Project Number: 740521

eNOTICE
European Network of CBRN Training Centres

D5.20 – eNOTICE Final report

Dissemination level

PU	Unrestricted PUBLIC Access – EU project	x
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1	**Université catholique de Louvain (UCL)**	**X**
2	Campus Vesta APB (VESTA)	X
3	Fire and Rescue Service of Seine et Marne (SDIS77)	X
4	Association pour la recherche et le développement des méthodes et processus industriels (ARMINES)	X
5	Fire Department Dortmund (FDDO)	X
6	Safety innovation centre (SIC)	X
7	Joint CBRN Defence Centre of Excellence Vyškov (JCBRND COE)	X
8	Middle East Technical University (METU)	X
9	University of Rome Tor Vergata and The Italian Joint NBC Defence School (UNITOV)	X
10	West Midlands Police, National CBRN centre (WMP)	X
11	War Studies University, CBRN Defence Training Centre (WSU)	X
12	Scientific and Research Centre for Fire Protection (CNBOP-PIB)	X

Executive Summary

This document is Final Management Report for eNOTICE, a European Horizon 2020 EC funded project, under the Grant Agreement n° 740521.

This report gives an overview of the project results, underlining the progress for the second half of the project from Month 31 to Month 72 (March 1, 2020 – August 31, 2023).

During the whole project duration eNOTICE consortium submitted 57 deliverables, where 54 of them are public reports. The following deliverables were submitted during the second half of the project:

- D3.16 Links to other CBRN networks and platforms, integration and interface functions on the eNOTICE information and communication platform. Report 2, WP3, Public report, M34, lead - SIC

- D5.9 eNOTICE evaluation report on the functioning of the information and communication platform Y3, WP5, Public report, M34, lead - SIC

- D3.11 Semestrial report 2 on the use of the eNOTICE information and communication platform, WP3, Public report, M36, lead - SIC

- D4.5 eNOTICE Joint activities planning. Report 4, WP4 Public report, M36, lead - VESTA

- D5.10 eNOTICE evaluation report on the preparation/organisation, evaluation and follow up of exercises combined with tests, validations or demonstration. Report 1, WP5, Public report, M36, lead - UNITOV

- D5.11 Progress report 6, WP5, Public report, M36, lead - VESTA

- D4.10 eNOTICE Recommendations for CBRN R&D and CBRN policies. Version 3, WP4, Public report, M36, lead - UCL

- D3.12 Semestrial report 3 on the use of the eNOTICE information and communication platform, WP3, Public report, M42, lead - SIC

- D5.12 Progress report 7, WP5, Public report, M42, lead - VESTA

- D3.17 Links to other CBRN networks and platforms, integration and interface functions on the eNOTICE information and communication platform. Report 3, WP3, Public report, M46, lead - SIC

- D5.13 eNOTICE evaluation report on the functioning of the information and communication platform Y4, WP5, Public report, M46, lead - SIC

- D5.15 Progress report 8, WP5, Public report, M48, lead - VESTA

- D4.6 eNOTICE Joint activities planning. Report 5, WP4, Public report, M48, lead -VESTA

- D4.11 eNOTICE Recommendations for CBRN R&D and CBRN policies. Version 4, WP4, Public report, M54, lead - UCL

- D5.16 Progress Report 9, WP5, Public report, M54, lead -VESTA

- D3.13 Semestrial report 4 on the use of the eNOTICE information and communication platform. WP3, Public report, M60, lead - SIC

- D5.14 eNOTICE evaluation report on the preparation/organisation, evaluation and follow up of exercises combined with tests, validations or demonstration. Report 2, WP5, Public report, M60, lead - UNITOV

- D5.17 eNOTICE evaluation report on the preparation/organisation, evaluation and follow up of exercises combined with tests, validations or demonstration. Report 3 - WP5, Public report, M65, lead - UNITOV

- D3.14 Semestrial report 5 on the use of the eNOTICE information and communication platform - WP3, Public report, M66, lead - SIC

- D4.12 eNOTICE Recommendations for CBRN R&D and CBRN policies. Version 5 - WP4, Public report, M66, lead - UCL

- D3.18 Links to other CBRN networks and platforms, integration and interface functions on the eNOTICE information and communication platform. Report 4 - WP3, Public report, M68, lead - SIC

- D4.13 eNOTICE Plan to pool resources and optimize investments for increased CBRN Training Capacity - WP4, Public report, M68, lead - UNITOV

- D4.7 eNOTICE Joint activities report - WP4, Public report, M70, lead - VESTA

- D5.18 eNOTICE evaluation report on the functioning of the information and communication platform Y5 - WP5, Public report, M70, lead - SIC

- D4.7 eNOTICE Joint activities report, WP4, Public report, M70, lead - VESTA

- D5.19 eNOTICE evaluation report on the CBRN TC' quality label and web-based search function and recommendations for certification - WP5, Public report, M70, lead - UNITOV

- D3.3 Final dissemination report - WP3, Public report, M71, lead - UCL

- D5.20 eNOTICE Final report - WP5, Public report, M72, lead - UCL

All public Deliverables are available at the eNOTICE web based platform: https://www.h2020-enotice.eu/static/publications.html

The following tasks have been ongoing from Month 31 to Month 72:

- Task 3.1 - Dissemination activities to promote and enhance the web based platform and project results, lead UCL

- Task 3.3 – Further development and maintenance of the web based platform, lead SIC

- Task 3.4 – Integration of platforms and interfaces, lead SIC

- Task 4.2 - Organisation of joint activities (exercises combined with tests, validations or demonstrations), lead VESTA

- Task 4.3 - Identification of opportunities to strengthen policies and recommendations for R&D, lead UCL

- Task 4.4 - Plan to pool resources and optimise investments for increased CBRN Training Capacity, lead UNITOV

- Task 5.1 - Consortium Management, lead UCL

- Task 5.2 - Technical management and Task 5.2.1 Quality management, lead VESTA

- Task 5.2.1 - Quality management: development of a continuous improvement methodology, incl. process and result indicators to follow up the project's performance, lead VESTA

- Task 5.2.2 - Evaluation of the functioning of the web based platform, lead FDDO

- Task 5.2.3 - Evaluation of the methodology and templates for the preparation, organisation, evaluation and follow up of exercises combined with tests, validations and demonstrations, lead UNITOV

- Task 5.2.4 - Evaluation of the quality label, web based search function and recommendations for certification, lead UNITOV

- Task 5.3 Security, legal and ethical aspects, lead VESTA

This document forms the top of the organisational documentation structure. It details all management aspects, i.e. defines and details those people and their roles, the tools used in the project, the agreed rules, methods, means applied or used for managing it and describes what has been achieved in work packages and tasks.

The project has progressed to the schedule and plan as defined in the DOA. Highlights for the project include:

- Development of the Roster of CBRN TCs (with 216 TCs currently in the database)

- Development of a Catalogue of the CBRN TCs' capacity and facilities with currently 51 TCs from 22 countries (17 EU countries and 5 countries outside EU) as confirmed members of the eNOTICE network, available at https://www.h2020-enotice.eu/static/catalogue.html

- Development of the methodology for CBRN exercises planning, preparation, organisation and reporting

- Network sustainability strategy based on experience and findings in resources pooling and optimisation

- Design and development of web-based communication platform for the eNOTICE Community Center (ECC) at https://www.h2020-enotice.eu/

- Successful implementation of 17 Joint Activities in Belgium, Czech Republic, France, Germany, Italy, Poland, Turkey and UK.

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Explanation of the work carried out by the beneficiaries and Overview of the progress

Objectives and main results

eNOTICE's main goal has been to create a truly collaborative sustainable CBRN stakeholders community by establishing a network of CBRN Training Centres (TC) in order to build cohesion between security practitioners and research and innovation providers. At the early stage of the proposal preparation, choices were made to find the most efficient way of networking between so different stakeholders categories. Given the consortium specificity, most of the beneficiaries being genuine CBRN TC, it was obvious that planning conventional workshops in a meeting room would not give any interesting results considering the lack of interest of practitioners for often discussions with little dynamic which are miles away from their practical duties. A better, more interactive and collaborative way for building an efficient multidisciplinary network is through joint activities, such as **joint exercises**, where all the stakeholders participate capabilities and operating procedures are visible. With **17 joint exercises** (i.e. field, table top, serious gaming and simulations involving all project beneficiaries, stakeholders from the planned exercises and external invited ones), with the **solid methodology of capabilities mapping and labelling**, with permanent dissemination activities through a **web-based information and communication platform – the eNOTICE Community Centre (ECC)**, the process of networking became dynamic, natural and efficient. The professional return of the networking becomes convincing for all existing and future members only if they experience true joint activities, seeing with their own eyes first response interventions in a real case setting, using training facilities, testing or learning about new technologies, and interacting directly with (new) stakeholders such as other practitioners from other networks, industries, R&D projects, experts in security, policy makers, etc.. This approach **makes the network inclusive, viable and sustainable** during and beyond this 6 years project, and ensure building a long term collaborative community.

eNOTICE has evolved into a dynamic and synergistic interdisciplinary network that actively seeks cross-border collaboration and interoperability through the coordination of inter-institutional multidisciplinary and multiagency exercises, with the goal of supporting a wide range of complex and diverse training scenarios, such as hybrid threats, emerging threats, combined chemical, biological, and radiological threats, as well as exchanging knowledge, and testing cutting-edge technology at various levels of maturity.

This type of collaborative activity is made possible by the network's diverse range of interconnected expertise and synergies. eNOTICE thus significantly contributes to improving collective and individual preparedness for a cross-border response to CBRN threats, as well as increasing the safety, security and resilience of responders and the population. By focusing training and teaching activities on a standardised cross-border approach, eNOTICE aims to assist in the legal, administrative, and organisational requirements as well as the protocols and standards of neighbouring countries. These objectives support European policies in the field of security, particularly those defined by DG HOME, DG ECHO and DG INTPA. In a similar way, eNOTICE is an excellent source of recommendations for the European Union's R&D programmes, based on regular feedback from CBRN training professionals and practitioners, as well as lessons learned from joint activities.

With the extensive effort of the eNOTICE consortium partners on the project results and activities promotion during the whole lifetime of the project, the high strategic value of eNOTICE is now better perceived by national, European, and extra-European authorities, as well as all other networks of first responder practitioners, at the end of this project and in light of growing political and economic instability, which significantly increases the level of risk. This is demonstrated by the steady increase in collaboration within and outside Europe, invitations to interact and collaborate with other networks, and multiple colloquia with experience exchanges and joint action planning.

The following objectives were pursued and achieved during the project:

Objective 1: To elaborate a framework for European network of CBRN TC, testing and demonstration sites

Achievements of eNOTICE:

a) 216 EU CBRN TC, testing and demonstration sites (including mobile capacities) have been identified, all the contacts were initially listed in the eNOTICE Catalogue (D2.1) and then further updated during the project lifetime. These TC have been contacted by the consortium partners, with the request to fill in a large comprehensive survey questionnaire, covering the following information:

- Contact details of the person filling the questionnaire (the only private info)
- General info about the TC
  - CBRN specialization: mono-/multi-, which, characteristics;
  - Civil or military TC, NATO accrediattion for military, possibility to take the other type of practitioners for training;
  - Training grounds, capacity, training and exercise capability, accommodation and accessibility (train/bus/car/distance)
  - Courses: theoretical and/or practical
- Partnerships: participation to other network(s)
- Research projects where the TC participated or currently participates;
- Legal, ethical or other restrictions/considerations;
- Rationale for joining the eNOTICE network (interest, expectation).

51 TC from 22 countries have filled the comprehensive questionnaire designed by eNOTICE consortium training centres for external TC, having stated their wish to join the network and described their their type of organisation, thematic expertise, capabilities, facilities, specificities, geographical location, as well as their professional, economic and legal links. The information on these 51 TC is collected in the eNOTICE Catalogue (D2.1) and placed on the eNOTICE Community Centre https://www.h2020-enotice.eu/static/catalogue.html .

Collaboration with DG DEVCO has been established in 2018 to use the eNOTICE approach and format (online survey) to collect information on TC in third countries. This collaboration afterwards continued with Foreign Policy Instrument (FPI) that took over the charge of CBRN CoE initiave from DG DEVCO after its reorganisation into DG INTPA. In the result, the eNOTICE Catalogue of TC comprises training centres from Burkina Faso, Serbia, Tunisia, Ukraine and Uzbekistan.

b) Security stakeholders influencing the CBRN TC network – training professionals, practitioners – first responders, technology operators, customers, technology suppliers (industry and research),

and policy makers have been identified and mapped. A thorough analysis and identification of their respective needs and expectations for the network of CBRN TC was carried out and a roadmap of factors, criteria and motivations prompting their membership to this network has been developed (D2.3).

c) Key Performance Indicators were defined for a successful network (D2.4). The KPIs were being used as an analytical instrument to collect information on other networks in a structured way, and as a conceptual instrument to prepare a sustainable vision and implementation plan to gradually build the eNOTICE network during the project, facilitating the evaluation processes and the sustainability framework development.

d) Building on the information describing the TC, a basic approach for a capacity label for the TCs has been elaborated, its definition and scope as well as the procedures for acquiring the label (D2.2). The resulting CBRN Training Capacity Label is associated with two sets of criteria: mandatory eligibility criteria and optional additional criteria. The eligibility criteria encompass the capability of a TC to organise one of the key activities identified, in compliance with eNOTICE methodology as described in the final version of D4.6 - eNOTICE methodology for the preparation, organization, evaluation and follow-up of CBRN exercises combined with tests, validations or demonstrations, as well as an acknowledged expertise in at least one CBRN-related field, and a compliance with core European values. These eligibility criteria impose a set of minimum requirements to become a member of the network. The additional criteria allow to take into account the wide range of capabilities and training facilities of current and future eNOTICE members. They are rather informative, so that no interested TC should be excluded from joining the network. The search function implemented on the web-based ECC platform increases the visibility of the Training Centres members of the network.

e) A framework and sustainability plan for the European CBRN TC network was developed in the first approach (D2.5), and then largely elaborated in the end of the project (D4.13). There have been many lessons learnt throughout the course of project eNOTICE, contributing to a thorough understanding of what is necessary to guarantee network sustainability moving forward. Having analysed various aspects of future network organisation, operations and funding, as well as the expectations and limitations of TC (e.g. the concerns of collaboration with industry, lack of harmonisation and standardisation of training practices, and so on), the project identified the framework and the "action plan" paving the way for the network components are crucial to the efficiency and sustainability of the eNOTICE network progress into its next phase of development.

Objective 2: To establish a web-based information and communication platform to provide, share and disseminate information during and after the project: to make the eNOTICE network visible and attractive to CBRN-TC and external stakeholders, to provide access to CBRN TC capacities according to a 'capacity label', and to encourage and facilitate communication and interactions between all parties.

Achievements of eNOTICE:

a) The eNOTICE project website initially developed in the basic version has been developed into the fully functional eNOTICE Community Centre (ECC) and continuously improved, it is accessible at https://www.h2020-enotice.eu/. Analysis of different requirements gathering methodologies for the development of eNOTICE web-based platform was performed through literature analysis and

workshops with users, and the preliminary concept was iteratively improved based on feedback during presentations and workshops at each eNOTICE Joint Activity.). At the end of August 2019 the eNOTICE Community Center became fully functional. The ECC serves as the main platform of dissemination of the project activities and results to the external audience. The ECC allows relevant stakeholders from the training centres, practitioners, CBRN technology suppliers, policy makers to stay up to date on the latest developments of the eNOTICE network.

The ECC features a general description of the project and its objectives, an overview of the project consortium, the catalogue of training centres – members of the eNOTICE network, with the capacity label assigned to every training centre, the list of Joint Activities implemented during the project, the list of all eNOTICE publications (deliverables, position papers, scientific papers, newsletters, press releases), means to contact the eNOTICE consortium, legal pages (e.g. a GDPR-compliant privacy policy). Additionally, the ECC provides collaboration and communication features (such as a document cloud and a forum) to registered users.

b) An overview of means of integration and interfaces for other, thematically related platforms and projects was collected to see which interfaces other entities already provide. This includes interfaces regarding e.g. calendars, news articles and social media features, possible means of integration and feasibility were explored based on the previous results.

Objective 3: To set up an operational transactional network for optimising investments by pooling and sharing resources, expertise, and effective practices, by organising JAs between the eNOTICE network members and external partners, and by liaising with other networks of CBRN stakeholders
Achievements of eNOTICE:

a) The methodology and templates for planning, preparation, organization, reporting, evaluation and follow-up on Joint Activities (JAs) – field exercises, table tops, simulations and serious games hosted by training centres and inviting other current national and European R&D projects, representatives of industry and research, policy makers – have been developed initially in D4.1 in the first approach. The methodology is both for stand alone exercises and those combined with tests, validations or demonstrations, including chronologic steps, guidance per step and templates and checklist for every relevant aspect. Lessons learnt have been collected from every JA as a continuous activity. This feedback was used in WP5 to improve the first draft and to elaborate a mature methodology that can be shared as a generic good practice. During the project, based on the feedback of training centers hosting the JAs, the templates have been significantly revised, simplified for optimal practical use and improved, with the final versions presented in D4.6.
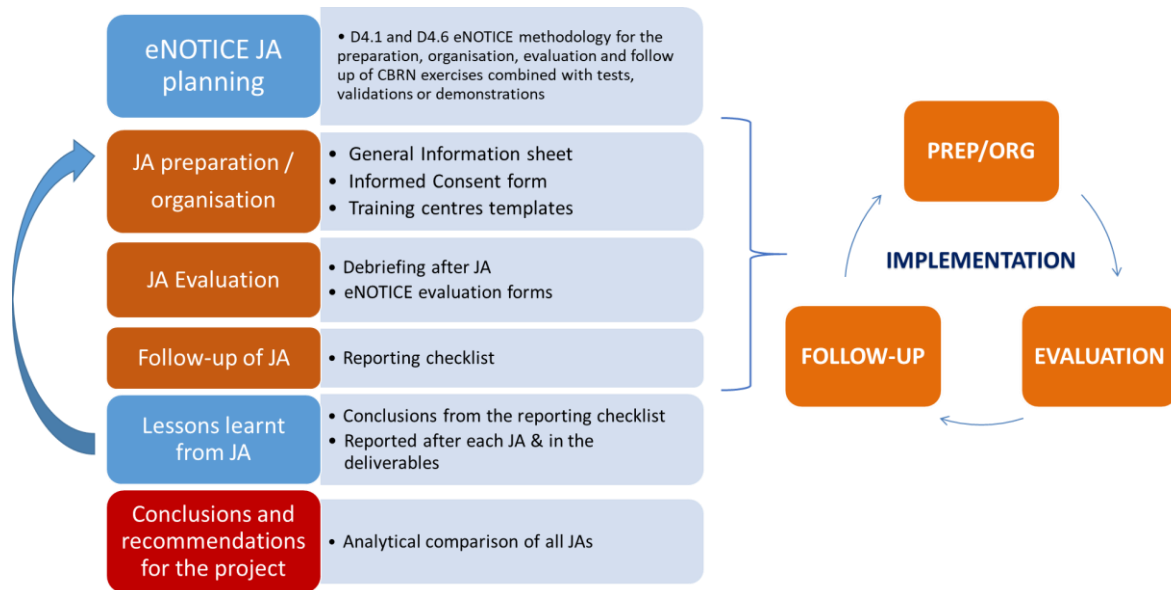
Figure 1. Methodology of JA preparation, implementation, reporting

b) Information on the cost of organising Joint Activities (exercises combined with tests) has been collected for the past JA and was used in a structured way to elaborate recommendations to pool resources, the results are integrated in the comprehensive sustainability plan and is reflected in D4.13.

