

## D8.2 E-EWS AND E-FCR DEMONSTRATION SURVEYS

Lead author: Daniele Cristofori, Z&P

Submission date: 31 May 2021

PUBLIC



The work described in this document has been conducted within the ECHO project. This project has received funding by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 830943



<b>Title</b>	European network of Cybersecurity centres and competence Hub for innovation and Operations
<b>Acronym</b>	ECHO
<b>Number</b>	830943
<b>Type of instrument</b>	Research and Innovation Action
<b>Topic</b>	SU-ICT-03-2018
<b>Starting date</b>	01/02/2019
<b>Duration</b>	48
<b>Website</b>	www.echonetwork.eu

## D8.2 E-EWS AND E-FCR DEMONSTRATION SURVEYS

<b>Work package</b>	WP8 Demonstration Cases
<b>Lead author</b>	Daniele Cristofori (Z&P), Davide Ferrario (Z&P)
<b>Contributors</b>	Notis Mengidis (CERTH), Antonis Voulgaridis (CERTH), Nikos Oikonomou (CERTH), Georgios Aivatoglou (CERTH), Gabriela Panzariuc (SIM), Andrei OGREZeanu (SIM), Oleg Illiashenko (NAU KHAI), Cyril Ceresola (NG), Ewa Konieczna (VST), Rauno Pirinen (LAU), Valentin Hlodec (CERTSIGN), Matteo Merialdo (RHEA), Fabrizio De Vecchis (RHEA), Peter Hagstrom (RHEA), Consuelo Colabuono (RHEA), Luis Angel Galindo Sanchez (TME), Brid David (NUIM), Michael Cooke (NUIM), Maya Bozhilova (BDI), Dimitrios Mallis (BU), Ioannis Chalkias (BU), Cagatay Yucel (BU), Pavel Varbanov (ESI CEE)
<b>Peer reviewers</b>	Mirjam Kert (GT), Andrei OGREZeanu (SIM)
<b>Version</b>	V1.0
<b>Due date</b>	30/04/2021
<b>Submission date</b>	31/05/2021

Dissemination level:

x	PU: Public
	CO: Confidential, only for members of the consortium (including the Commission)
	EU-RES. Classified Information: RESTREINT UE (Commission Decision 2005/444/EC)
	EU-CON. Classified Information: CONFIDENTIEL UE (Commission Decision 2005/444/EC)
	EU-SEC. Classified Information: SECRET UE (Commission Decision 2005/444/EC)

## Version history

Revision	Date	Editor	Comments
0.1	04/02/2021	Daniele Cristofori (Z&P), Davide Ferrario (Z&P)	Initial draft
0.2	25/03/2021	Daniele Cristofori (Z&P), Davide Ferrario (Z&P)	Restructuring of the sections based on progress WP8 meeting on 24 March 2021
0.3	20/04/2021	Daniele Cristofori (Z&P)	Integrated contributions from Partners
0.4	05/05/2021	Daniele Cristofori (Z&P)	Integrated contributions from Partners and refinement of Section 2
0.5	13/05/2021	Daniele Cristofori (Z&P)	Restructuring of the sections based on progress WP8 meeting on 12 May 2021 and inclusion of E-CCS and E-CSF in the demonstration cases specific questions
0.6	18/05/2021	Daniele Cristofori (Z&P)	Fixed the document based on a pre-review from Partners
0.7	28/05/2021	Ewa Konieczna (VST)	Minor formatting updates
1.0	31/05/2021	Matteo Merialdo (RHEA)	Document Closed

## List of contributors

The list of contributors to this deliverable are presented in the following table:

Section	Author(s)
Section 1	Daniele Cristofori (Z&P), Davide Ferrario (Z&P), Ewa Konieczna (VST)
Section 2	Daniele Cristofori (Z&P), Davide Ferrario (Z&P), Andrei OGREZEANU (SIV), Gabriela Panzariuc (SIV), Matteo Merialdo (RHEA)
Section 3	Giorgos Aivatoglou (CERTH), Notis Mengidis (CERTH), Nikos Oikonomou (CERTH), Antonis Voulgaridis (CERTH), Oleg Illiashenko (NAU KHAI), Rauno Pirinen (LAU), Cyril Ceresola (NG), Valentin Hlodec (CERTSIGN), Matteo Merialdo (RHEA), Fabrizio De Vecchis (RHEA), Peter Hagstrom (RHEA), Consuelo Colabuono (RHEA), Ewa Konieczna (VST), Luis Angel Galindo Sanchez (TME), Brid David (NUIM), Michael Cooke (NUIM), Maya Bozhilova (BDI), Dimitrios Mallis (BU), Ioannis Chalkias (BU), Cagatay Yucel (BU), Pavel Varbanov (ESI CEE), Daniele Cristofori (Z&P), Davide Ferrario (Z&P)
Section 4	Daniele Cristofori (Z&P), Davide Ferrario (Z&P)

### *Keywords*

Survey, Early Warning System, Federated Cyber Range, Demonstration Cases

### *Disclaimer*

This document contains information which is proprietary to the ECHO consortium. Neither this document nor the information contained herein shall be used, duplicated, or communicated by any means to any third party, in whole or parts, except with the prior written consent of the ECHO consortium.

The information in this document is provided “as is”, and no guarantee or warranty is given that the information is fit for any particular purpose. The above referenced consortium members shall have no liability for damages of any kind including without limitation direct, special, indirect, or consequential damages that may result from the use of these materials subject to any liability which is mandatory due to applicable law.

Personal Data collected, used, and stored to produce the content of the deliverable were processed in compliance to requirements from the GDPR, according to ECHO Data Management Plan and ECHO Ethics deliverables.

