasters"*
- *"Exchange of knowledge and experience"*
- *"Joint education, training and exercises"*

- *"Rendering assistance in case of disasters, cooperation in international disaster response interventions (arrangements for border crossing in case of emergency)"*
- *"Other forms of cooperation"*

Indeed all these aspects have been discussed by QROC partners in Kick Off meeting and Telcos. It seems that LEAs have left behind in cross border cooperation in comparison with civil protection authorities, however they could fast adapt and make significant progress. QROC provides the framework for achieving such progress and make it sustainable and transferrable.

Comparison with similar training activities, (to be) conducted by other projects working at the same topics as QROC will be encouraged to be able to generalize the findings, put them in criticism and spread to European LEAs community. Also cooperation with EU CBRN risk mitigation centres of excellence will be promoted, as well as with INTERPOL to build on existing knowhow and experience and contribute the specific findings of QROC projetct.

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This report was funded by the European Union's Internal Security Fund — Police under grant agreement n° 861716

ANNEX I: Entities that answered the questionnaire

Timestamp	Country	Organization	Title	Organization Type
1/20/2020 2:35:18	Greece	Hellenic Police	Wireless Communications Expert / Police Lieutenant	LEAs (Police)
1/20/2020 9:54:34	CYPRUS	POLICE	Head of Funds	LEAs (Police)
1/20/2020 11:54:09	POLAND	NATIONAL POLICE	CHIEF OF DIVISION	LEAs (Police)
1/20/2020 13:04:53	Slovenia	Ministry of Interior	Senior police inspector	LEAs (Police)
1/20/2020 13:56:01	Netherlands	Royal Marechaussee	Information manager	LEAs (Police)
1/21/2020 10:41:09	the Nether;ands	National Police Agency	MCDm (master of Crises and Disaster management	LEAs (Police)
1/22/2020 12:20:10	Spain	Aeorum España S.L.	Manuel Ruiz de Quintanilla	Information Technology System Providers
1/23/2020 13:32:57	Ireland	An Garda Síochána (Police)	Superintendent	LEAs (Police)
1/23/2020 14:59:31	Luxembourg	Police Grand-Ducale	Director of Finance	LEAs (Police)
1/23/2020 16:09:24	Bulgaria	Ministry of Interior - Communication and information systems Directorate	Senior expert	Governmental/Public/Policy Making Body
1/24/2020 10:41:35	Czech Republic	Operational Department of the Police Presidium of the Czech Republic	kpt. Mgr. Kristina Lukešová	LEAs (Police)
1/24/2020 10:56:40	Romania	Romanian National Police	Ionut Eduard Staicu	LEAs (Police)
1/24/2020 11:54:56	Spain	Ministerio del Interior	Diana Olmo Aparicio	LEAs (Police)

		EASTERN FINLAND POLICE DEPARTMENT		
1/24/2020 15:18:08	Finland	EASTERN FINLAND POLICE DEPARTMENT	Chief Inspector	LEAs (Police)
1/24/2020 17:53:27	Luxembourg	Police Grand-Ducale	Director of Police Technologies	LEAs (Police)