c) The following face-to-face Joint Activities and online webinars have been held:

Face-to-face Joint Activities – exercises, workshops, policy meetings, conferences:

Date	Hosting partner	Location	Type of activity	
Dec 2017	**SDIS77**	**Gurcy, FR**	Multidisciplinary Field Exercise (focus on fire brigades) with participation of projects TRADR and Toxi-Triage	
Jan 2018	**ARMINES + METU**	**Nîmes, FR**	Table-top / serious gaming (with participation of projects IGNIS, MODEX, Econfidence, SAYSO, TARGET, EU MFH)	
June 2018	**UCL**	**Brussels, BE**	CBRN mobile capacities Field Exercise (with participation of ESA project B-LiFE)	**Policy Meeting 1**
Oct 2018	**UNITOV + Rieti School**	**Rieti, IT**	Multidisciplinary Field Exercise (with participation of CBRN Cluster part a) project ENCIRCLE)	**Annual Workshop**
Feb – Mar 2019	**JCBRND COE**	**Vyškov, CZ**	International Radiological Assistance Programme Training for Emergency Response (I-RAPTER) Basic Course	
May 2019	**SDIS77**	**Gurcy, FR**	Multidisciplinary Field Exercise (with participation of H2020	

			CBRN Cluster part b) project TERRIFFIC and CBRN Cluster part a) project ENCIRCLE)	
Jul 2019	**WMP**	**Birmingham, UK**	Table Top Exercise	
Sep 2019	**FDDO + CNBOP-PIB**	**Dortmund, DE**	Multidisciplinary Field Exercise (with participation of CBRN Cluster part a) project ENCIRCLE)	**Annual Workshop Policy Meeting 2**
Feb 2020	**METU**	**Ankara, TR**	Serious Gaming	
Nov 2021	**WSU + CNBOP-PIB**	**Warsaw, PL**	Combined Civil-Military Exercise	
Nov 2021	**JCBRND COE**	**Vyškov, CZ**	Consequences Management after a CBRN Incident Course (with participation of EU projects INCLUDING, NO-FEAR, FIRE-IN, Bullseye, PROACTIVE)	
May 2022	**FDDO**	**Dortmund, DE**	Multidisciplinary Field Exercise (with participation of H2020 PROACTIVE project)	
May, 2022	**VESTA**	**Ranst, BE**	Multidisciplinary Field Exercise (with participation of ISF MELODY project)	**Policy Meeting 5**
Nov 2022	**UNITOV + Rieti School**	**Rieti, IT**	Multidisciplinary Field Exercise (with participation of H2020 PROACTIVE project)	**Annual workshop**
Mar 2023	**WSU**	**Warsaw, PL**	Military table top exercise	
May 2023	**VESTA + UCL**	**Ranst, BE**	**Multidisciplinary Field Exercise** (with participation of H2020 PROACTIVE project)	
Jun 2023	**UCL + All**	**Brussels, BE**	**Final conference** (jointly with PROACTIVE and PANDEM-2, with many EU projects invited - PEERS, INCLUDING, RESIST, VERTIgO, MELODY, COVINFORM, NO-FEAR, FIRE-IN, BULLSEYE, JA TERROR, NIGHTINGALE, HoloZcan)	

Webinars and online meetings during the COVID-19 pandemic time:

Jun 2020	**UCL, SDIS77, WMP**	**Online webinar**	**eNOTICE Annual workshop webinar** on Just-in-time training, in collaboration with FIRE-IN, NO FEAR, MEDEA and DAREnet networks of practitioners
Oct 2020	**UCL + All**	**Online webinar**	**Policy Meeting 3** possibilities of other stakeholders to support the network from the policy and funding point

			of view. Invited participants - DG HOME, DG ECHO, NATO
Dec 2020	**VESTA**	**Online webinar**	The impact of COVID-19 on training centres, Workshop for the network of training centres
Feb 2021	**WMP**	**Online webinar**	How emergency services and CBRN responders work to reduce the impact from a CBRN terrorist event, Workshop for the network of training centres,
Jun 2021	**VESTA**	**Online webinar**	Virtual reality in CBRN training, Open **workshop**
Dec 2021	**UCL + All**	**Online webinar**	**Policy Meeting 4** participation of industrial and R&D companies in the network of CBRN TC, practical and operational aspects

Detailed reports on the JAs preparation, organisation, lessons learnt and detailed information about their participants are presented in the corresponding deliverables and project progress reports.

d) As the ultimate goal of the eNOTICE project is strengthening national and cross-border capacity for CBRN incidents preparedness, including training, and response, the project started to identify opportunities to align policies and recommendations for national, European and international R&D. eNOTICE gathered EU policy-makers, input was collected from the evaluation and follow up of the JAs, and from discussions with EU policy makers, such as representatives from DG HOME, DG ECHO, DG DEVCO/DG INTPA, DG SANTE, DG HERA, FPI, JRC and others.
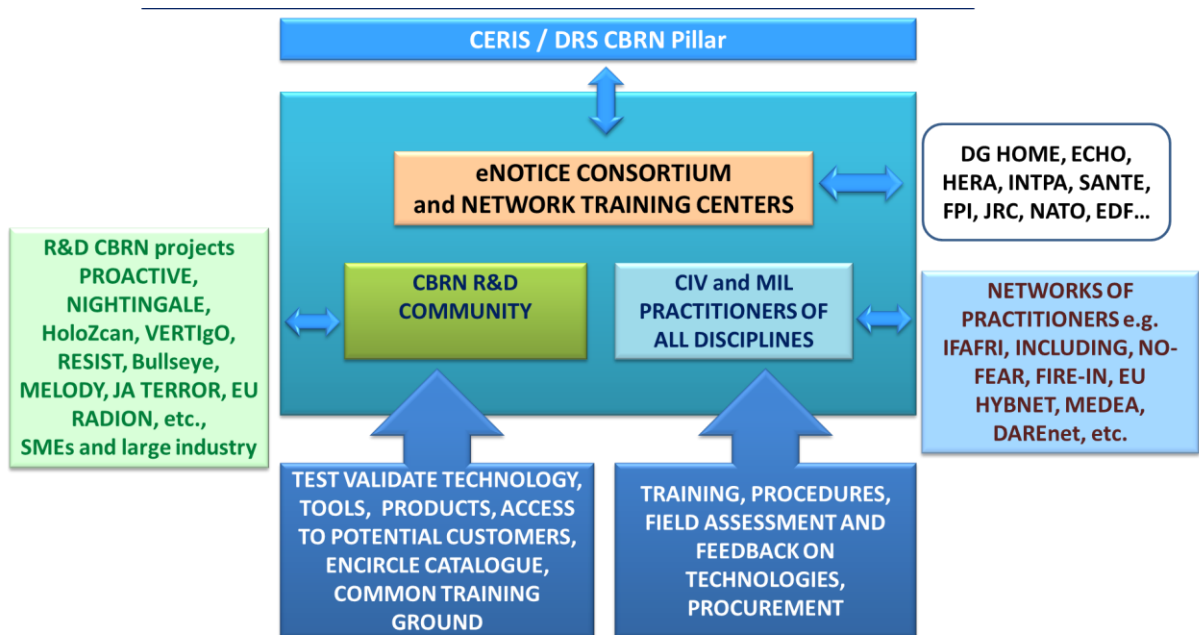
Figure 2. Key actors of the network of CBRN training centres

Thanks to its networking nature, and the right communication strategy, eNOTICE has established numerous collaboration contacts with R&D CBRN-related projects, many of which participated in eNOTICE Joint Activities as active participants in the scenario, or as observers. Another added value of multidisciplinary field exercises and demonstrations was the incorporation of emerging

technologies such as advanced robotic technologies, e.g. through participation of TERRIFFIC project in the exercise in Gurcy-le-Chatel, France, in May 2019, or virtual (VR) and augmented reality (AR) in joint CBRN activities. Relayed by the Middle East Technical University of Ankara, Turkey, this is one of the major eNOTICE's areas of interest as AR and VR are increasingly used to safely train first responders to efficiently respond to very dangerous situations. This led eNOTICE to collaborate with VERTIgO and SHOTPROS projects.

Overall, the participation of innovation providers and researchers together with SME and larger business organisations has enabled participants in eNOTICE collaborative activities to evaluate, test, and integrate emerging technologies as part of the global "innovation push dynamic". The Joint Activities of eNOTICE provided indeed opportunities for industries and academic innovation to be presented and explained to practitioners. Some eNOTICE-driven innovations have made their way directly into practitioners' workflows. This was highlighted by the most recent joint activity at the Vesta Campus in May 2023, when new toxin and pathogen identification methods were successfully tested for the first time in the B-LiFE mobile field laboratory and are now part of the laboratory's capacity and capability.

eNOTICE palyed a role of a catalyst for multidisciplinary exchange on CBRN risk management. This is evidenced by the increasing participation of other European projects in eNOTICE activities and objectives, such as H2020-ENCIRCLE, ISF-MELODY, Bullseye, TRANSTUN, European Space Agency IAP/ARTES-20 B-LiFE, networks of practitioners such as FIRE-IN and NO-FEAR, and other networks part of the Union Civil Protection Knowledge Network (UCPKN), or clusters such as RESIST and INCLUDING.

Six milestones have been successfully met within the project and the following corresponding results have been achieved.

Milestone 1 Baseline in the three lines of action: TC Catalogue, Dissemination plan, project website, Exercise methodology
This milestone was met with the publication of D2.1, including the results and the Roster and Catalogue of TCs (M9), the publication of the Dissemination plan in D3.1 (M3), the online version of the project website (since M3) and continuous progress on the development of more functions (WP3) and the publication of the Templates for the organisation of exercises combined with tests in D4.1 (M6).

Milestone 2 Platform visibility: MS2 consisted of three results - TC Capacity label, network framework and sustainability plan, basic function web-based platform.
The basic functions of the web-based platform are visible on the online platform; the Capacity label was elaborated on Month 16, and eNOTICE framework and sustainability plan have been submitted on Month 17. Thus, MS2 is achieved, with 5 months delay, because elaboration of the Capacity Label and the Framework took long time being very complex innovative topics, performed for the first time with no such studies ever before conducted for CBRN TC. The other major reason of delay is that these most critical important tasks in the project are led by practitioners in eNOTICE, and the practitioners are loaded with every day operational duties that they combine with the project activities. The project consortium considers the results obtained through the invaluable contribution, leadership, practical knowledge, operational experience of the practitioners as most reliable for the project and for the whole community.

Milestone 3 operational platform: this milestones was met as planned on Month 24 through the achieved results in WP3, use for WP3 dissemination and WP4 joint activities.

The work on the platform development consisted of elaboration of the methodology used for research (design science), requirements gathering (based on D3.6) and software development (agile SCRUM), described in D3.8. The requirements gathering methodology were applied to gather requirements for the eNOTICE web-based platform, for example via surveys, workshops at Joint Activities and continuous feedback provided by the end-users. Finally, related work regarding web-based information and communication platforms was analyzed and assessed, all previously gathered information was used to describe the concept and architecture of the eNOTICE web-based platform as well as present the user interface and other relevant aspects. The features implemented were compared to the previously identified requirements with the result so that all required features were implemented. The eNOTICE information and community platform, also called eNOTICE Community Center (ECC), can be found at: https://www.h2020-enotice.eu/ and is described in detail in the deliverables D3.8, D3.9, D3.10.

Milestone 4 1st mid-term evaluation of key instruments Capacity label, Webbased platform, Joint activities and methodology – was achieved on Month 36. The preceding work in WP2, followed by the work in WP3, WP4 and evaluations in Tasks 5.2.1-T5.2.3 of WP5 ensured the evaluation and feedback on the project main instruments, all the results of this first evaluation are presented in the corresponding deliverables D5.9, D3.11, D4.5, D5.10.

Milestone 5 2nd mid-term evaluation of key instruments: - Quality label - Web-based platform - Joint activities and methodology: this milestone was met on Month 48 thanks to active work in WP2, 3, and evaluation tasks in WP5: T5.2.1-T5.2.4. The work consisted in continuation of activities in all the WPs and second round of evaluations having implemented the feedback and lessons learnt from the use of the capacity label, the webbased ECC platform, the JA activities and methodology. The results of this second evaluation are presented in the corresponding deliverables D3.12, D3.17, D5.13, D4.6. eNOTICE training centres significantly revised the methodology of Joint Activities preparation and reporting, and improved the templates, with the new reporting templates for the remaining period of this project. The preparation templates (JA information sheet, informed consent) remained intact as they were considered appropriate and valid, while the reporting templates are replaced with new ones. The reason for the replacement is that the ones originally created and agreed upon during the first year of the project, were found to be too complicated and at times redundant. This represented double work for many of the training centres hosting JAs because they already have their own templates and their own way of working. Their existing (own) templates have been created by the training centres themselves and allow for optimal work in their specific circumstances. Forcing the training centres to then also fill in the long and complicated eNOTICE templates was found to be counterproductive. However, this is only the case for mature established TCs, that already have many years of experience in the field. The added value of the "initial" templates, is primarily for TCs that do not have their own templates, or for those that want to improve or compare their templates to other templates. Thus, the initial templates will remain of added value to TCs that have those needs. eNOTICE partners wish to offer the initial templates to TCs that are starting up and/or to TCs that have no templates at all. As such, TCs in the project will have two sets of templates to their availability. The web-based platform has been constantly improved, new features added, especially

significant improvemlent was th search function allowing to easier search for a training centre in the catalogue according to its capability (quality label)

Milestone 6 eNOTICE key results is finally achieved on Month 72 – the TC quality label is implemented with all the improvements from previous evaluations, the methodology on joint activities planning, organisation, execution, reporting and follow-up is validated, the plan to pool resources is reflected in the network sustainability plan, the web-based ECC platform is fully operational and available for all network members. The last milestone is achieved by means of work in all WPs and Tasks of the project, the overall results are presented in this Final report, and specific results are reflected in the final deliverables D5.17, D3.14, D4.12, D4.13, D4.7, D5.19, D3.3.

Explanation of the work conducted per WP

Workpackage 1 Ethics Requirements

WP1	Ethics Requirements	Start: M1	Finish: M72	Lead: UCL

WP 1 Ethics Requirements
This work package sets out the 'ethics requirements' that the project must comply with.
The objectives for this period are to ensure compliance with the 'ethics requirements and delivery of D1.1
Progress:
The Deliverable D1.1 – POPD – Requirement N°7, WP1, Confidential report on Ethics, only for members of the consortium (including the Commission Services), produced on Month 1 at the very beginning fo the project put forward the ethics requirements that the project must comply with, in particular it deals with the issues of data privacy and data protection during eNOTICE Joint Activities and fixes the Informed Consent Form to be filled by participants before every JA. There are many experts external to the project who are invited to eNOTICE Joint Activities as observers, advisors, technology developers, policy-makers, scientists, etc. It is exactly this type of participants who receive and sign the Informed Consent Forms (including Data Processing Consent Form) and Information Sheets with the detailed explanation of the exercise objectives, expected outcome, any special requirements for participation and practicalities. All these provisions are valid during the whole project and are observed at each Joint Activity.
Informed consent is being sought for research activities, by asking participants to sign a written Informed Consent Form, based on a participant Information Sheet that outlines the information about the exercise, objectives, procedure, expected outcomes and data to be processed. In the circumstances where informed consent cannot be documented by signing the Informed Consent Form – for example, for an ad-hoc interview during an exercise, informed consent may be documented by audio or video recording. eNOTICE partners ensures that risks are discussed with participants in order to secure proper informed consent. In some situations, informed

consent may be impracticable or meaningless, such as research on social media/crisis informatics or during large scale training exercises with large numbers of participants. People in such semi-public situations cannot expect the same degree of privacy as in their own homes. The fact that research activity is undertaken is publicized and contact details of the project partner(s) responsible for the activity are provided. Observation and recording in such spaces does not then require individual informed consent. People can ask to be deleted from the research records if this is practicable.

The Informed Consent Form is being distributed to all project JA participants before every JA to be filled and signed.

Ethical monitoring has been conducted for every JA during the project, to reveal any potential issue. No specific issues have been reported.

Conclusions

- At the conclusion of the Project, WP1 requires no updates

Workpackage 2 Framework for a sustainable European CBRN TC network

WP2	Framework for a sustainable European CBRN TC network	Month 1 - 17	Lead: UNITOV
Partner	Comment	WP Total	Actual Total
WP2		67.00	
UCL		9.00	9.00
VESTA		10.00	10.70
SDIS77		5.00	4.70
ARMINES		3.00	1.01
UMU	UMU stopped participating in the project after the end of WP2	3.00	0
FDDO		3.00	0.70
UPB	UPB was replaced by SIC after the end of WP2	5.00	5.00
JCBRND CoE		4.00	4.00
METU		5.00	3.30
UNITOV		10.00	10,44
WMP		4.00	3.80

WSU		2.00	1.50
CNBOP-PIB		4.00	3.69

Work package 2 objectives for the period
WP2 aimed at preparing a sound, well informed basis for the establishment of the CBRN network that addresses current needs and expectation of CBRN and other security stakeholders. Consecutive steps in creating the network and building a bridge between the different communities include: mapping all the possible future members, identifying their profile, assessing both their role and possible contributions to the network, based on their core needs and expectations, as well as their interests and motivations to join a new network. Lessons learnt from existing networks, literature on key performance criteria for building a successful network and more insight in barriers, difficulties and possible levers for the security community will serve as a basis for a conceptual framework and sustainability plan for implementation, ensuring a long term sustainable CBRN network.   UNITOV lead this WP on the basis of its experience in the establishment and maintenance of a network of stakeholders for the implementation and guidance of Master courses in "Protection against CBRNe events" and its previous experience in mapping activities ("CBRN integrated response Italy" funded by EC DG HOME). All other partners contribute to different tasks, according to their specific expertise.

WP 2 Tasks
WP2 - Framework for a sustainable European CBRN TC network [Months: 1-12 initially planned, 1-17 actually] involved four main tasks, with corresponding activities and innovations, as follows:

Task 2.1 Roster of CBRN Training Centres (TC) capacity and elaboration of a CBRN Training Centre quality label
Task 2.1 Roster of CBRN Training Centres (TC) capacity and elaboration of a CBRN Training Centre quality label   Task 2.1.1. Roster of CBRN TC, testing and demonstration sites' capabilities and facilities – M1—M6: VESTA (lead);   UCL, SDIS77, FDDO, UPB, JCBRND CoE, METU, UNITOV, WMP, WSU, CNBOP-PIB   Task 2.1 made an inventory of the capabilities and facilities of the key actors, the CBRN TC, who will act as intermediary facilitator in the network. 'Capability' relates to the type of activities: expertise to organise tests, table top and full scale exercises, demonstrations, training, incl. simulations and serious gaming, etc. for chemical and/or biological and/or radiological and/or nuclear incidents and/or large scale incidents requiring multidisciplinary coordination. 'Facilities' refers to their infrastructure such as specific equipment, the variety of objects required for CBRN training, testing and demonstration. As part of the mapping, a survey amongst all stakeholders identifies current activities of CBRN TC that can be opened up to other organisations as JAs, serving multiple purposes, such as annual training exercises

combined with tests, validations or demonstrations of new products, tools or technology. This mapping is a preliminary condition to be able to propose, in a later stage, mechanisms which enable a dynamic interaction and exchange between the stakeholders (scope of Task 4.2). Yearly updates of information are included in Task 5.2.4.

VESTA leads this subtask, based on its national experience in establishing a security network. UCL, SDIS77, FDDO, JCBRND CoE, METU, UNITOV, WMP, WSU, CNBOP-PIB contributed with their knowledge based on their own activities and through their own network. UPB participated to ensure that all the relevant information for the future web based platform is gathered.

Task 2.1.2 Elaboration of a capacity label and development and preparation of a search function at the CBRN web based information and communication platform - M7-M10: SDIS77 (lead); UCL, VESTA, UMU, FDDO, UPB, METU, UNITOV, CNBOP-PIB

In order to be able to identify suitable CBRN Centres for tests, validations, demonstrations, mono or multidisciplinary training and exercises, simulations, serious gaming or any other type of activity, the CBRN centres will be classified and labelled according to their capacity, based on a set of criteria (e.g. type of organisation, capabilities, expertise, thematic areas, accommodations), as well as legal, societal, ethical restrictions or procedures to take into account. These aspects will be covered in a profile description, characteristics will be clustered to allow a quick picture of the capacity of the organisation through a quality label. Accordingly, a search function for the web based information and communication platform will be developed to guide the users in identifying the CBRN Centre that matches their requirements. Publicly available information on the website will be determined by the security policy decided by the project partners, based on the indications of each individual centre on permissible disclosure of information. The results of this task will provide the basis for a specific search function to be developed in Task 3.1.

SDIS77 leads this subtask, based on its experience with the elaboration of a label for TC in France. UCL, VESTA, UMU, FDDO, UPB, METU, UNITOV and CNBOP-PIB represent different types of users of the platform and contribute from their respective interests as user.

Progress:
- D2.1 - Catalogue of CBRN TC, testing and demonstration sites, WP2, public report, submitted M6, postponed to M9, lead VESTA

This Deliverable includes the results of the mapping of CBRN Training Centres in Europe. A distinction is made between the Roster and the Catalogue. The Roster is the list of the EU training centres, identified as possible CBRN TC, that might be interested in joining the eNOTICE network. 215 TC have been identified as possible eNOTICE network members. The Catalogue is the list of the actual members of the eNOTICE network and includes all EU TC from the roster who shared information on their capacity (thematic expertise) and facilities (infrastructure) and who declared their interest in becoming a member. By the end of February 2019, 39 organisations were listed in the Catalogue as member of the eNOTICE network. For the collection of information on these TC, a web based questionnaire was developed, in order to be able to store and reuse all the relevant information for other purposes (such as input

for the Quality label or publication on the eNOTICE web based platform. During the mapping activities, negotiations started with DG DEVCO to merge efforts in and outside the EU. In order to take the DEVCO interests and requirements into account, the deadline for submission of this deliverable was postponed with 2 months. End February 2019, 215 TC were listed in the Catalogue.

- D2.2 - CBRN Training Capacity quality label, WP2, public report, due M10, submitted M16, lead SDIS77

This Task builds on the information collected in the D2.1 Catalogue to elaborate a label for the TCs, member of the eNOTICE network. D2.2 defines the CBRN Training Capacity label and describes the procedures for acquiring the label. Following a comprehensive study of another quality label (Council of Europe Quality label for Youth Centres), an inclusive definition of the label is proposed. The "quality" concept has been discarded, as it doesn't meet the scope and objectives of the eNOTICE project. The resulting CBRN Training Capacity Label is associated with two sets of criteria: eligibility and additional. The eligibility criteria encompass the capability of a TC to organise one of the key activities identified, in compliance with eNOTICE methodology as described in Deliverable 4.1 - eNOTICE methodology for the preparation, organization, evaluation and follow-up of CBRN exercises combined with tests, validations or demonstrations (February 2018), as well as an acknowledged expertise in at least one CBRN-related field, and a compliance with core European values. The additional criteria allow to take into account the wide range of capabilities and training facilities of current and future eNOTICE members, so that no interested TC should be excluded from joining the network. The procedures to be followed are detailed in the deliverable, as well as the organization which will be responsible for granting the label. The deliverable also presents a preparative work on a search function, to be used with the web-based eNOTICE platform. This work was carried out in close collaboration with UPB.

Conclusions:
- Continous efforts to expand the network were taken over and were part of Task 5.2.4. Regular updates of both the Roster and the Catalogue have been included in the Deliverables of Task 5.2.4.

- Lessons learnt from the use of the capacity label on the ECC and continuation of the work to evaluation and improve the capacity label have been performed in Task 5.2.4.

Task 2.2 Mapping, needs and gap analysis of the CBRN stakeholders, future network members
Task 2.2 Mapping, needs and gap analysis of the CBRN stakeholders, future network members – M3-M8: UCL (lead); VESTA, SDIS77, ARMINES, UMU, FDDO, UPB, JCBRND CoE, METU, UNITOV, WMP, WSU

As the counterpart of the mapping of CBRN TC, Tasks 2.2 identifies the profile of the other network stakeholders, and possible motivations to join the network, such as the needs for innovation of civil security practitioners and the expectations of the research and innovation

providers in order to be able to fulfil these needs. Other categories of stakeholders that might have an interest in joining a CBRN Training Network, such as competent authorities, security stakeholders in search for innovations, industry and service/technology/process/products innovation providers, etc. will also be identified and invited to join the network. These stakeholders can be regional, national, European or international players. Based on the identified catalogue of CBRN TC and the revealed capacities (Task 2.1), the acquired knowledge will be systematised using the ontological approach. All the information will be categorised, tagged and represented in the form of a database associating the network members and their capacities with the needs, existing and potential links between all pieces of knowledge. UCL leads the work on collection and integration of all pieces of knowledge about the network members, applying the ontological approach to the knowledge representation and interpretation. VESTA, SDIS77, ARMINES, UMU, FDDO, JCBRND CoE, METU, UNITOV, WMP, and WSU contribute through their own networks of trainers, practitioners, research providers and other stakeholders. UPB ensures that all the relevant information for the future web platform is gathered.

Progress:
- D2.3 Mapping and needs and gaps analysis of CBRN stakeholders, WP2, public report, submitted M8, lead UCL

This Deliverable comprises the findings on the CBRN stakeholders categorization, presentation of the information on the collected needs and challenges related to creation of the network of CBRN Training Centres. It also includes systematization and interpretation of the results, which outlines the way forward on how to overcome the obstacles on the way of building a successful European network of CBRN training centres.

Conclusions:
After the end of the task regular updates of the stakholders mapping, needs and gaps analysis were being performed throughout the whole project.

Task 2.3 Identification of barriers, levers, Key Performance Indicators and good practices for a CBRN network, incl. market analysis

Task 2.3 Identification of barriers, levers, Key Performance Indicators and good practices for a CBRN network, incl. market analysis M5-M9: VESTA (lead); UCL, SDIS77, ARMINES, UMU, UPB, METU, UNITOV, WMP, CNBOP-PIB Task 2.3 studied the conditions for a successful network, which relates to Key Performance Indicators (KPI's) for establishing a network, including the motivation of the target group of security stakeholders to become member. KPI's are based on literature and on a previous study of DG ECHO for the establishment of a Disaster Management Training Network (AETS, 2013) as well as on lessons learnt from existing networks with similar goals and member profile, such as the DG DEVCO CBRN Centre of Excellence, the JRC Disaster Risk Management Knowledge Centre, FP7 and H2020 past and current projects involving eNOTICE consortium partners (e.g., PRACTICE, EDEN, MIRACLE, Reaching Out, SecInCoRe, TOXI-Triage) and others. Because of the low

level of current interaction of security actors, a study (including surveys) looked into the current barriers, such as the local outreach of CBRN Centres, lack of mutual understanding between different types of stakeholders, lack of time of practitioners to identify innovation opportunities etc. Confirmation of these barriers and the identification of possible other difficulties as well as opportunities and levers to overcome them need to be identified. They are addressed and taken into account in the conceptual approach of the network in Task 2.4.

VESTA leads, building on its participation in the DG ECHO study and its own experience in strengthening a CBRN network. UCL, ARMINES, UMU, METU, UNITOV and CNBOP-PIB contributed based on their experience in making comparative analyses and in elaborating a theoretical framework and market analyses. SDIS77 and WMP contribute, representing interests of CBRN TC.

Progress:
- D2.4 Key Performance Indicators for a successful CBRN network, WP2, public report, due M9, postponed to M10, lead VESTA

This Deliverable provides an analytical framework with Key Performance Indicators – KPIs for a successful network. The intended use of the framework and KPIs is twofold: 1) as an analytical instrument to collect information on other networks in a structured way, and 2) as a conceptual instrument to elaborate a sound vision and to prepare a sustainable vision and implementation plan for the eNOTICE network to be build during the project. The KPIs relate to the following aspects: why the network was built, what it is doing, who is involved, where the network is active, how it is organised, how sustainability is ensured, and when it was established.

The framework and KPIs were used to screen 12 other networks for the purpose of comparing the results in order to learn from the experience of others, to detect synergies, opportunities for collaboration and to avoid possible duplications. Interesting lessons were drawn from that comparative overview. They were taken into account in Task 2.4.
- The results, as described in D2.4 were used in Task 2.4 for the elaboration of the framework for a sustainable eNOTICE CBRN TC Network. D2.4 was also communicated to all the other SEC21 Networks of Practitioners and their project officers, as an instrument to get to know each other and to see synergies and opportunities for collaboration and partnerships. At the JA in Vyskov (February 2019) it was decided that all eNOTICE partners would take responsibility of bilateral relations with 1 or more of these networks. From the JA in Gurcy in May 2019 and on, a session was systematically included in the agenda of the eNOTICE project meetings where all partners could share interesting aspects (synergies, mutual interest, etc.) from other projects and networks.

Conclusions:

- The results were not the subject of a distinct task or deliverable but were related to ongoing tasks such as the continuous improvement of the templates and the sustainable framework, the further development of the network of CBRN TC, information to be

shared on the eNOTICE web-based platform, incl. links and interfaces to other networks, etc.

Task 2.4

Task 2.4 Framework for a sustainable European CBRN TC network - M9-M17: UNITOV (lead); UCL, VESTA, UMU, UPB, JCBRND CoE, METU, WMP, CNBOP-PIB

The result of all previous activities in WP2 will serve as input for the elaboration of a conceptual framework and sustainability plan for the implementation of a sustainable European CBRN Training Centre network, based on a clear mission, clear objectives, complementarities to existing networks (avoiding duplication), an adequate management

structure ensuring its sustainability and a mix of appropriate instruments and activities according to the members' interests.

UNITOV leads this task based on its experience through development and optimization of academic courses and training curricula for CBRNe first responders, and the establishment of links between security stakeholders at national and European level. UCL, VESTA, UMU, UPB, JCBRND CoE, METU, WMP and CNBOP-PIB contribute, all representing common and specific profile features as future members of the network.

Progress:

- D2.5 - Framework and sustainability plan for the European CBRN TC network, submitted M17, lead UNITOV

The work started from the "legacy" of D2.4 on the identification of KPI for successful security network, that has been integrated with sustainability criteria (related to social, economic and environmental dimensions of sustainability) based on available literature and critically adapted to the needs of security networks.

The work took advantage of the Workshop held in Rieti on the occasion of the fourth Joint Activity, to gather information from end users and stakeholders that attended the meeting, while multiple rounds of feedbacks on the draft deliverable, were collected from the Consortium partners.

This activity led to define a theoretical framework that is meant as guidance and support to the definition of sustainable security network, that includes a "sustainability check" to define the network and its activities under the umbrella of sustainability.

In the second part of the work, the eNOTICE case study has been elaborated (based on the previous work and discussions), to provide guidance for the decision making process related to the future of the eNOTICE network, and its self sustainability after the termination of the project.

The way forward envisages that the sustainability plan elaborated in D2.5 and will mature during the remaining years of the project, taking in full consideration trends and lessons learnt from other security network initiatives (promoted at the EU and at the national level), as well

as feedbacks from the eNOTICE network initiatives, structuring the network to achieve the highest level of effectiveness and efficiency with a long-lasting perspective.

As the process of developing and defining the plan is key to sustainability, it will be constantly performed looking for maximum involvement of the Consortium partners and the network members.

Conclusions:
- The developments of the process have been monitored as part of WP5 on project management and quality monitoring.

Workpackage 3 Information and communication platform and dissemination

WP3	Information and communication platform and dissemination	Month 1 - 72	Lead: SIC
Partner	**Comment**	**WP Total**	**Actual at RP4**
WP3		**59.50**	
UCL		10.00	2.51
VESTA		7.00	0.68
SDIS77		1.00	0.20
ARMINES		1.50	0.03
FDDO		1.00	0.50
SIC		29.00	10.00
JCBRND CoE		2.00	0.30
METU		2.00	1.00
UNITOV		2.00	1.00
WMP		1.00	0.03
WSU		2.00	0.20
CNBOP-PIB		1.00	0.15

Work package 3 objectives for the period
WP3 develops instruments to share information and to encourage communication between the network members. The main instrument developed during the project will be a web-based information and communication platform, including web based applications. The platform will enable the network members to become visible: their profile and contact details (to the extent

defined by the security policy) and information according to their motivations to join the network (capacity, needs, expectations). Integrated functions such as an efficient search function (for capabilities, facilities, training curricula, etc.), event calendar, discussion forum, etc. will enable sharing of information, expertise and the identification of synergies and opportunities to collaborate. WP3 also includes the project's dissemination activities. Test sessions (co-designing development) are organised within the tasks related to development as part of the development process. When operational, monitoring and continuous improvement of the web-based platform and functions are dealt with separately in WP5.

SIC leads this WP, based on its experience in information management and tools in the SecInCoRe project (http://www.secincore.eu/) and its strong contact to the community of users in the TOXI-triage project (http://www.toxitriage. eu). Contributing partners participate in different tasks, according to their specific expertise.

WP3 Tasks

WP3 - Information and communication platform and dissemination [Months: 1-72]
SIC, UCL, VESTA, SDIS 77, ARMINES, FDDO, JCBRND CoE, METU, UNITOV, WMP, WSU, CNBOP-PIB
The work package involves four main tasks, which will be conducted during project duration. The corresponding activities are as follows:

Task 3.1 Dissemination activities to promote and enhance the web based platform and project results

Task 3.1 Dissemination activities to promote and enhance the web based platform and project results – M1-M72: UCL (lead); VESTA, SDIS77, ARMINES, FDDO, SIC, JCBRND CoE, METU, UNITOV, WMP, WSU, CNBOP-PIB
The dissemination of knowledge involves different activities aiming to raise as much awareness of the European CBRN network as possible - to relevant stakeholders, policy makers, scientists, industry, civil society, practitioners, etc.. The project dissemination plan proposed a balanced mix of different initiatives to maximise the outreach. The web-based platform itself serves as an instrument for dissemination of the project results and promotion of the network, as well as for publications, conference presentations and papers. UCL leads based on its extensive experience in dissemination of research results, all eNOTICE partners disseminate project findings and results through their own networks, contacts and dissemination channels.

Progress:

- D3.1 - Dissemination plan, WP3. Public report, M3, lead UCL.

- D3.2 – Mid-term dissemination report, WP3. Public report, M30, lead UCL

- D3.3 – Final dissemination report, WP3, Public report, M71, lead UCL

The dissemination of knowledge in eNOTICE involves different activities aiming to raise as much awareness of the European network of CBRN training centres as possible. The process involves three different types of dissemination:

- promotion of the capacity of CBRN training centres (TC), testing and demonstration sites to all stakeholders

- promotion of the network and its web-based platform (eNOTICE Community Centre) to the possible users, and

- promotion of the project results, such as effective practices (cf. D4.1 and D4.6 - the eNOTICE Methodology of joint activities organization, planning, implementation, reporting and follow up, check lists and templates), lessons learnt from the joint activities that serve as show cases (Task 4.2), opportunities for harmonisation, standardisation, the plan to pool resources (Task 4.4), etc.

The targeted information materials have been developed and spread to relevant stakeholders,

The project dissemination targeted a balanced mix of different initiatives to maximise the outreach to the all stakeholders – training centres and training professionals, local, regional, national and EU authorities and policy makers, practitioners, scientists, industry, civil society, etc.

Large dissemination of the project to multiple external stakeholders – practitioners, policy-makers, industry representatives was made during eNOTICE 17 Joint Activities – field exercise, table tops, simulations and serious games organised by eNOTICE training centers.

Initially eNOTICE consortium did not plan to produce its own newsletters and it was not part of the work plan, but during the project implementation it was considered useful to inform the community about the project results achieved so far, report on the past Joint Activities, to announce the upcoming events – exercises, workshops, conferences and plans for the network development. Four newsletters were designed and issued by the eNOTICE consortium – Newsletter 1 in December 2018 (can be downloaded at https://cloud.h2020-enotice.eu/index.php/s/CSRzqaWop2erpeG#pdfviewer)

Newsletter 2 in January 2020 (can be downloaded at https://cloud.h2020-enotice.eu/index.php/s/newsletter2#pdfviewer).

Newsletter 3 in May 2020 (can be downloaded at https://cloud.h2020-enotice.eu/index.php/s/sWqSaGqJfHkQaMr)

Newsletter 4 in November 2022 (can be downloaded at https://cloud.h2020-enotice.eu/index.php/s/eQctc5EP73m3eZS)

The first newsletter was aimed at the CBRN stakeholders at large, while the second one was more dedicated to CBRN training centres as the primary audience of eNOTICE, and sent out to all the training centres – members of eNOTICE network at the moment, and other stakeholders received it as well for information.

The third newsletter announced the eNOTICE webinar on Just-in-time training, made in collaboration with four other Networks of Practitioners FIRE-IN, NO-FEAR, MEDEA and DAREnet.

The fourth newsletter was dedicated to the stating the current state of the network, the position paper, results of the recent Joint Activities, announcement of the last exercises of the project,

Final exercise and the Final conference – to inform the largest audience, all the dissemination contacts.

During the past 2 years all eNOTICE partners presented the project results and discussed the network development at the following events:

- 15 March 2022 - DEU Bundeswehr CBRN Defence Command Commanders Conference conducted in Bruchsal, Germany – eNOTICE update presentation on recent activities including detailed information on conducted Joint Activities and outlook for upcoming activities. Presenter – JCBRND COE

- 24 March 2022 – CERIS CBRN Crisis Management session co-chaired by eNOTICE, Brussels, Belgium. Speakers – UCL, JCBRND COE

- 6-7 April 2022, Milan, Italy – Network of Practitioners iLEAnet final conference. eNOTICE was invited to the roundtable discussion for networks of practitioners. Speaker – UCL.

- 13 – 14 April 2022 - JCBRN Defence COE Steering Committee Meeting (14 Sponsoring Nations and Contributing Partner) conducted in Vyskov, Czech Republic – information on recent eNOTICE activities including detailed information on conducted Joint Activities, content on current deliverables, and outlook for upcoming activities. Presenter – JCBRND COE

- 4 May 2022 and 3 May 2023 – CBRN specialist - Tactical Advisor Conference, UK, presentation of eNOTICE to 150 participants from operational, first responder and industry stakeholders. Presenter - WMP.

- 10 – 11 May 2022: NATO HQ COE Market Place conducted at NATO HQ, Brussels/Belgium – introducing COE activities including outreach and eNOTICE. Presenter – JCBRND COE

- 16 May 2022: EU CBRN Risk Mitigation COE Initiative National Focal Point Meeting conducted in Brussels, Belgium – presentation on recent eNOTICE activities including detailed information on conducted Joint Activities and outlook for upcoming activities. Presenter – JCBRND COE

- 23 – 25 May 2022: NCT Europe conducted at the Bundeswehr University in Munich/Germany – informing on NATO – EU cooperation and particular on eNOTICE as an example. Presenter – JCBRND COE

- 24 - 25 May 2022, Novara, Italy: Network of Practitioners NO FEAR Workshop and full scale exercise: Training and Education in emergency and disaster medicine. eNOTICE was invited as observer, and speaker at the workshop - UCL.

- 29 – 30 June 2022: WMP (the UK National CBRN center) hosted SARUM SOLSTICE, the Chemical, Biological and Radiological Capabilities Exercise (CAPEX) 22 in Salisbury, UK. UCL and JCBRND COE were invited as observers, and received gifts for excellent collaboration with eNOTICE partners.

- 1 July 2022 – WMP presented Capability Exercise briefing to seniors about joint exercise at CBRN training centres, to 30 participants representing international training centers, policy makers and S&T

- 21 July 2022: JCBRN Defence Capability Development Group (NATO level 2 body) conducted virtual – update on recent eNOTICE activities including detailed information on conducted Joint Activities and outlook for upcoming activities.

- 30 August 2022 – Scottish Continuous Professional Development event, UK, presentation to 200 participants representing police, firefighters, ambulance, health care providers, national government. Presenter – WMP

- 30 – 31 August 2022, Brussels, Belgium: Symposium on European Civil Security Research, organised by German Federal Ministry for Education and Research and Bavarian representation in Brussels - eNOTICE was invited to the forum Practitioners interested in security research: Hard to find but key partners - Showcasing networks of security practitioners for Cluster 3. Speaker - UCL, participants - FDDO, SIC.

- 19 – 22 September 2022: JCBRN Defence Capability Development Group (NATO level 2 body) Autumn Meeting conducted in Istanbul, Turkey - introducing COE activities including outreach and eNOTICE.

- 20 - 21 September 2022 - Technical Response Force (British military homeland CBRN capability) Induction, UK, presentation of eNOTICE to 300 participants from military, R&D, command stakeholders. Presenter - WMP.

- 4 – 5 October 2022: JCBRND COE Annual Conference conducted in Prague, Czech Republic: introducing COE activities including outreach and eNOTICE

- 20 – 21 October 2022: FIRE-IN - FIre and REscue Innovation Network - Closing Symposium, Aéroport de Nîmes – Base Aérienne de la Sécurité Civile, France. eNOTICE was presented by ARMINES

- 25 – 26 October 2022: JCBRN Defence COE Steering Committee Meeting (14 Sponsoring Nations and Contributing Partner) conducted in Vyskov, Czech Republic – information on recent eNOTICE activities including detailed information on conducted Joint Activities, content on current deliverables, and outlook for upcoming activities.

- 9 – 10 November 2022: CERIS DRS event conducted in Brussels, Belgium - presentation on recent eNOTICE activities including detailed information on conducted Joint Activities and outlook for upcoming activities. Speaker – JCBRND COE, co-organised by UCL.

- 17 – 19 January 2023: Bundeswehr CBRN Defence Command training workshop and commanders conference in Sonthofen, Germany – promoting eNOTICE activities including catalogue of training centres and joint activities.

- 30 January 2023, Visit of Canada Ambassador at the JCBRND COE, promoting eNOTICE within the JCBRND COE Command Brief. Speaker – JCBRND COE

- 31 January 2023 – National Counter Terrorism Protect and Prepare conference, UK. Presentation of eNOTICE to 200 participants - counter terror specialists, command, national security, communications managers. Presenter - WMP.

- 1 February 2023, Brussels, Belgium: DG HOME CBRN Security Advisory Group meeting, eNOTICE was invited for the presentation at the meeting. Speaker – UCL.

- 5 February 2023, JCBRND COE Annual Evaluation, Vyskov CZE, update on eNOTICE activities and promoting future JAs

- 20 – 23 February 2023: JCBRN Defence Capability Development Group (NATO level 2 body) conducted in Brussels, Belgium at NATO HQ – update on recent eNOTICE activities including detailed information on conducted Joint Activities and outlook for upcoming activities.

- 28 February – 1 March 2023, Winningen, Germany: JCBRND COE and UCL had a meeting with the German association of CBRN defence related industry – introducing eNOTICE and proposed way ahead establishing sustainability by engaging industry, bilateral discussions with several companies, as a result some companies took part at the eFAIR in Campus Vesta, Ranst, Belgium in combination with the final joint activity.

- 8 March 2023 – Senior stakeholder Event, UK. Presentation of eNOTICE to 100 participants - stakeholders of policy, national capability, investment R&D, S&T, military. Presenter - WMP.

- 20 – 23 March 2023: CBRNe Summit Europe in Lisbon, Portugal – update on recent eNOTICE activities including detailed information on conducted Joint Activities and outlook for upcoming activities. Presenter – JCBRND COE

- 27 – 30 March 2023: JCBRN Defence Capability Development Group executive board meeting in Tel Aviv, Israel - update on recent eNOTICE activities including detailed information on conducted Joint Activities and outlook for upcoming activities.

- 19 – 20 April 2023: JCBRND COE Steering Committee Meeting (14 Sponsoring Nations and Contributing Partner) conducted in Vyskov, Czech Republic – information on recent eNOTICE activities including detailed information on conducted Joint Activities, content on current deliverables, and outlook for upcoming activities.

- 25 April 2023 - METU online presentation "A Brief Introduction to Game Research: Serious Games, Extended Reality Applications, and Reinforcement Learning" at Johannes Kepler University Linz's Institute of Computer Graphics' ICG Lab Talk Series, Linz, Austria.

- 25 April 2023 - METU online presentation "A Brief Introduction to Game Research: Persona Building, Serious Games, and Extended Reality Applications", Boğaziçi University, Istanbul Turkey.

- 4 May 2023, Brussels, Belgium: final conference of network of practitioners NO FEAR, eNOTICE was invited, represented by UCL.

- 9 – 10 May 2023: Safety and Security Management Studies (SSMS) Professional Network Meeting organised by The Hague University of Applied Sciences at the NATO School in Oberammergau/Germany - information on eNOTICE activities. Presenter – JCBRND COE

- 17 May 2023, Warsaw, Poland: joint field CBRN exercise of projects SAFE STADIUM, NEST and HoloZcan, eNOTICE was invited as observer, represented by UCL.

- 23 – 25 May 2023, Rome, Italy: CBRN field exercise of INCLUDING project, eNOTICE was invited as observer and was presented by UCL.

- 10 July 2023, eNOTICE online presentation by UCL at the Workshop on Test CBRN Hazard Management technologies, organized by ENEA and UNITOV.

- 25-27 July 2023, Hamburg, Germany: summer school about biohazards for young professionals in the field about biohazards, organised by the Helmut-Schmidt University, presented by Campus Vesta.

The multiple events (co-)organized by eNOTICE or where eNOTICE was invited, were numerous, and participation in all these events reflect the true networking nature of the project. The main goal has been achieved – during all the years of the eNOTICE lifetime, the project has been always open to the community, all results, all deliverables, all events are public. eNOTICE has not only been building the focused network of CBRN Training Centers, but it seeks creating the "ecosystem" of CBRN stakeholders around, bringing together the actors involved in CBRN training. Also, eNOTICE has always shared the results, invited, involved in its activities other EU CBRN projects, showing and creating synergies with them, finding common interest, and such joint events proved to amplify the outcomes – eNOTICE partners strongly believe in the cooperation between the complementary initiatives, and uniting efforts. All the presentations, discussions about the project and the network within the practitioners organisations of the partner stimulated the vast dissemination of the ideas to the greater networks of contacts of eNOTICE partners. The benefit for the project, for the network is huge, many actors became interested in the network, in organization of joint activities, adopted the way of their organization and implemented it in their processes.

As a continuous activity – eNOTICE is being promoted in the professional networks and informal contacts and formal meetings at each partner organisations.

All the events related to eNOTICE (meetings, Joint Activities…) are announced and reported on the project Twitter, Facebook, LinkedIn accounts and partners' websites, e.g. UNITOV CBRNe Masters' website.

Publications in scientific journals:

Altan, Burak, Servet Gürer, Ali Alsamarei, Damla Kıvılcım Demir, H. Şebnem Düzgün, Mustafa Erkayaoğlu, and Elif Surer. "Developing serious games for CBRN-e training in mixed reality, virtual reality, and computer-based environments." International Journal of Disaster Risk Reduction 77 (2022): 103022.

Surer, Elif, Mustafa Erkayaoğlu, Zeynep Nur Öztürk, Furkan Yücel, Emin Alp Bıyık, Burak Altan, Büşra Şenderin, Zeliha Oğuz, Servet Gürer, and H. Şebnem Düzgün. "Developing

a scenario-based video game generation framework for computer and virtual reality environments: a comparative usability study." Journal on multimodal user interfaces 15 (2021): 393-411.

Vybornov, A., Nyabi, O., Vybornova, O., Gala, J-L. (2021): Telecommunication Facilities, Key Support for Data Management and Data Sharing by a Biological Mobile Laboratory Deployed to Counter Emerging Biological Threats and Improve Public Health Crisis Preparedness. // International journal of Environmental Research and Public Health 2021, 18, 9014, 23p. https://doi.org/10.3390/ijerph18179014

Nyabi, O., Vybornova, O., Gala, J-L. (2021): Deployment of a Mobile Laboratory for the Control and Monitoring of High-Consequence Infectious Diseases: An Illustration With the Ebola Virus, the Biowarfare Agents, and the COVID-19 // In: Journal of Strategic Innovation and Sustainability, 16(3). https://doi.org/10.33423/jsis.v16i3.4444.

Vybornova, O. & Gala, JL. (2019) Structured decision-making for the management of a biological fieldable laboratory during outbreaks: a case for European Union Civil Protection Mechanism (EUCPM). Environment Systems and Decisions, 2019, 39, 65-76. https://doi.org/10.1007/s10669-018-9700-y

Vybornova O and Gala JL. Operations management and decision making in deployment of an on-site biological analytical capacity. (2018). In Gary P. Moynihan (Ed.) /Contemporary issues and Research in Operations Management, IntechOpen. Chapter, 2018, 4, 53-80, 2018. ISBN 978-953-51-6018-2. http://dx.doi.org/10.57725/intechopen.74357.

eNTERFACE Proceedings Book: Surer, Elif & Erkayaoğlu, Mustafa & Öztürk, Zeynep & Yücel, Furkan & Bıyık, Emin & Altan, Burak & Şenderin, Büşra & Oğuz, Zeliha & Gürer, Servet & Duzgun, Sebnem. (2019). Developing a Scenario-Based Video Game Generation Framework: Preliminary Results.

arXiv: Surer, Elif & Erkayaoğlu, Mustafa & Öztürk, Zeynep & Yücel, Furkan & Bıyık, Emin & Altan, Burak & Şenderin, Büşra & Oğuz, Zeliha & Gürer, Servet & Düzgün, H. (2019). Developing a Scenario-Based Video Game Generation Framework: Preliminary Results.

Carestia, M. et al. (2020). CBRNe as Conceptual Frame of an All Hazards Approach of Safety and Security: The Creation of Organic Networks of Military, Civil, Academic/Research and Private Entities at National and International Level to Generate Solutions for Risk Reduction – A European and Italian Perspective. In: Bonča, J., Kruchinin, S. (eds) Advanced Nanomaterials for Detection of CBRN. NATO Science for Peace and Security Series A: Chemistry and Biology. Springer, Dordrecht. https://doi.org/10.1007/978-94-024-2030-2_23.

Conference: 3rd International Conference CBRNE - Research & InnovationAt: Nantes, France: Surer, Elif & Atalay, Timuçin & Demirkan, Doga & Duzgun, Sebnem. (2019). Serious Gaming in CBRNe Domain: A Survey on User Expectations, Concerns and Suggestions.

Workshops: SICC Series CBRNe Workshop - The Evolution of CBe Detection: a focus point on industrial developments, research activities and operative case studies, May 9, 2022, Rome, Italy. Di Giovanni, Daniele: "CBRN Project-Funding: "8 years of successfully granted projects".

JCBRN Defence COE. (2021). *JCBRN Defence COE Comprehensive Publication on Civil - Military & NATO - EU cooperation*. Vyškov: JCBRN Defence COE Available from: JCBRN Defence COE _Comprehensive Publication on Civil-Military & NATO-EU Cooperation.pdf (jcbrncoe.org)

Publications in professional magazines:

Philippe Quevauviller, DG Migration and Home Affairs, European Commission, Brussels, with contribution of Olga Vybornova, UCL Belgium (2022): Horizon Europe – research to secure against CBRN risks // The European - Security and Defense Union, Edition 3, 2022

Reich, W.K-H., Vybornova, O., Gala, J-L. (2020): NATO JCBRN Defence COE - EU HORIZON 2020 eNOTICE project. Test bed for NATO-EU and civil-military cooperation // in The European Security and Defense Union journal, Volume 35, July 2020.

Notice period. Olga Vybornova on the progress of eNOTICE // ENCIRCLE magazine, Issue 3, 2019, available at http://encircle-cbrn.eu/wp-content/uploads/2019/09/Encircle-Magazine-Issue-3-vWeb.pdf

Pratzler-Wanczura, S. (2019): Eine „etwas andere" Großübung im Rahmen des europäischen eNotice-Projektes, Dortmunder Brennpunkt, Dortmund;

Pratzler-Wanczura, S.; Speth, H. (2020): Das Projekt eNotice: European Networks of CBRN Training Centers, Zeitschrift für Forschung und Technik im Brandschutz vfdb, Bremen

JCBRN Defence COE. (2022). *NATO-UN Strategic Level Cooperation on Consequence Management Focusing on CBRN Defence*. Vyškov: JCBRN Defence COE Available from: NATO-UN Strategic Level Cooperation on Consequence Management Focusing on CBRN Defence (jcbrncoe.org)

JCBRN Defence COE. (2023) *CBRN Defence in 2030 and Beyond Research Paper*. Vyškov: JCBRN Defence COE

JCBRN Defence COE. (2021). *JCBRN Defence COE Newsletter 2021*, 17(1) Available from: JCBRN Defence COE Newsletter 2021 (jcbrncoe.org)

JCBRN Defence COE. (2022). *JCBRN Defence COE Newsletter 2022*, 18(1) Available from: JCBRN Defence COE Newsletter 2022 (jcbrncoe.org)

JCBRN Defence COE. (2023). *JCBRN Defence COE Response 2023*. Available from: JCBRN Defence COE Response (jcbrncoe.org).

Conclusions:

eNOTICE dissemination aimed at guaranteeing proper dissemination of its activities and results to the broadest European audience possible, including the general public and the media where appropriate.

European security stakeholders are the prime target audience to ensure that they are aware of the steps taken at the European level. To achieve this dissemination objective, the following tools, directed towards all target groups have been envisaged. Specific dissemination activities were foreseen for European, national and local policy-makers. These activities are directed towards enhancing the project's impact by supporting eNOTICE exploitation activities. They aim to maximise the eNOTICE' input given to relevant European and national policy-makers, especially those that have influence over the future European and national research agendas. The process of spreading excellence, exploiting results and disseminating knowledge generated during in the project involves all consortium partners as well different activities aiming to raise as much awareness of the European CBRN Community as possible.

All eNOTICE partners disseminate the project findings and results through their own networks, contacts and dissemination channels.

All dissemination activities were regularly reported, starting from the initial Dissemination Plan (D3.1), Mid-term Dissemination report (D3.2) and then in eNOTICE Progress reports (D5.2, D5.4, D5.5, D5.7, D5.11, D5.12, D5.15, D5.16).

Task 3.2 Development of a web based platform to share information and encourage communication

Task 3.2 Development of a web based platform to share information and encourage communication - M6-M24: SIC (lead); UCL, VESTA, WSU

The primary role of the web based platform is to provide permanent information in a clear and user friendly way on the actors of the three communities directly concerned, on their needs for innovative improvements (practitioners), capacity (CBRN TC), and expectations for development (research and innovation providers). It is this web based platform that will make the information, gathered as a result of Task 2.1 (the roster) and Task 2.2. (mapping and gap analysis stakeholders) permanently and publicly available and visible in an open, easily and anywhere accessible online tool. Web based applications will enhance sharing of information and encourage communication, such as shared good practices, a search function based on the quality label, an event calendar, discussion forum, etc. The T2.4 framework for a successful network will be taken into account for the development of a sustainable, low maintenance and cost efficient platform.

The consecutive steps in Task 3.1.1. consist of: definition of the information architecture, user requirements, and overall design of the platform; development of a prototype in line with the specifications, testing of the prototype (test sessions with consortium partners at the project meetings); development of a full functional website. For security reasons, the access to the platform might be partially restricted to registered and/or authorised users.

SIC leads this task, based on its extensive experience in web development and its knowledge of the community of users. UCL, VESTA, and WSU will act as a focus/user group to monitor the development of the platform and to provide feedback from a user perspective.

Progress:

This task finished in Month 24 (August 2019)

- The task started with an analysis of different requirements gathering methodologies available in literature and a requirements gathering workshop

- A preliminary concept for the platform was created and implemented based on the gathered requirements and published as V0 of the ECC (eNOTICE Community Center, also called eNOTICE web-based platform and eNOTICE information and communication platform) in D3.6 and D3.7 in May 2018

- The preliminary concept was iteratively improved based on feedback during presentations and workshops at each Joint Activity and published as V1 of the ECC in D3.8 and D3.9 in August 2019

- A registration system and process for the ECC was implemented and provided to the attendants of the Joint Activities

- The ECC contains general information on the eNOTICE project and its partners, a catalogue of Training Centers providing visibility to the activity of WP2, a catalogue of Joint Activities providing visibility to the activity of WP4, the ECC Cloud which features various collaboration tools and the ECC General Area which provides communication and networking facilities.

- A preliminary monitoring system was implemented and provided figures for Task 5.2.2

Conclusions:

- The work was continued in Task 3.3 and 3.4

Task 3.3 Further development and maintenance of the web based platform

Task 3.3 Further development and maintenance of the web based platform - M25-M68: SIC (lead); UCL, VESTA, ARMINES

Once operational, the platform needs to be hosted for the duration of the project and its technology maintained (security patches, bug fixes, etc.). Quarterly reports will be provided on visitors, the use/frequency of the different applications and proactive recommendations for improvement will be proposed. In the second stage of development (once the basic

functions are operational), the website will be extended with content mapping against broader policy objectives of the European Commission EU security agenda and Community of Users initiative.

SIC leads as developer of the platform. UCL, VESTA and ARMINES act as a focus/user group to monitor the functioning of the platform and to provide feedback from a user perspective.

Progress:

This task finished in M68 (April 2023).

- The deliverable series D3.10–D3.14 was completed with the release of D3.13 in Month 60 and D3.14 in Month 66.
- Deliverable D5.18 was submitted in Month 70. It documents changes made to the ECC on the basis of the feedback received from Task 5.2.2.
- Continuous improvement of the ECC based on evaluation and monitoring feedback from Task 5.2.2 as well as provision of usage statistics for it.
- Provision of data and compiled reports on the usage of the capacity labels and the search function for Task 5.2.4.
- The ECC was updated to comply with new data protection regulations, particularly those related to the General Data Protection Regulation (GDPR).
    - The additional feedback form that was previously embedded on every page was removed since it was hosted with an external cloud provider, thus making it impossible to guarantee data and privacy protection in accordance with GDPR.

> The possibility to provide feedback via the contact page was not affected by this change.
> - o Custom fonts that were used throughout the ECC via the Google Fonts cloud provider were transferred to ECC's own servers, since cloud-based fonts could be used to track and collect user data beyond EU borders.
> - o The embedded Twitter feed on the homepage was replaced with a link to the project's Twitter page, since the embedded view could be used to track and collect user data beyond EU borders.

- The TC Catalogue has been continuously updated with new information on existing TCs as well as TCs that recently joined the eNOTICE network.
- The forum was kept up-to-date with information on project-related activities such as conferences and workshops to support dissemination efforts.
- The forum was extended with a section on JAs containing additional materials and resources on each JA to further promote them.
- Content recommendations have been added to the ECC homepage and the forum. These include third-party content deemed beneficial for ECC users by the eNOTICE network members.
- The TC Catalogue has been extended with new functionality related to capacity labels: the labels are now displayed directly in the list and can be used as a TC filter.
- Special sections of the forum and the ECC Cloud storage with restricted access to network members only has been successfully tested and implemented.
- The eNOTICE project video has been integrated into the homepage to provide a quick overview of the project to new visitors.
- The infrastructure and software required to run the ECC was continuously maintained, monitored and updated. This includes server maintenance, automated backups on an independent storage, security and stability updates, firewall management, etc.
- Further preparation of the ECC for sustainability through, e.g., minor bugfixes and performance/stability improvements.

Conclusions:
- After the initial implementation of the ECC in Task 3.2, Task 3.3 took over further development and improvement of the platform. The ECC remained operational and accessible throughout the duration of the project with only minor periods of downtime during important updates. In accordance with the task's stated goals, reports on the usage of the ECC and its many functions were provided for Tasks 5.2.2 and 5.2.4, which, in this reporting period, has contributed to deliverables D5.18 and D5.19 respectively. The feedback collected during the runtime of Task 3.3 has led to many improvements and extensions being implemented in the ECC, the results of which are reflected in the visitor numbers continuously showing a non-negative progression as reported in the deliverable series D3.10–D3.14. Combined with the fact that towards the end of the task the collected feedback offered fewer and fewer suggestions for improvement and instead reported more and more satisfaction with the platform, it can be concluded that

> the ECC has reached the envisioned stage of maturity and is ready to enter the long-term sustainability phase.

Task 3.4 Integration of platforms and interfaces

Task 3.4 Integration of platforms and interfaces M13-M70: SIC (lead); UCL, VESTA, ARMINES, JCBRND CoE

Interesting websites with identical, similar or complementary goals and with identical, similar or complementary target groups will have been identified in Task 2.3 in search of lessons learnt from existing initiatives. Collaboration with those networks and platforms will be initiated and links between them will be considered, by way of integration or interfaces.

SIC leads based on its experience in information management methods and tools in the SecInCoRe project. UCL, VESTA, ARMINES and JCBRND CoE contribute with their knowledge of other interesting networks and platforms, representing different profiles of the security community.

Progress:

Continued monitoring of related projects and identification of potentials for collaboration.

- Collaborations with other related or complementary projects – such as PROACTIVE, MELODY and iLEAnet – have been establihed or continued through participation in and organization of Joint Activities and workshops.
- Continued collaboration with H2020 project INCLUDING through which eNOTICE shares a common questionnaire for contacting TCs specialized in radiological and nuclear emergencies. During this reporting period, two more TCs have agreed to become part of the INCLUDING Federation via the eNOTICE questionnaire. Furthermore, the technical interface for exporting data on TCs which have indicated an interest to join the INCLUDING cluster continues to be available to the project.
- Continued organization of and participation in related conferences, seminars, symposia and other academic events, e.g., CBRNe Research & Innovation Conference (4th of May 2022 in Lille, France), the 9th BMBF Symposium on European Civil Security Research (August 2022 in Brussels, Belgium) or Organisation for the Prohibition of Chemical Weapons (OPCW) webinar (1st of December 2022).
- Continued use of social media to reach out to other projects and foster collaboration among them.
- Continued updates and reviews of the "Related Projects" page of the ECC in cooperation with the consortium.
- New sections of the forum now provide materials and resources related to project activities, including seminars, webinars, conferences and JAs.
- Content recommendations have been added to the ECC, promoting CBRN-related third-party content. Among these recommendations is a list of notable CBRN-related Twitter accounts which serves the purpose of making it easier for users and network members to reach out to and identify potential collaboration partners.

Conclusions:

- The significant amount of collaborations and activities with related projects which can be seen in the periodic reports of WP5 demonstrates that eNOTICE is well-connected within the landscape of CBRN-research. Meanwhile, with more than 30 related projects and Twitter accounts combined currently endorsed, as well as the ability to exchange data on a technical level (as is the case with INCLUDING) shows that the ECC has managed to successfully interface with many complementary projects and serves to promote them further. Moving forward, these links and interfaces will be sustained and kept up-to-date for the duration of ECC's operational lifetime.

Workpackage 4 Integration, optimization and joint activities

WP4	Integration, optimization and joint activities	Month 1 - 72	Lead: VESTA
Partner	Comment	WP Total	Actual at RP4
WP4		125.00	
UCL	Co-organised 2 JAs during RP4	14.00	2.18
VESTA	Hosted 2 JAs during RP4	20.00	12.55
SDIS77		8.50	0.80
ARMINES		9.00	0.06
FDDO	Hosted 1 JA during RP4	8.50	1.00
SIC		7.50	6.00
JCBRND CoE		10.50	0.50
METU		8.50	6.50
UNITOV	Hosted 1 JA during RP4	16.00	1.95
WMP		7.50	3.11
WSU	Hosted 1 JA during RP4	7.50	2.06
CNBOP-PIB		6.50	0.76

Work package 4 objectives for the period
WP4 aims at transforming the WP3 information and communication network into a transactional network, based on sharing of expertise and effective practices and collaboration through the organisation of JAs between the eNOTICE consortium partners and external partners. WP4 will also identify and encourage opportunities to optimise

investments through pooling of resources, and liaise with other networks and policy makers to avoid duplications and to create synergies to align policies and optimise efforts.

VESTA leads this WP, based on its expertise in organising multidisciplinary exercises and experience from its own policy efforts in bringing together all (national) stakeholders involved in civil security and incident management in order to enhance strategic and operational efficiency. All eNOTICE partners contribute to this WP, based on their specific expertise.

The corresponding activities are as follows:

WP4 Tasks
WP4 - Integration, optimization and joint activities [Months: 1-72] VESTA, UCL, SDIS 77, ARMINES, FDDO, SIC, JCBRND CoE, METU, UNITOV, WMP, WSU, CNBOP-PIB

Task 4.1 Integration, optimization and joint activities
Task 4.1 Elaboration of a methodology and templates for the preparation/organisation, evaluation and follow up of CBRN exercises combined with tests, validations or demonstrations – M1-M5: VESTA (lead); UCL, SDIS77, FDDO, JCBRND CoE, METU, UNITOV, WMP, WSU

Task 4.1 has finished. For this task a common methodology for the preparation/organization, evaluation and follow up of training exercises (from a standalone activity for CBRN training to exercises combined with testing, validation or demonstration of new methods, procedures, tools, technology etc.) was created. The task results are used further in the other tasks,, of the templates that were developed in this task, the informed consent form and the informarion sheet are mandatory for each JA. The evaluation template is mandatory if it is applicable to the specific JA.

> VESTA leads, based on its expertise as CBRN TC in organising exercises, scenario writing and performance management. UCL, SDIS77, FDDO, JCBRND CoE, METU, UNITOV, WMP, WSU contribute based on their experience in organising or participating in exercises and their knowledge of the specific requirements of testing new tools and technologies.

VESTA leads, based on its expertise as CBRN TC in organising exercises, scenario writing and performance management. UCL, SDIS77, FDDO, JCBRND CoE, METU, UNITOV, WMP, WSU contribute based on their experience in organising or participating in exercises and their knowledge of the specific requirements of testing new tools and technologies.

Progress:

The initial deliverable D4.1 described the methodological approach for the elaboration of guidance for the preparation, organisation, evaluation and follow up of CBRN exercises, either as a stand alone exercise or combined with tests, validations or demonstrations. It also included a first draft with an overview of chronologic steps, guidance per step and templates and checklists for every relevant aspect. The Methodology and Templates consisted of three main components: 1) preparation and organisation; 2) evaluation; 3) follow up. The templates have been re-evaluated because a number of them are not being used. A new approach was developed in D4.6. This approach included the input of all partners and was approved by all partners.

These templates, and the reporting checklist have been used to evaluate all the JA's after the end of August 2021.

Further refinement and updates were part of Task 5.2.3 – Evaluation of the methodology and templates.

Conclusions:

- The templates developed in D4.1. are useful epsecially for beginning training centres. Or institutions that are looking towards becoming training centres. They are elaborate and well-supported based on existing templates of the consoritum partners of the eNOTICE network.

- For more experienced training centres, we recommand to allow them to use their own templates. This way they can use their own knowledge and routine to set up a Joint Activity. In order to be able to compare JAs and standardise reporting, all training centres filled in the reporting checklist developed in D4.6. This approach is flexible but still produces comparible results.

Task 4.2 Organisation of joint activities (exercises combined with tests, validations or demonstrations)

Task 4.2 Organisation of joint activities (exercises combined with tests, validations or demonstrations) – M3-M70: VESTA (lead); all partners contribute: UCL, SDISS77, ARMINES, FDDO, SIC, JCBRND CoE, METU, UNITOV, WMP, WSU, CNBOP-PIB

Task 4.2 organised JAs between partners with different profiles and expectations, as show cased with a double objective: 1) cost-efficiency: to demonstrate the added value of joint efforts and pooling resources, 2) increased benefits: to demonstrate additional benefits in terms of better mutual understanding of the participants, of lessons learnt (individually and from each other), identification of opportunities for improvement and requirements for innovative solutions, etc. A balanced mix of different types of activities was covered during the project (see planning in methodology). These activities were part of the regular annual program of the project partners. External (national or EU projects) research partners will be identified, selected and invited to join the exercise, because of their scope, which is improved CBRN incident management.

Mutual lessons for improvement of CBRN training and response capacity and identification of opportunities for research and innovation were a structural part of the evaluation of every activity and reported as possible paths for follow up, including R&D and policy recommendations. The Task 4.1 methodology and templates was used as a structured and standardized procedure for all the projects activities, in order to allow comparisons and to facilitate generic (common) as well as specific lessons identified. The results of these evaluations will served as input for Task 4.3 and Task 4.4. Both the methodology and lessons learnt will be shared in publications, conference presentations and papers, workshops if relevant (see Dissemination). At the final conference (Y5) the results and added value of these JAs were presented, showing gradually gained insights and guidelines for improvement.

VESTA leads, based on its expertise as CBRN Training Centre in organising combined exercises (training and testing). All eNOTICE partners contribute to this task by organising one or more JAs and their participation in all the other JAs during the project.

Progress:
- 6 Joint Activities were conducted during RP4 time period – in Dortmund in May 2022 hosted by FDDO, in Ranst in May 2022 hosted by VESTA, in Rieti in November 2022 hosted by UNITOV + Joint NBC Defense School, in Warsaw in March 2023 hosted by WSU, the final exercise hosted by VESTA and UCL in Ranst in May 2023, and the Final conference in June 2023 in Brussels.

- As described in task 4.1. The deliverable D4.6 updated the templates used for experienced training centres. The new reporting checklist developed in that deliverable was used for all 5 JAs in RP4. The results of these JAs can be read in D4.7. All JA's used the new reporting checklist, and the feedvack on that checklist was mostly positive. Although there will remain a difficulty of being flexible enough to encompass al types of JAs while also having enough parameters to compare on.

- 3 of the JAs hosted in RP4 were in collaboration with the PROACTIVE project. This gave the eNOTICE training centres a unique opportunity to work together with civil society volunteers and with vulnerable people. Organising these JAs was generally found challenging because of the break from "normalcy" from training centres, but they also provided many valuable lessons, for the training centres, for the volunteers and for the visting guests. The JAs became more complex as time went on. In the beginning of the project, the JAs in the beginning of the project were used to create a methodology and to find out what added value could be created by organising JAs. After the methodology, JAs were used to further expand on the added value, considering specifically also civil-military partnerships, the need for harmonisation and standardisations and the maturity of technology needed for cooperation in a JA with industry developing new products. Then the COVID pandemic happened, and the methodology was re-evaluated and re-developed based on these experiences (D4.6). After COVID, the evaluation of JAs used the reporting checklist and other templates updated in D4.6. It also added the civil society component through the cooperation with PROACTIVE.

Conclusions:
- Civil- military cooperation is crucial, specifically for CBRN disaster preparation and management. This has been emphasized by multiple Joint Activities. The recommendation for the future is to continue this cooperation, and to fnd opportunities to train civil and military responders together to increase knowledge sharing.

- Standardisation for reporting JAs is important to be able to compare the diverse JAs in some way, but should leave room for flexibility as well. This will remain a balancing act between finding enough comparable parameters and maintaining flexibility.

- Cooperation between academics, industry and training centres should be encouraged and add value for all partners. JAs are an appropriate vehicle for this type of cooperation. All parties should keep in mind the different ways of communicating and the need for "translation" of knowledge between different partners.

- The ENOTICE network should continue finding ways to share knowledge, as it is seen as one of the most important benefits of the JAs. The creation of a peer reviewed library for first responders that contains academic information and operational information could thus be a great next step for the network.

- In the cooperation with PROACTIVE, the inclusion of vulnerable people in a CBRN scenario clearly showed that there should be guidelines for first responders working with vulnerable people. This could also be a next step for the network.

Task 4.3 Identification of opportunities to strengthen policies and recommendations for R&D

Task 4.3 Identification of opportunities to strengthen policies and recommendations for R&D – M3-M70: UCL (lead); VESTA, ARMINES, SIC, JCBRND CoE, UNITOV

As the ultimate goal of the eNOTICE project is strengthening national and cross-border capacity for CBRN incidents preparedness (incl. training) and response, this task will contribute to this goal through the identification of opportunities to align policies and recommendations for national, European and international R&D. Input will be gathered from the evaluation and follow up of the JAs (Task 4.2) and from discussions with EU policy makers, such as representatives from DG HOME, DG ECHO, DG DEVCO, JRC and others. Possible synergies between civil and military policies, and a closer relationship with NATO in order to align activities and to avoid competition were also be considered. Four concrete initiatives have at this stage been identified for their obvious link with the eNOTICE objectives: DG HOME's Community of Users, DG ECHO's Disaster management Training network, DG DEVCO's CBRN Centre of Excellence and the JRC's Disaster Risk management Knowledge Centre. Moreover, through the eNOTICE partner JCBRND CoE, who is NATO Department Head for Weapons of Mass Destruction/CBRN Defence Education and Training (WMD/CBRND DH) a link with the already existing network of military CBRN Defence TC and the recently established European Union Military Training Group (EU MTG) is created.

Without excluding any other network, these 5 networks were invited to the eNOTICE activities as privileged partners. They were invited to the JAs as observers and a side event will be dedicated to learn from the JAs, to inform each other on individual progress, to discuss opportunities, to align and mutually strengthen policies, to set priorities and identify opportunities for other activities with common or complementing objectives. A specific focus is on more practitioners' needs-driven research.

UCL leads, based on its experience in R&D and policy initiatives. VESTA, ARMINES, SIC, JCBRND CoE and UNITOV contribute with their respective knowledge on civil and military CBRN policies and on needs for CBRN R&D.

Progress:

- Policy Meeting 1 was organized on June 20, 2018 - the next day after the eNOTICE large scale field exercise Bio Garden hosted by UCL at the military base in Peutie-Vilvoorde, Belgium. The detailed report about the Bio Garden exercise can be found in D4.3 eNOTICE Joint activities planning (submitted in August 2018). The detailed report about the Policy Meeting 1 can be found in D4.8 eNOTICE Recommendations for CBRN R&D and CBRN policies. Version 1 (submitted in September 2018).

Many EC policy makers were invited to the Bio Garden exercise where they could witness the logic and spirit of the eNOTICE Joint Activities, meet the eNOTICE consortium representatives define priorities for the policy related to CBRN TCs, expectations from the eNOTICE network of CBRN TCs, and desired ways of interaction with the network. Representatives from DG HOME, DG ECHO and DG DEVCO were participating in the panel discussion.

- Policy Meeting 2 took place during the eNOTICE Joint Activity in Dortmund, Germany, on September 20, 2019. Deliverable 4.9 (eNOTICE Recommendations for CBRN R&D and CBRN policies. Version 2) provides the detailed report on this Policy Meeting with representatives of German national/regional/local authorities, both civilian and military. Along with the main advantages of the eNOTICE network recognized by all stakeholders including policy makers – gaining knowledge, exchanging of practices, procedures, lecturers, trainees, trainers, identifying common standards (formal and informal), increasing interoperability of national and EU actors, there is a number of challenges that have to be taken into account. The challenges include personnel resources and time required to maintain the network activities; lack of financial resources, including budget for travels to trainings abroad; language barrier; legal and cultural differences between countries. Civil-military and international cooperation are recognized as an absolute must, however civil-military cooperation still lacks an overall overarching concept guiding both military and civilian actors and defining their collaboration at all levels, facilitating communication, interoperability, joint training.

The major recommendations are related to linking with all existing professional networks, such as national associations of firefighters, etc.; better targeted dissemination of the eNOTICE network to the national actors; look into legal constraints in each country; encompass and take advantage of differences between network members and not try to unify all, since the strength is in the diversity.

- Policy Meeting 3 took place virtually on October 22, 2020 opened the discussion and paved the way to the network sustainability - maintenance and successful functioning for many years after the end of the H2020 eNOTICE project funding in August 2023. The concept and activities of the network of CBRN training centres, testing and demonstration sites are in line with the EU CBRN Action Plan objectives, are strategic for Member States CBRN preparedness and development, and are interfacing CBRN themes of EC DGs – HOME, ECHO, INTPA (DEVCO at that time), JRC, FPI. The discussion at Policy Meeting 3 covered sustainability from all angles – from the point of view of training professionals from eNOTICE network training centres, EC DG HOME, ECHO, DEVCO representatives, industry, academia and current R&D projects and advisers – who provided their expectations, vision on possibilities and future network maintenance. The results and all conclusions are presented in

D4.10 (eNOTICE Recommendations for CBRN R&D and CBRN policies. Version 3), Month 39.

- Policy Meeting 4 took place also virtually in the form of a webinar on December 9, 2021, the speakers were representatives of industrial companies who shared their experience and concerns when displaying and testing their technologies with practitioners in the field. Since the previous policy meetings confirmed that participation of industry in the network and its possible financial contribution to the network maintenance is necessary, the requirements and expectations of industry were carefully analysed, and the problems and concerns are being taken into account when forming the mechanism of the network functioning. The results and conclusions are presented in D4.11 (eNOTICE Recommendations for CBRN R&D and CBRN policies. Version 4), Month 54.

- Policy Meeting 5 was held side-by-side with the multi-disciplinary field exercise in Campus Vesta training centre in Belgium, on May 20, 2022. As it was the final policy meeting in the series, the invited training centres representatives were asked to express their willingness to further contribute to the network, their opinions on the future network activities and the ways the network should function after the end of the project. The functionality of the network directly depends on the current CBRN policy, needs and requirements of the practitioners and training professionals that are part of the network. The results and final conclusions are presented in D4.12 (eNOTICE Recommendations for CBRN R&D and CBRN policies. Version 5), Month 66.

Conclusions:

It is clear that eNOTICE network should promote and further develop collaboration with research and industry that are interested in testing and validating existing technologies and innovative solutions with practitioners at training centres. For training centres it gives awareness of available relevant innovations (tools, procedures and technologies) on the market and faster access to them. This collaboration will be the primary basis of the network after the end of the project.

eNOTICE is establishing contacts with the national industrial associations – in Germany, Belgium and the Netherlands so far, and with more EU Member States associations to come. National industrial trade associations can be involved in the network, they are being approached as they can be interested to aggregate technology development actors and fund technology testing with practitioners in the field.

One more promising direction of the network activity is collaboration with large international organisations, such as OPCW (Organisation for the prevention of Chemical Warfare) for chemical training, IAEA (International Atomic Energy Agency) for radiological training, GOARN (Global Outbreak Alert and Response Network)/WHO (World Health Organisation), ECDC European Centre for Disease Prevention Control) for biological training. Training centres would be interested in the C, R, B (certified) training coordinated with and by the international organizations, exchange of approved instructors and trainees.

The added value of the eNOTICE Network for TC is, amongst others that:

- Improve inter-agency, inter-institutional and inter-disciplinary procedures and coordination, by facilitating their cross-border networking / interactive interface with first responders and TCs (e.g., assessment of new emerging threats, assessment and implementations new related guidelines / SOPs, and new threat-driven innovations).

- Enhance civil-military cooperation in the field of CBRN

- Give TC visibility at EU level – to be known by EC, chosen and contacted in case needed for specific capability or cross-border training

- Promote and enhance training capability

- Exchange training practices, trainers, trainees – from inside and outside EU (Including exchanges with TC outside EU – via the CBRN CoE centres)

- Facilitate interactions between CBRN TC members in the network

- Support TCs in access to new markets, through participation in and hosting activities of research projects => thus creating new clients and beneficiaries

- Faster and efficient access to relevant innovations (procedures, technologies), testing and validation of developed innovations in cooperation with industry

- Possibility to influence (end-user oriented) capability development by interacting with industry

- Promote training involving citizens (incl. vulnerable groups)

- Facilitate information exchanges between (other) security stakeholders

- To be the cradle of training procedures adapted to a rapidly changing world (smooth adaptations to new types of threats; delivery of just-in-time training) and to foster a multinational and multidisciplinary exchanges on the most efficient and fastest way to address these emerging threats, both in terms of preparedness and response (i.e., exchanging on new threats driven-innovations, and new threats-driven SOPs).

- To have at disposal reference materials for testing the technologies of detection and identification, and to assess them in adequate conditions of safety and security.

Task 4.4 Plan to pool resources and optimise investments for increased CBRN Training Capacity

Task 4.4 Plan to pool resources and optimise investments for increased CBRN Training Capacity - M17-M68: UNITOV (lead); UCL, VESTA, SDIS77, FDDO, SIC, JCBRND CoE, METU, WMP

Another way to ultimately strengthen CBRN preparedness and response is through the increase of the CBRN TC' capacity. This task contributed to that by elaborating a comprehensive plan to pool resources and optimise investments of CBRN TC.
Input for the elaboration of the plan have been collected from several sources, from:

1) Data collected from the TCs members of the eNOTICE network for the elaboration of the catalogue and the capacity label.
2) Lessons learnt from the joint activities; evaluation on cost-efficiency and other benefits will be a mandatory section in the Task 4.1 evaluation form;
3) Information gathered from the use of the ECC (eNOTICE Community Center);
4) Desk study of good practices to pool resources and optimise investments, incl. description of a sustainability mechanism;
5) Analysis of potential benefits resulting from possible synergies with other EU projects.

Data gathered for the elaboration of the eNOTICE catalogue have been be used to characterize current and future TC members of eNOTICE network (public/private, military/civilian, etc).

Lessons learnt and good practices not only helped to identify approaches from a costefficiency perspective but based a broader cost-benefit analysis, taking into account all the benefits in terms of increased CBRN Training capacity, improved CBRN preparedness and response.

The ECC allowed the collection of additional information regarding the TC activities. eNOTICE services like the "calendar", will allow to quickly monitor the future excercises organized in each TC, anabling synergies, avoiding overlapping.

Opportunities for alignment, harmonisation or standardisation of the operational functioning of CBRN TC and the exploitation of their facilities will also be considered (without aiming at unification, because of the intrinsic value of specialisations).

The collaboration with other EU projects, promoted by eNOTICE, can results in tangible benefits for TCs, who can count on an enlarged network to organize and promote their core activities.

Interim reports will provide input for the 6 monthly reports in the three lines of action cf. the Work program (Deliverables in Task 5.2). All valuable insights and proposed strategies will be merged into one final report, as an effective practice to pool resources and optimise investments.

UNITOV leaded this task; UCL, SIC, VESTA, WMP and JCBRND COE contributed to the desk study based on their expertise in research and as participantsand organisers of the eNOTICE joint activities.

Progress:
During the last reporting period, on the basis of the elaboration of the below correlated steps, a detailed plan for pooling resources have been elaborated:

- Desk study performed on best practices in pooling and sharing resources, its relevance in the CBRN defence sector, and its application to the sustainability of the eNOTICE network.

- Analytical assessment of the needs and goals of the existing eNOTICE network through an evaluation of the discussions, observations, and recommendations deliberated throughout:

    o Policy Meetings
    o Progress Reports
    o Consortium questionnaires & SWOT analyses
    o Lessons learnt from the past Joint Activities

- Examination of the critical elements necessary for the continued development of a sustainable network, as previously deliberated in the eNOTICE deliverable D2.5

(Framework and Sustainability plan for the European CBRN Training Centre network) and its application to a resource pooling and investments framework.

Several initiatives developed within the project during this reporting period have been an opportunity to put into practice the principles of resource pooling or to discuss them:

- Organization of the JA in Rieti, conducted from November 15th to 17th 2022. This JA (the 14th Joint Activity organized in the context of the project eNOTICE) and the related Annual Workshop were joint action organized by the European Unionfunded projects eNOTICE (organised by the Italian Joint NBC Defence School and the University of Rome Tor Vergata) and PROACTIVE.

- Organization of the eNOTICE – PROACTIVE – PANDEM-2 projects joint Final Conference (June 13-15, 2023, Brussels, Belgium).. This joint conference represented a unique opportunity to present the key results and recommendations from eNOTICE & PROACTIVE, and to enable the teams of three different projects to discuss critical findings and recommendations in areas such as:

- Synergies and partnerships in CBRNe research, training and operations

- CBRNe and pandemics preparedness

- Key exploitable results (KERs) and recommendations

- Strategies, synergies, and long-term exploitation of results

Conclusions:

- The above-mentioned methodology and the plan for pooling resources and optimising investments by evaluating the operational and organisational features of a semi-formal network structure and their potential application to enhance the needs and objectives of the eNOTICE network, have been presented in detail in the eNOTICE deliverable D4.13 (eNOTICE Plan to pool resources and optimise investments for increased CBRN Training Capacity).

WP4 Joint Activities

Brief description – objectives, participation, results for the face-to-face JAs from March 2022 to August 2023:

FDDO – May 2022, Dortmund, Germany
This JA was the first JA in cooperation with PROACTIVE. It was a full scale exercise. The scenario of the exercise had a C component during a railway accident. The exercise involved multiple different first responder organisations and included a decontaimination. On top of that, there was civil society input in the form of vulnerable and non vulnerable volunteers. The main lesson of this JA was the lack of standardised procedures of firefighters working with vulnerable people.

VESTA- May 2022, Ranst, Belgium

This JA was a combination of a train the trainer and a multidisciplinary field exercise. It was done in cooperation with the ISF MELODY project, and introduced trainers and decision makers of training centres to a harmonised CBRN curriculum for first responders without experience in CBRN. The exercise itself featured a fire in chemical industry, a large-scale car accident and a fire in an apartment building. The main lesson of this JA was the added value that could be created by sharing knowledge between training centres.

UNITOV and Joint NBC Defense school- Nov 2022, Italy
This JA was a military field exercise in coopeation with the PROACTIVE project. It included an attack on a train with a C component. On top of that, there was civil society input through the invited volunteers. The main lesson learned was the importance of civil-military cooperation and the importance of communication during a crisis, especially with vulnerable people.

WSU- March 2023, Warsaw, Poland
The JA in Warsaw was a computed supported table top exercise, mainly foucssed on working with a hazard assessment prediction software for CBRN disasters. guests of the JA could also work with another software. The main lesson learned during this JA was the importance of adjusting the scenario of the TTX to a JA.

VESTA and UCL, May 2023, Ranst, Belgium
The JA in Ranst was a two day event with a focus on connecting to industry. A eFAIR was set up and first responders and academics were invited. On top of that, this JA was also a cooperation with PROACTIVE. Thus there was civil society input from the volunteers. The UCL lab played a role in the multidisciplinary exerpcsie with a B component. The main lesson learned was the importance of connecting first responders, industry and academics together, and the importance of communication strategy for vulnerable people in a disaster.

UCL- Final conference, June 2023, Brussels, Belgium
The Final conference was co-organized by eNOTICE and two other EU projects PROACTIVE and PANDEM-2. The event was made on June 13-15, 2023 in Brussels, at the conference center Bouche-à-Oreille. The conference was held in a hybrid format with around 120 participants attending in person with a live feed via YouTube streaming followed by 36 participants. The detailed report about the Final conference can be found in D3.3 – Final dissemination report.

Workpackage 5 Project management and quality monitoring

WP5	Project management and quality monitoring	Month 1 - 72	Lead: UCL
Partner	**Comment**	**WP Total**	**Actual at RP4**
WP5		**86.00**	
UCL		21.00	5.02
VESTA		21.00	4.05
SDIS77		4.00	0.50
ARMINES		3.00	0.06
FDDO		8.00	1.50

SIC		8.00	3.50
JCBRND CoE		4.00	0.10
METU		3.00	1.50
UNITOV		13.00	1.00
WMP		2.00	0.12
WSU		1.00	0.17
CNBOP-PIB		1.00	0.52

Work package 5 objectives for the period
WP5 coordinates proper functioning of the consortium through administrative and financial, and technical coordination of work, ensure the scientific/technical quality of the work, manage ethical, security and legal aspects of the work and interact with the Commission.
This WP aims to ensure a qualitative management of the project as a whole and continuous improvement of the three key instruments developed during the project: 1) the web based information and communication platform, 2) the methodology and templates for JAs and 3) the quality label for the CBRN TC. Feedback based monitoring is a permanent activity, resp. from the start of the project and from the moment the newly developed instruments become operational, in order to continuously improve them and to deliver mature results by the end of the project. The interim findings will be collected in progress reports to be integrated in technical management reporting in the three lines of action cf. the Work Programme.

WP5 Tasks
WP5 - Project management and quality monitoring [Months: 1-72]
UCL, VESTA, SDIS 77, ARMINES, FDDO, SIC, JCBRND CoE, METU, UNITOV, WMP, WSU, CNBOP-PIB
The work package involves three main tasks, with corresponding activities, as follows:

Task 5.1 Consortium Management
Task 5.1 – Consortium Management – M1-M72 UCL (lead); all WP leaders contribute: VESTA, SIC, UNITOV
Task 5.1 comprises preparation and implementation of the Project Management Plan, is responsible for the administrative and financial management of the project, ensures timely and complete fulfillment of the Grant Agreement conditions on the project implementation. This task includes organisation and running of internal events, such as: regular management and progress meetings, cost reports and management reports preparation, audit preparation meetings and communication with the EC. This task also organises the contacts between eNOTICE and other CBRN networks, communities and platforms, as well as relevant on-going projects that will provide a pool of information, resource sharing and participation in eNOTICE JAs. UCL

leads this task based on it experience in coordinating research projects. WP leaders VESTA, SIC, UNITOV contribute.

Progress:

- D5.1 - Project Management Plan, WP5, Confidential report, only for members of the consortium (including the Commission Services), was submitted on Month 3, lead UCL. The Project Management Plan forms the top of the organisational documentation structure. It details all management aspects, i.e. defines and details the people and committees and their roles, the tools to be used in the project, the agreed rules, methods, means to be applied or used for managing it.

- Project coordination and management meetings with all partenrs were carried out at:

  - the project kick off meeting in September 2017

  - at Joint Activities during consortium meetings – in December 2017, January 2018, June 2018, October 2018, February 2019, May 2019, July 2019, September 2019, February 2020, November 2021, May 2022, November 2023, March 2023, May 2023. During the Covid-19 pandemic time, and between JAs, consortium meetings were organised online.

- Management teleconference calls between WP leaders were organized between face-to-face meetings, to discuss the state of the art and progress in each WP and to solve the questions requiring decisions of the eNOTICE Management Board.

- Continuous coordination and monitoring of the project administrative and financial aspects with all partners together, with the Management Board and when necessary bilateral resolution of administrative issues were implemented during the whole project. The current status and progress were reflected in Progress reports, and in Technical and Financial periodic reports.

Conclusions:

- The objectives are successfully achieved by the end of the project. The coordination and financial management of the project has in general run smoothly, the impact of COVID in 2020-2021 has proved to be a challenge in that all communications and work had to be conducted virtually.

Task 5.2 Technical Management
Task 5.2 - Technical Management – M1-M72: VESTA (lead); UCL, ARMINES, SIC, Task 5.2 ensured the scientific and technical quality of the project and its continuous compliance with the project Objectives. The main focus of this tasks was to keep oversight on all developments within the project, including supervision of the information flow and communication between related tasks, avoiding duplication of efforts in parallel

tasks, ensuring good collaboration between the partners involved in parallel and consecutive tasks. Technical quality management and follow up during the whole duration of the project was be based on the performance management methodology and indicators developed in subtask 5.2.1.

VESTA led this task, because of its experience as a leading CBRN Training Centre in Belgium in building a network between emergency management stakeholders and in coordinating complex, multidisciplinary projects.
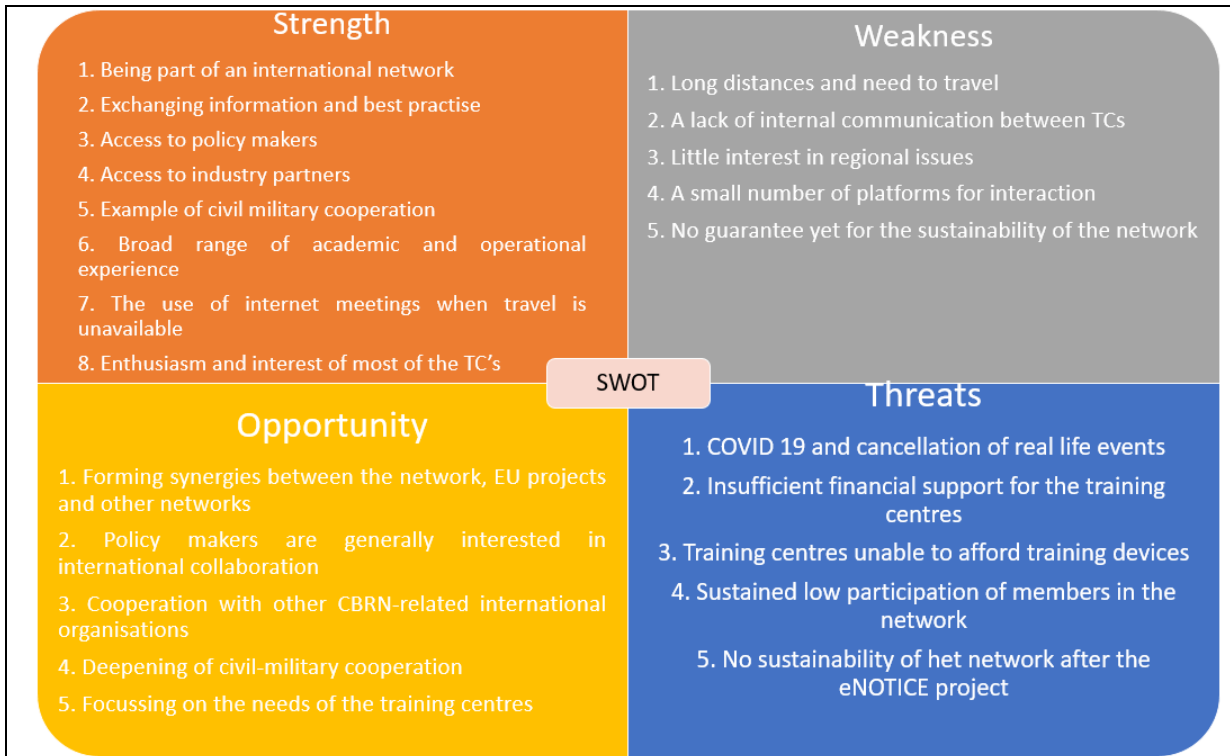
Task 5.2.1 Quality management: development of a continuous improvement methodology, incl. process and result indicators to follow up the project's performance M1-M72: VESTA (lead); UCL, SIC, UNITOV

This subtask aimed at developing a methodology to continuously monitor ongoing tasks and identify opportunities for improvement of the project as a whole. All relevant aspects were covered, such as the proactive role of WP and Task leaders, respect of planning and timely Deliverables, the quality of the Deliverables, the links between different WPs and tasks and the necessary communication flows between them, efficient use of the resources (MM and costs), etc. Not only result indicators (timing/Deliverables) were monitored, but also process or leading indicators because of their capacity to predict forthcoming results. A SWOT-analysis was part of the methodology, in order to dispose of an instrument that not only looks at internal strengths and weaknesses, but also takes into account external threats and opportunities. Awareness for security related evolutions in today's society for instance and changing regulations to adapt to these evolutions, and their impact for the project might thus be proactively and structurally monitored and taken care of (as opposed to an ad hoc and reactive approach). The interim results were be communicated to the Task 5.1 Consortium management and Task 5.3 Security, legal and ethical aspects, according to their relevance. Task 5.2.1 is responsible for the production of the 6-monthly reports (except in the last year of the project) in the three lines of actions as required by the work programme:

1) establish and maintain a roster of capabilities and facilities, and 2) organize to share expertise, and 3) plan to pool and share resources with a view to optimize investments.

VESTA leads based on its experience in quality and performance management. All WP leaders contribute: UCL, SIC and UNITOV

In the deliverables D5.12, 7th progress report (M42) and D5.16 9th progress report (M54) a quality monitoring was carried out. The decision was made to include the training centres in the quality monitoring survey, so as to gauge the performance of the eNOTICE network. This was in line with our increased focus on the sustainability of the network. In the 7th progress report, overall satisfaction with the network and its online activities (during COVID). This quality monitoring resulted in the following SWOT analysis:

Strength

1. Being part of an international network
2. Exchanging information and best practise
3. Access to policy makers
4. Access to industry partners
5. Example of civil military cooperation
6. Broad range of academic and operational experience
7. The use of internet meetings when travel is unavailable
8. Enthusiasm and interest of most of the TC's

Weakness

1. Long distances and need to travel
2. A lack of internal communication between TCs
3. Little interest in regional issues
4. A small number of platforms for interaction
5. No guarantee yet for the sustainability of the network

SWOT

Opportunity

1. Forming synergies between the network, EU projects and other networks
2. Policy makers are generally interested in international collaboration
3. Cooperation with other CBRN-related international organisations
4. Deepening of civil-military cooperation
5. Focussing on the needs of the training centres

Threats

1. COVID 19 and cancellation of real life events
2. Insufficient financial support for the training centres
3. Training centres unable to afford training devices
4. Sustained low participation of members in the network
5. No sustainability of het network after the eNOTICE project

The quality monitoring in the 9th progress report built further on this SWOT analysis, specifically by focussing hand on the threat of a lack of sustainability. This quality monitoring therefore asked training centres in the consortium and the network about the possibilities of working together with companies for the sustainability with the network. On top of this, the quality monitoring report gauges the interest of training centres to go to Joint Acitivites, and to organise their own online activities for the network. This addresses for example the participation of members of the network.

The second quality monitoring in D5.16 went more into depth about the sustainability of the network, and contained a call to action for network participation. The following conclusions were found:

Most training centres are willing and able to work with companies, but not all. Especially when comparing military and civil training centres, differences arise. Although military training centres sometimes do work together with industry, it is less frequent and the type of collaboration seems less diverse. Nonetheless both the possibility and the antecedent are there. Thus the project should keep exploring these topics as a means to gain sustainability.

All in all, there is a willingness to participate in events, and even to organise (online) events themselves. This shows that there is a will for network participation, both online and offline. In RP4, training centres were invited to join Joint Activities, and those that did appreciated especially the networking aspect, and the sharing of knowledge.

Overall, all groups still rate their network satisfaction with an 8, and the advantage of the network with an 8 or 9, these are good rating. On top of that, the lowest answer for both questions has increased from a 5 to a 6. In the all and network groups, variability has decreased while in the consortium variability has increased.

Conclusions:

- The quality management had a few main focus points over time :

    o The functioning of the consortium and the network

        ▪ At the start of the project, the focus of the quality management was mainly on the functioning of the consortium. This was done through progress reports that described the progress in each active task. As time went on, it was decided that there should also be a monitoring of the quality of the network, since that was a core objective of the ENOTICE project. Thus a SWOT analysis was performed in RP3, and RP4 used those results to encourage more interaction with the network, for example by explicitly stating that eNOTICE would facilitate (a part of) the travel costs of training centres if they would come to a JA, since lack of funding was found to be a possible inhibiting factor.

    o The functioning of the web-based platform (5.2.2.),

        ▪ For conclusions see below

        ▪ The evaluation of the methodology (5.2.3)For conclusions see below

Task 5.2.2 Evaluation of the functioning of the web-based platform – M3-M70: FDDO (lead); UCL, VESTA, SIC, METU, WMP This task monitors the functioning of the web-based platform once fully operational (M24). Monitoring is based on the user requirements, defined prior to the development, based on the input from WP2 (esp. Tasks 2.3 and 2.4). The platform reflects all necessary information that is relevant for a successful network and ensure the sustainability of the projects outcome (even beyond the duration of the project). Input from SIC (who hosts and maintains the platform during the project) on the number of visits, frequency of use of the web-based applications (see before) can be completed with user surveys to regularly evaluate and continuously improve the platform's functioning. The current results of the evaluation and how they were addressed were described in D5.13. Based on evaluation results, significant updates have been made to the forum and to the capacity label. FDDO leads, UCL, VESTA, WMP and METU act as user/focus group. SIC provides input and propose solutions for recognized obstacles.

Conclusions:
- Task 5.2.2 continued to evaluate the ECC in the final reporting period.
- The final changes based on the outputs of Task 5.2.2 during RP4 were implemented in the ECC and documented in D5.18 in M70 (in which T5.2.2 also ended).
- Among those changes were improvements in the TC catalogue, mainly involving the capacity labels, as well as multiple improvements in the forum and how project-related content is promoted through it (for more detals see D5.18).
- Quantitative indicators still showed a positive trend in the number of visits per week, even as late as M69. Geographical coverage has also increased compared to the previous reporting period. This was documented in D5.18.

- Visitor numbers spiked around the time of project-related events and Joint Activities which suggests that the ECC is an effective tool for supporting dissemination of project results.
- Qualitative indicators displayed high satisfaction rate with the ECC. In particular, the stakeholders did not raise any major points regarding missing features or further improvements to the ECC during *formative evaluation sessions* at Joint Activities and expressed satisfaction with its current state. Furthermore, the continuous collection of feedback via the *feedback form* did not yield any suggestions for improvement, even though the form was used several times to enquire about Joint Activities.
- Overall, both qualitative and quantitative indicators during RP4 suggest that the ECC has reached the state of high satisfaction of the user requirements and high overall quality.

Task 5.2.2 has continued evaluating and monitoring the ECC, thus prompting improvements to the platform right until its completion in M70, as described in D5.18 and previous reports. With this, Task 5.2.2 has successfully contributed to the continuous improvement of the ECC, which is one of the overarching goals of WP5.

Task 5.2.3 Evaluation of the methodology and templates for the preparation/organisation, evaluation and follow up of exercises combined with tests, validations or demonstrations – M8-M70: UNITOV (lead); UCL, VESTA, SDIS77, ARMINES, FDDO, JCBRND CoE, WMP

Task 5.2.3 aimed at evaluating the methodology and templates, elaborated in Task 5.1 and used in Task 5.2 for the preparation, organisation, evaluation and follow up of exercises, combined with tests, validations or demonstration. It was the expectation that a standardised approach would improve the preparation and organisation of those activities and would encourage and facilitate lessons learnt to be shared and to initiate follow up actions, including for the identificationof end user needs for R&D. Therefore, both the methodology and templates could create an added value, as effective practice, beyond the duration of the project. Lessons should thus also be learnt from their use during the project, which will be done after each JA.

As agreed in the proposed Plan of Action, the evaluation and feedback on the eNOTICE methodology and templates" collected through the Joint activity planning Reports (D4.2, D4.3, ..), have been used to identify any eventual shortcomings of the methodology and templates, or barriers that limit their adoption among the network members. If one or more of these problems occurred, through the involvement of project partners and network members, appropriate countermeasures were identified. The process was iterated throughout the duration of the project. The results of the monitoring activity were presented in the three deliverables D5.10, D5.14 and D5.17.

UNITOV leaded this task, based on its experience in testing the efficiency of training through the usage of exercises and techniques adopted for the qualitative and quantitative evaluation of such exercises, and its experience in linking endusers needs to R&D in the field of CBRNe. UCL, VESTA, WMP, FDDO, JCBRND CoE, SIC, CNBOP-PIB contributed.

Progress:

The project has slowly started to shift away from the "template approach" because it represented double work for the training centres. With D4.6 - eNOTICE joint activities planning report 5

(August 31, 2021) work was carried out at the methodological level to reorganise and standardise the production of reports during JAs, with the proposal of an "eNOTICE JA reporting checklist". The reporting checklist introduction was decided by eNOTICE partners, because most of the templates developed in D4.1 were not being used during the eNOTICE JA, since most TCs already had their own templates. The checklist created is more flexible then the templates, and requires less double work for the training centres, it does however allow for standardization of the data.

The main objective in the last phase of the projectwas to obtain a constant improvement of the templates created by eNOTICE for the management and development of Joint Activities and the standardisation of the information content produced by the partners in the Joint Activity reports thanks to the monitoring activity performed through D5.14 and D5.17 that follow the process of re-evaluation of the templates and the usage of them developed and formalised in D4.6.

Conclusions:

The analysis revealed the effectiveness of this approach as, over the course of the project, the eNOTICE models were modified and adapted based on input gathered from previous JAs, and the methodology appeared to improve as a result of this approach.

The process of gathering information and adapting the methodology and models was continuously iterated throughout the project. The final results of the monitoring activity were presented in deliverable D5.17.

Task 5.2.4 Evaluation of the quality label, web based search function and recommendations for certification - M12-M70: UNITOV (lead); UCL, VESTA, SDIS77, ARMINES, FDDO, SIC, JCBRND CoE, METU

Task 5.2.4 separately evaluated the quality label, developed in Task 2.2 and the corresponding search function at the web platform.

As agreed in the proposed Plan of Action, the capacity label is automatically granted, based on the information the TC provide through the eNOTICE survey (input for the Catalogue), this self-assessment procedurehas been regularly evaluated as part of Task 5.2.4, measures adjustments or a more comprehensive procedure were evaluated .

Input collected from SIC, through the analysis of the eNOTICE platform data on the use of the search function, with the integration of the information collected with the user's satisfaction surveys, that at regular times clearly indicated if the intended objectives were met. Minimum standard requirements were evaluated and proposed, in order to prepare recommendations for certification. Although, as stated in D2.2 the potential benefits the eNOTICE project could expect from a "real" quality label that might be provided in the future by means of certification are clear, the commitment and costs necessary to develop it have led to the decision to make it happen outside the eNOTICE project, while during the project it was determined that the term 'Capacity Label' rather than 'Quality Label' should be used to refer to the identifiers found in the eNOTICE Catalogue of Training Centres. This decision was based on analysis of the main objectives of the tool, through which it was determined that the goal was not to conduct evaluations of the quality and services of the Training Centres, but rather to provide a list of their relevant

characteristics, capabilities, and facilities [1] . Besides, updates, follow up, evaluation and continuous improvement of the Roster and Catalogue (from Task 2.1.2) were part of this Task and were conducted in parallel to the evaluation of the Label, with discussions on that, going on during the regular Joint Activities' meetings. The results of these discussions: state of the art, progress, opportunities, challenges and possible measures to improve were included in the report. UNITOV leaded this task, based on the assumption that The Capacity label is intended to facilitate the search of users in finding a suitable CBRN training centre, in terms of location, capabilities/expertise and facilities/infrastructure. Input from SIC on the use of the search function, in combination with a users satisfaction survey, at regular times clearly indicate if the intended objectives were met. Minimum standard requirements were evaluated and proposed, in order to prepare recommendations for certification. As part of this task, the Task 2.1.2 catalogue of TC capacities (input for the quality label) were yearly updated.

UNITOV leaded based on its experience in performance and gap analysis, training and evaluation, and compliance with standards. UCL, VESTA, SDIS77, ARMINES, FDDO, JCBRND CoE, METU acted as user/focus group, SIC provided input, proposed solutions for improvement for the search function and implements them

Progress:

During the last reporting period were collected information on the effectiveness of the capacity label and more generally on the information content of the catalogue cards dedicated to TCs in the last release of the "Catalogue of Training Centers".

This input conducted to the elaboration of "D5.19 eNOTICE evaluation report on the CBRN TC quality label and web-based search function and recommendations for certification".

The main objectives of this document were to assess the functionality and use of the Capacity Label and the web-based platform (Catalogue of Training Centres) and provide recommendations for certification as a European CBRN Training Centres network tool.

The objectives of this report were attained through the following process:

- Overview of the current identifiers or labels (characteristics, facilities, services, etc.) available in the search function of the eNOTICE Catalogue of Training Centres.

- Background research on existing European Standards and relevant frameworks for CBRN network-related services.

- Analysis of user data and traffic of the project's website as reported in the five eNOTICE semestrial reports (D3.10-3.14).

- Results of an ad-hoc user-satisfaction survey, providing insight into the current state of the Catalogue and input which may be significant to its continued development.

- Recommendations based on the evidence presented, identifying necessary criteria for potential certification of the eNOTICE Capacity Label.

Conclusions:

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[1] D2.2 – Section 1.4 (pages 14 & 15)

The analysis revealed the effectiveness of this approach as. The input received from CBRN stakeholders through the nine-question survey, has demonstrated that the eNOTICE Catalogue of Training Centres is a useful tool and unique service within the CBRN defence field, offering visibility of the eligible TCs and providing opportunity for capacity building, training, and multi-lateral partnerships development.

The detailed final results of the evaluation activity were presented in deliverable D5.19.

Task 5.3 Security, legal and ethical aspects

Task 5.3 – Security, legal and ethical aspects – M1-M72: VESTA (lead); UCL, VESTA, SDIS77, JCBRND CoE, UNITOV

The security, legal and ethical monitoring activity covered the entire period and structure of the project and will provide early warnings of any issues that may arise during the project. The security and legal aspects will primarily address any actual or potential restriction or condition for civil and military organisations within the eNOTICE network for sharing of information and experience through the web-based platform and project JAs, and pooling of

resources. The addressed issues will also include (but will be not limited to) consideration of registered and authorised users with appropriate access rights to the eNOTICE web-based platform, secure data management and data storage protection. Ethical aspects will address thorough consideration of social and cultural acceptance of eNOTICE activities,

participation of various groups of stakeholders (including volunteers) in the JAs, human rights preservation, promotion of national, cultural, religious, gender equality in the project. Security, legal and ethical aspects will be continuously monitored, and the current status will be included in the semestrial Progress Reports.

VESTA leads this task from April 2019 (previously the task was led by UMU that terminated participation in the project) based on its broad experience and track record of participation, coordination of complex projects and expertise related to legal aspects. UCL, SDIS77, JCBRND CoE, UNITOV contribute.

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coordination of complex projects and expertise related to legal aspects. UCL, SDIS77, JCBRND CoE, UNITOV contribute.

Progress:
- A security, legal and ethical aspect checklist has been created in order to gather more standardised information about the security, legal and ethical issues that partners (can) face. This checklist is a supportive document that all partners can use to assess the aspects they need to keep in mind during the preparation, conduction or evaluation of Joint Acitivites. On top of that, the informed consert form in mandatory for all events that are organised, both online and offline, to make sure that the project and its activities always follow European GDPR regulations.

- The legal ethical and security checklist has been integrated into the reporting checklist for the Joint Activities. All organisers of Joint Acitivites fillled out the reporting checklist and indicated what legal, ethical and security aspects they have encountered. On the basis of the answers of these partners, and of the answers of other events (e.g. online webinars etc.),

Conclusions:
- GDPR remains an important aspect to consider while organising a JA. This is especially the case when involving civil society volunteers. To photograph or film them for dissemination of project results, the training centre should get express permission of those volunteers (or their guardians).

- Security is especially for military training centres a big consideration. It affects both knowledge sharing between civil and military training centres, as well as cooperation with academics and with industry.

- Especially in the collaboration with vulnerable people, there were ethical considerations to be made. For example the involvement of children, or people with a lower mental development. A ground rule that was found for all the JAs was that any volunteer should be able to distinguish between reality and exercise. If there was doubt they could make that distinction, they would not be included in the exercise.

IMPACT

The impact criteria and information as defined in the DoA in Section 2-1 are still relevant and do not need to be changed. Progress against the impact is summarized in the table below:

Expected Impact		
impact on EU CBRN training, testing and demonstration sites		
a	develop a very first network of interoperable EU CBRN training capacities based on confidence building through interaction, collaboration and motivation of other EU CBRN TC and CBRN stakeholders to join this EU dynamic of exchange and reciprocal assessment (i.e., good, effective or best practices and standard operating procedures (SOP), lessons learned across same and/or different disciplines and background, return on experience, pooling and sharing resources),	Systematic contacts with different categories of stakeholders – practitioners, policy-makers at EU and national levels, research and industry representatives during the so far conduced JAs, discussing and sharing practices and lessons learnt
b	federate and strengthen collaboration and synergies between partners from single and multiple disciplines, cultures and backgrounds through (i) joint uni- or multidisciplinary activities (e.g., C, B, RN, field and table top exercises, serious gaming, simulations) and (ii) a dedicated web based information and communication platform,	Putting together stakeholders of all disciplines at Joint Activities – during the last Reporting Period it was JA in Ranst, May 2022, in Rieti, November 2022, in Warsaw, March 2023, Ranst in May 2023 and maintenance of the web-based eNOTICE Community Centre (ECC)
c	mapping all relevant information on EU CBRN TC, testing and demonstration sites (e.g., profiles, specificities, training and testing facilities), and propose a mapping-based harmonised capacity/quality label,	Updated contacts of mapped TC capacities, capabilities and facilities, is progressing by filling the TC survey. TC capacity label has been implemented and visible at the ECC website
d	help users find a capacity matching their needs in or outside their country (e.g., testing and training specificity, teaching, testing, research capacity, costs) through the web-based platform,	Development and maintenance of the fully functional web-based platform and ECC, continuous update of it
e	assess current practices, tools and systems for CBRN training and testing, and for countering threats at national and EU level (open forum on the web based platform)	Continuous improvement of the ECC features, cloud and forum, according to the preferences of training centers on the contents and functionality
f	disseminate relevant information and results through this web based platform to all interested parties - CBRN Technological, Industrial, Customer Communities and Policy-makers,	Fully functional web-based platform, completed, and active contacts with stakeholders are maintained

	CBRN TCs, other networks (except for information restricted to the consortium)	
g	associate external partners from other established European, national and sub-national networks of practitioners to JAs for strengthening synergies and exchanges, boosting uptake of innovation and good practices, and thereby steadily expanding the CBRN network scope and size, fast-tracking innovations and dissemination thereof	Strong links are established with participants of the DG HOME initiatve Community of Users for Secure, Safe and Resilient Societies, H2020 CBRN Cluster part a) ENCIRCLE, SEC-21 network projects FIRE-IN, iLEAnet, I-LEAD, NO FEAR, MEDEA, DAREnet, INCLUDING, H2020 projects TOXI-Triage, PROACTIVE, NIGHTINGALE, PANDEM-2, CBRN Cluster part b TERRIFFIC, HoloZcan, NEST, EU-SENSE, EU-RADION, ISF projects MELODY and BULLSEYE, SAFE-STADIUM, VERTIgO, RESIST, TRANSTUN, SHOTPROS, JA TERROR
Impact on CBRN stakeholders (TC, users, suppliers and EC)		
a	develop a common understanding of innovation potential among practitioners of same as well as different disciplines though a dynamic, functional and sustainable transactional European Network of CBRN TC promoting exchange of information and resources	The project annual workshops and exchanges during JAs brought precise understanding of the possibilities, opportunities and limitations of interaction between civ and mil practitioners with R&D actors. The dialogue is now based on solid mutual understanding and develops into stronger collaboration enabling interested stakeholders working together with "eyes open", knowing exactly the expectations of each other.
b	initiate a breakthrough bottom up approach with practitioners-driven research and innovation strategy focusing on genuine users' requirements and needs in the CBRN realm so as to stimulate and motivate users to CBRN TC network membership	Continuous interaction with practitioners, exchange of priorities, needs, expectations from the network of CBRN TC, gaps, concerns and obstacles preventing from joining the network (D2.3)
c	promote the collaborative design and development of tools by associating practitioners and research and technology suppliers in EU research projects, so as to benefit from cross-analysis of well-defined	eNOTICE network of TC has achieved and will further develop its major added value – provide the play grounds and infrastructure for testing and validation of innovations at different levels of maturity. The proven concept

	needs versus innovation potential, and benefit from a regular users' input in all development stages of new tools and technologies	of Joint Activities is now established, and will continue to run in the network, inviting R&D actors to participate with their tools and technologies.
d	favour quicker and more efficient integration and exploitation of final results (e.g. practices, procedures, new tools) in the users core CBRN activities for improving their operational capacities, and integrate development needs in the roadmap of the CBRN TC network, offer a major educational impact of professional teaching/learning environment on students, civilian and military trainees regarding appropriate preventive and responsive measures to CBRN threats, and raising their awareness to evolving practices, requirements, needs, technological evolution and breakthroughs	eNOTICE training centers are the cradle of transferring good/best practices, procedures, tools into learning and teaching materials delivered by trainers, instructors and teaching professionals active at training centers and in practitioner organisations at local, regional, national and international courses in preparedness and response to CBRN and HAZMAT events. Training centers improve the teaching courses, review their contents, introduce and harmonise the delivery of new content relevant to the current challenges, acknowledged recognised needs and emerging threats.
e	seek harmonization and/or standardization of training, testing and validation procedures, good practices, SOP and guidelines across Europe	Exchange of training practices during JAs, including cross-border and civil-military activities
f	improve European preparedness, resilience and incident response to CBRN attacks and emerging threats by strengthening capacity-building in training and users-driven innovation and research, improving modular compatibility and scalability of response in major incident, so that fragmentation of efforts is overcome and complexity reduced	Mono- and multi-disciplinary, national, cross-border and civil-military JAs in the project, allowing for continuous exchange of practices, expertise, experience, looking for optimisation of procedures and resources
g	lay the foundations of a harmonised interoperable European capacity for cross border crises response	Stakeholders from different Member States attended Joint Activities, national execises at TC, exchanging the procedures on cross-border response.
Regarding more articulated and coordinated uptake of innovative solutions among practitioners from same and different disciplines who are often called to act together to face major crisis:		
a	enhance the uptake of innovative solutions by organising uni- and/or multidisciplinary joint training and testing in well-adapted infrastructures, using real-life or simulated situations	17 Joint Activities – field exercises table tops, simulations and serious games have been organised in the project, on a variety of scenarios incorporating B, C, RN (and

		combinations) of real-life and simulated situations.
b	provide a virtual environment (serious gaming) creating a multi-background learning and sharing process that open up avenues for CBRN-oriented research in a cost-effective way	Serious games and simulations involving virtual reality (VR), and eXtended reality (XR) technologies gain more and more popularity in CBRN training, because they allow for efficient training of larger numbers of first responders in various scenarios and modelling close-to-real conditions, at much lower cost. eNOTICE has hosted VR training JAs, and has established strong ties with VR technology developers, as well as external TC interested to enhance the VR training component in their learning programs.
c	issue meaningful users-guided recommendations to the EU policy, research and innovation R&D programme	The five successive annual versions of the recommendations have been issued in D4.8, D4.9, D4.10, D4.11 and D4.12
Regarding more efficient use of investments made across Europe in demonstration, testing, and training facilities for first responders		
a	document the outcome benefits of pooling and sharing resources for optimal resources and effort reallocation, to underpin proposals for investment and return on investment	The methodology and templates for preparation, organisation, reporting and evaluation of JAs have been developed (D4.1, D4.6), allowing for tracking and optimising the effort and resources
b	enhance CBRN product performance by identifying technological solution matching users' needs, and reduce time-to-market of research and innovation breakthroughs by involving users in technology design, tests, validation, and training	Collaboration at JAs with current R&D projects, such as umbrella networking CBRN cluster ENCIRCLE, CBRN Cluster part b) RIAs, industry representatives, involving practitioners in definition of priorities, testing and demonstration of technologies
c	provide better recommendations to the EU R&D programme, considering that these will be based on a regular and highly valuable feedback from CBRN training professionals and practitioners, and lessons learned from eNOTICE joint activities	The two successive versions of the recommendations have been issued (D4.8 and D4.9), with annual updates to come
d	help EU achieve better market development and response, and contribute to more efficient and sustainable industry with better competitiveness	After the end of CBRN Cluster part a) ENCIRCLE project in September 2021, eNOTICE network of practitioners took over and continues to maintain and

	on a less fragmented (often national-restricted) EU market	enrich the Dynamic Catalogue of CBRN technologies, that comprises 141 registered organisations in the Technological community and 94 Practitioner organisations, 279 tools, 39 finished and running projects. The Catalogue is seen as one of the most significant platforms of knowledge exchange between practitioners and technology suppliers. Exchanges are going on within the network members at distance, and face-to-face at JAs sharing practices and technological advancements.
e	elaborate the framework and develop a sustainability plan for continuously improving pooling and sharing capacities, investment and resources allocation and enabling a dynamic network expansion. This will carefully assess the opportunities offered by the "Innovation related initiatives/networks", and particularly the European Innovation Partnerships which, just like eNOTICE, brings together a spectrum of multidisciplinary actors from basic research to final users, and aims to provide a common forum where to test innovative solutions with smoothest possible transition from conception to implementation	D4.13 eNOTICE Plan to pool resources and optimise investments for increased CBRN Training Capacity presented the 'Action Plan', enabling the eNOTICE network to respond to specific gaps where necessary and address continued challenges, with the overall goal of transitioning the network into a practical and sustainable semi-formal structure. The sustainability plan implements best practices by assessing the framework which has been developed throughout the project and underline a strategic method for the optimisation of resource pooling to increase CBRN training capacities and enhance EU Member States' preparedness against emerging threats.
Regarding synergies with already established EU, national and sub-national networks of practitioners		
a	capitalize on existing CBRN stakeholders mapping initiatives (EU community of CBRN users based on the CBRN component of the CoU on secure safe and resilient societies launched by DG HOME	Active collaboration with the DG HOME Community of European Research and Innovation for Security CERIS, (former CoU Community of Users for Secure, Safe and Resilient Societies) – participation in all CBRN thematic days, charing sessions on networking, research priorities, civil-military cooperation, participation in

		CERIS DRS Expert Group, liaising with other projects and experts
b	FP7-EDEN platform and its communities [50 suppliers; 85 SMEs] and end-users [165 end-users already registered]; SEC-05-DRS-2016 CBRN Cluster network of CBRN suppliers and practitioners; relevant SEC 21 networks of practitioners (e.g. Part a) CBRN testing and Agrofood community of practitioners), and liaise them with the CBRN TC network for mutual reinforcement	eNOTICE actively liaises with CBRN cluster ENCIRCLE, CBRN Cluster part b) RIAs, SEC 21 networks of practitioners, R&D CBRN projects funded by H2020, Horizon Europe, ISF establishing the common ground, exchanging experience and approach to practitioners, supporting other projects with the access to practitioners and their requirements
c	liaise with other CBRN-relevant networks with similar scope, goals and member profile that will be identified at international, national, regional and local levels, taking advantage of their experience and lessons they learnt, while fostering collaboration and synergies	eNOTICE actively liaises with CBRN-related projects and initiaves, co-organising joint events, establishing the common ground, exchanging experience and approach to practitioners, supporting other projects with the access to practitioners and their requirements
d	liaise with CBRN-relevant EU bodies: DG ECHO DM TRAINET (pending), CBRN Centre of Excellence (DEVCO), ERCC and JRC's Disaster Risk Management Knowledge Centre, and regional/international organisations (e.g. IAEA, WHO, OPCW), liaise with military actors (Member States, EDA and NATO) taking advantage of the participation of three military CBRN TC to this consortium. Building a Civ-Mil synergy in the CBRN/ HAZMAT realm through this CBRN-TC network is a key dimension of the eNOTICE strategy, in terms of exchange of knowledge [cf impact point 1.a) supra],	Besides continuous contacts, representatives of DG ECHO, FPI, DG INTPA, DG HOME, DG HERA, DG SANTE, NATO, EDA are always invited to eNOTICE events (both face-to-face and online), providing insights on CBRN policy and guiding the work program directions towards beneficial collaboration.
e	explore possible synergies between Civ and Mil CBRN stakeholders and create unique momentum to become the operational intermediary between all CBRN actors, EU relevant bodies, networks and policy-makers, and be the cradle for seamless expansion of a CBRN network of professionals around exchange of knowledge and common understanding of innovation needs and	Having 3 military TC inside the consortium, eNOTICE is a good working example of civil-military cooperation. We deepen the collaboration, basing on NATO experience of eNOTICE partners, liaise with policy-makers, explore synergies with EDA programs, to take maximum advantage of the civ-mil actors

	constraints in an open and transparent EU interoperable approach	collaboration, cross-feeding each other, looking into training contents, composition and procedure, standards, mechanisms of inter-disciplinary and cross-border cooperation, to achieve interoperability. Several JAs organized by eNOTICE military partners proved success of the collaboration, and this direction will be definitely deepened further in the network.

Update of the plan for dissemination and exploitation of results

The project dissemination activities are being implemented according to the Dissemination Plan (D3.1) submitted on Month 3, the results achieved for the first 30 months are reported in D3.2 Mid-term dissemination report, in multiple intermediate Progress reports (D5.2, D5.4, D5.5, D5.7, D5.11, D5.12, D5.15, D5.16), and in D3.3 Final dissemination report on Month 71,

. The eNOTICE project dissemination activities aimed at supporting the best possible integration methods promoting synergy between the partners' efforts and merging results into existing EU mechanisms of intervention and crisis management procedures inside and outside Europe in the CBRN threats domain.

The dissemination of knowledge in eNOTICE involves different activities aiming to raise as much awareness of the European network of CBRN training centres as possible. The process involves three different types of dissemination:

- promotion of the capacity of CBRN training centres (TC), testing and demonstration sites to all stakeholders

- promotion of the network and its web-based platform (eNOTICE Community Centre) to the possible users, and

- promotion of the project results, such as effective practices (cf. D4.1 and D4.6 - the eNOTICE Methodology of joint activities organization, planning, implementation, reporting and follow up, check lists and templates), lessons learnt from the joint activities that serve as show cases (Task 4.2), opportunities for harmonisation, standardisation, the plan to pool resources (Task 4.4), etc.

The targeted information materials have been developed and spread to relevant stakeholders,

The project dissemination targeted a balanced mix of different initiatives to maximise the outreach to the all stakeholders – training centres and training professionals, local, regional, national and EU authorities and policy makers, practitioners, scientists, industry, civil society, etc.

Specific dissemination activities were foreseen for European, national and local policy-makers. These activities were directed towards enhancing the project's impact by supporting eNOTICE exploitation activities, to maximise the eNOTICE' input given to relevant European and national policy-makers, especially those that have influence over the future European and national research agendas. The process

of spreading excellence, exploiting results and disseminating knowledge generated during in the project involves all consortium partners as well different activities aiming to raise as much awareness of the European CBRN Community as possible. All eNOTICE partners disseminate the project findings and results through their own networks, contacts and dissemination channels, participating in the events organised and hosted by eNOTICE, co-organised with other CBRN projects and initiatives, and invited to events of other stakeholders.

Significant dissemination and exploitation of the results is achieved thanks to the developed public project website and the eNOTICE community centre (ECC) at https://www.h2020-enotice.eu/, that serves as the main platform of dissemination of the project activities and results to the external audience. The ECC allows relevant stakeholders from the training centres, practitioners, CBRN technology suppliers, policy makers to stay up to date on the latest developments of the eNOTICE network. The ECC features a general description of the project and its objectives, an overview of the project consortium, the catalogue of training centres – members of the eNOTICE network, with the capacity label assigned to every training centre, the list of Joint Activities implemented during the project, the list of all eNOTICE publications (deliverables, position papers, scientific papers, newsletters, press releases), means to contact the eNOTICE consortium, legal pages (e.g. a GDPR-compliant privacy policy). Additionally, the ECC provides collaboration and communication features (such as a document cloud and a forum) to registered users. The project Newsletters, press releases and media information issued in relation to the project Joint Activities, as well as publications in scientific and professional magazines and journals are all published on ECC.

Large dissemination was achieved during eNOTICE Joint Activities, including 5 Annual Workshops, 5 annual Policy meetings, the final exercise in May 2023 and the Final conference in June 2023.

The last exercise of the eNOTICE project took place at Campus Vesta training center in Ranst, Belgium, with more than 37 hectares (92 acres) that is used for training The Joint Activity was hosted by VESTA, with UCL co-organising.

The Final conference co-organized by eNOTICE and two other EU projects PROACTIVE and PANDEM-2 was made on June 13-15, 2023 in Brussels, at the conference center Bouche-à-Oreille, the event was held in a hybrid format with around 120 participants attending in person with a live feed via YouTube streaming followed by 36 participants.

SIC and UCL have maintained the Twitter and Facebook pages for dissemination purposes. Professional LinkedIn accounts of partners are used to promote eNOTICE as well.

As a continuous activity – eNOTICE is being promoted in the professional networks and informal contacts and formal meetings at each partner organisations.

UPDATE OF THE DATA MANAGEMENT PLAN (IF APPLICABLE)

Not applicable

USE OF RESOURCES
Include explanations on deviations of the use of resources between actual and planned use of resources in Annex 1, especially related to person-months per work package.
Include explanations on transfer of costs categories (if applicable).
Include explanations on adjustments to previous financial statements (if applicable).

The main devaiations in effort are related to the fact that the project was prolonged by 1 year, and many partners had little budget left in RP4, thus could claim less, but it absolutely did not prevent from fulfilling all the tasks and achieving all the objectives according to the DoA. All partners remained committed until the last day of the project, and worked actually more than planned.

SIC claims minor deviations in person-months effort - the total increase of the effort compared to the initial PM plan is possible due to lower average monthly salary of the personnel in charge of the tasks during RP4. So, this increase does not have impact on the budget that has been previously approved and allocated.

VESTA spent more effort and budget than expected to implement their corresponding Joint Activities in 2022 and in 2023. Both these JAs were large multidisciplinary field exercises, they were a great success, especially the final one where many stakeholders were invited. The overall effort on the preparation and organisation of the JAs meant lots of work for the team.

UNFORESEEN SUBCONTRACTING

Specify in this section:
    a)   *the work (the tasks) performed by a subcontractor which may cover only a limited part of the project; b) explanation of the circumstances which caused the need for a subcontract, taking into account the specific characteristics of the project; c) the confirmation that the subcontractor has been selected ensuring the best value for money or, if appropriate, the lowest price and avoiding any conflict of interests.*

Not Applicable

UNFORESEEN USE OF IN KIND CONTRIBUTION FROM THIRD PARTY AGAINST PAYMENT OR FREE OF CHARGES

Specify in this section:
d) the identity of the third party; e) the resources made available by the third party respectively against payment or free of charges f) explanation of the circumstances which caused the need for using these resources for carrying out the work.

Not Applicable

FOLLOW-UP OF RECOMMENDATIONS AND COMMENTS FROM PREVIOUS REVIEW(S)

The previous review took place in March 2022. The following recommendations were seriously considered and accepted by the consortium for action:

1. *An essential recommendation is to work towards strong and lasting sustainability. Trust must be built through personal contacts in joint activities, specific meetings, etc., which are or could be organized by the eNotice Consortium. In addition,*

- *Make a plan, and implement it, to reach out to companies to encourage the potential use of the training centres for equipment testing, research and development. To be submitted by the 31 July 2022.*
- *Prepare a detailed study of the expenses that can be generated for the sustainability of the network (management/coordination, maintenance of the web platform, administration, travel, etc.). The study should contemplate different origins of funds, whether industry, Member States or others. This should be submitted by 30 September 2022.*

Sustainability of the network after the end of the project has been the focus of attention of the consortium since the beginning, as soon as the interest and motivation of the members of the network was confirmed. eNOTICE is working hard on identification of needs, possibilities and challenges of all groups of stakeholders – civilian and military experts and practitioners of all disciplines, training professionals, industry, researchers, policy makers - in order to pull together all the requirements into a single working mechanism of the network functionality that would bring benefit to the training centres and keep interest of the funding actors. Policy Meetings in 2020 (D4.10), in 2021 (D4.11) and in 2022 (D4.12) were specifically dedicated to sustainability discussions with policy makers, industry, and training centers respectively. The sustainability mechanism and the full description of the framework is completed in D4.13 on Month 68. It comprises the plan to engage companies to participate and sponsor the network, being interested to have systematic access to practitioners in training centers for testing and validation of innovations at various TRL levels; and the study of expenses that can be generated for the network. The sudy provides a reasonable 'Action Plan', enabling the eNOTICE network to respond to specific gaps where necessary and address continued challenges, with the overall goal of transitioning the network into a practical and sustainable semi-formal structure. A semi-formal network structure recognises that all members have different capabilities, goals, limitations, etc., and addresses the need for flexibility to allow each member to benefit from the resources and opportunities offered by participating in the network. Through this semi-formal structure, the network is organised into three major components: an Executive Board, a Secretariat, and individual Working Groups. Each occupies diverse leadership roles, complementing the responsibilities of the others within the governance and organisational structure, and providing opportunity for continuous network advancements and increased capabilities. Among these various responsibilities, network leadership and a semi-formal operational and funding structure will contribute to addressing the critical issues identified earlier by:
- Identifying a governing member whose operational and legal responsibility for the network will contribute to its overall accountability and sustainability.
- Determining specific membership eligibility criteria for the good of the network, and the establishment of an ad-hoc membership fee scheme to provide additional funding for network operations.
- Maintaining expectations and encouraging active member participation and collaboration both formally and informally, through in-person and/ or virtual meetings and via group discussions on the ECC platform.

- Organising and managing JAs which benefit all members and contribute to achieving joint network goals.
- Reduce the CBRN defence industry's environmental impact by utilising collective resources to strategically increase training capacities while simultaneously limiting the independent environmental effects of individual members.
- Addressing both existing and emerging issues in training harmonisation, standards and preparedness.
- Monitoring and evaluating network operations to guarantee enhanced efficiency over time.

In addition to the possibility of creating a self-sustaining and independent network structure, the eNOTICE partners will maintain and further develop the network through a second European project eNOTICE-2, accepted for the UCPM Knowledge Network. This conituation project will enable the network to continue addressing member needs and gaps identified during eNOTICE-1, identifying best practices, and progressing in its understanding of specific elements for the independently funded and organised CBRN TC network.

2. *There are other recommendations that should be followed throughout the rest of the project and that will also support the goal of sustainability. They are:*

- *Invite more Member States out of those that do not yet participate in eNOTICE, marketing the offer and benefits of belonging to the consortium*

This recommendation is pursued through adding more training centers in the network, namely from Portugal, Romania, Slovakia and Slovenia. With further development, more training centers from more Member States will join, however the most important is to ensure the active interest and added value for training centers in the functional network, the obligatory coverage of every Member State is not the goal.

- *Reach out to and raise awareness of decision makers so that they internalize the relevance of involvement/participation of first responders in project activities on top of daily and standard duties*

Significant effort has been done by eNOTICE to liaise with decision makers at EU and national levels to raise awareness of the network, eNOTICE contributes to improving collective and individual preparedness for a cross-border response to CBRN threats, as well as increasing the safety, security and resilience of responders and the population. By focusing training and teaching activities on a standardised cross-border approach, eNOTICE aims to assist in the legal, administrative, and organisational requirements as well as the protocols and standards of neighbouring countries. These objectives support European policies in the field of security, particularly those defined by DG HOME, DG ECHO, DG HERA and DG INTPA. In a similar way, eNOTICE is an excellent source of recommendations for the European Union's R&D programmes, based on regular feedback from CBRN training professionals and practitioners, as well as lessons learned from joint activities. DG SANTE underlined that it is looking for training centers to implement training for first responders, it is desirable to have online training at first, and then simulation exercises in the field, eNOTICE network was emphalised as the optimal cradle for this. DG HOME expressed the wish that eNOTICE network becomes the infrastructure and mechanism for pre-normative and conomative research, where comparative standardisation is studied – the standards developed by other stakeholders should be compared, tested and validated by practitioners in the training centers. Since this direction was prompted by the policy makers as one of the most desirable added value of the network,

eNOTICE will certainly pursue it to make the EU network training centers the place for pushing forward standardisation and certification, jointly used by all relevant agencies of the European Commission.

- *Ensure that participants in Joint Activities report back to their managers/decision makers in their organizations so that the benefits are well identified and recognised.*

Stable sustainable network of CBRN TC is not imaginable without support of Member States. It is the national decision makers and crisis management authorities that are primarily needed to be aware of the benefits of the network, support their training centers to participate and encourage practitioners to train in the national TC and neighbour countries TC that are members of the network. Having recognised the importance of MS support, the eNOTICE consortium, in particular the training centers hosting Joint Activities in their countries, made sure to involve national authorities in the JAs, show what the network is, explain the added value, and seek support. Each training center identified the national authorities (such as Ministries of Interior, Minsitries of Defense, Ministries of Foreign Affairs, Civil Protection, etc.) in their respective countries, that needed to be approached. E.g. official support is ensured from national Crisis Center of the Federal Public Service of the Interior in Belgium, similar processes are ongoing in Germany, Netherlands, Estonia, Italy, Poland, all other countries to follow.

- *Finally, it is important to leverage the efforts of the European Defence Fund, establishing contacts with funded activities, seeking synergies and identifying areas of collaboration that reinforce the objectives of eNOTICE*

eNOTICE consortium fully agrees with this recommendation, and undertakes steps to get involved in EDF program, which potentially looks indeed very promising for following eNOTICE objectives. However, the conditions of participation in EDF calls, such as the current ongoing call topic on federating CBRN systems, favors participation of large industry, and is funded at 80%, which is rather difficult for public training centers organisations. It certainly does not exclude from further seeking synergies, and appropriate funding with EDF, because it is seen as one of the best opportunities to strengthen civil-military collaboration in CBRN training.