## *Executive summary*

To showcase the benefits of solutions and applications developed within the project, ECHO Consortium will organise demonstration events available to the range of European organisations, industries and the public. To gather feedback from participants of the execution of the ECHO demonstration cases, or joining the demonstration workshops and presentations, partners leading WP8 developed surveys examining users' satisfaction with the ECHO products. The leading methodology in creating this survey was the inspection of participants opinion of various aspects of the quality of the ECHO output and quality of its use.

The purpose of surveys is to:

- Evaluate the effectiveness of the ECHO Early Warning System (E-EWS) and ECHO Federated Cyber Range (E-FCR) and understand if they meet the market needs and what features should be improved further.
- Determine the degree of maturity and applicability of other ECHO assets demonstrated in combination with E-FCR and fix any gaps by the end of the ECHO project.

Demonstration Cases are planned to begin in autumn 2021 and continue throughout 2022. For this reason, the delivery of the survey via an online tool will take place in several steps, as described in section 2.5.

Feedbacks from participants will be collected, analysed and summarised in *D8.4 Completed E-EWS and E-FCR demonstration surveys* in October 2022.

The results of the Demonstration Cases will be reported in *D8.6 ECHO demonstration report* in January 2023.

We decided to implement the survey with Qualtrics<sup>1</sup>, an online survey tool that began by supporting the research needs of academics and companies which needed sophisticated questionnaires. Qualtrics (which SAP acquired in January 2019) is among the market leaders in implementing the survey. The direct question access of its user interface (UI), block-based questionnaire design, logical branching options, and Survey Flow overview option played a part in our decision in using this tool for our survey.

We expect users to complete the overall survey will take a maximum of 30 minutes.

The survey is available at the following link:

[https://maynoothpsychology.qualtrics.com/jfe/form/SV\\_cuR6Ta298WfV6qW](https://maynoothpsychology.qualtrics.com/jfe/form/SV_cuR6Ta298WfV6qW)

---

<sup>1</sup> <https://www.qualtrics.com>

## Table of contents

Version history .....	2
List of contributors .....	2
Keywords .....	3
Disclaimer .....	3
Executive summary .....	4
Table of contents .....	5
List of tables .....	6
<b>1. INTRODUCTION .....</b>	<b>7</b>
1.1 ECHO PROJECT .....	7
1.2 PURPOSE AND SCOPE OF THE DOCUMENT .....	7
1.3 STRUCTURE OF THE DOCUMENT .....	8
1.4 RELATION TO OTHER WORK IN THE PROJECT .....	8
1.5 APPLICABLE AND REFERENCE DOCUMENTS .....	8
1.6 INTELLECTUAL PROPERTY RIGHTS .....	9
1.7 GLOSSARY OF ACRONYMS .....	9
<b>2. METHODOLOGY .....</b>	<b>11</b>
2.1 OBJECTIVE OF THE SURVEY .....	12
2.2 THEMATIC AREAS .....	12
2.3 SURVEY TARGET GROUPS AND SAMPLING .....	13
2.4 SCALES AND LEVEL OF MEASUREMENT .....	13
2.5 CONTEXT AND PROCEDURE OF APPLYING THE QUESTIONNAIRES .....	14
<b>3. SURVEY .....</b>	<b>15</b>
3.1 GENERAL QUESTIONS .....	15
3.2 DEMONSTRATION CASES SPECIFIC QUESTIONS .....	16
3.2.1 DC #1 E-EWS reference library exchange .....	16
3.2.2 DC #2 E-EWS cyber incident coordination and response .....	16
3.2.3 DC #3 E-FCR use for cyberskills education and training/exercising .....	17
3.2.4 DC #4 E-FCR use for cybersecurity certification of new technologies .....	18
3.2.5 DC #5 E-FCR use for R&D activities of the technology roadmaps .....	19
3.3 USER'S PERCEPTION .....	20
3.4 ASSET IMPROVEMENTS .....	21
3.5 USER SATISFACTION .....	21

3.6 EXPLOITATION QUESTIONS .....	22
<b>4. CONCLUSIONS .....</b>	<b>24</b>

### *List of tables*

Table 1: Applicable documents .....	9
Table 2: Reference documents.....	9
Table 3: Glossary of acronyms, initialisms, and abbreviations.....	10

## 1. Introduction

### 1.1 ECHO Project

The ECHO project (European network of Cybersecurity centres and competence Hub for innovation and Operations) is one of four Pilot projects launched by the European Commission to establish and operate a Cybersecurity Competence Network. ECHO delivers an organized and coordinated approach to strengthen the proactive cyber defence of the European Union through effective and efficient multi-sector collaboration. The project includes 9 Work Packages (WP) from which Work Package 8 (WP8) is focused on:

- Instantiation and final preparation of E-EWS, E-FCR and inter-sector prototypes according to demonstration plans established in WP7;
- Conduct demonstration activities intended to highlight the beneficial features and capabilities of the E-EWS, E-FCR and inter-sector prototypes;
- Conduct all demonstration activities required to meet or exceed the requirements surrounding the demonstration cases;
- Promote the capabilities of the developed technology roadmaps (E-EWS, E-FCR, and inter-sector prototypes) to meet multi-sector scenario requirements and demonstration cases.

The ECHO network, at the time of writing of this deliverable, consists of 30 partners, spread across Europe. At the time of writing this document, onboarding activities are progressing to identify and include new partners in the ECHO network.

### 1.2 Purpose and scope of the document

A specific task in the ECHO project is Demonstration cases instantiation (T8.1), which has the ultimate objective of completing all preparation activities required for readiness to conduct open demonstrations of the identified technology roadmaps (E-EWS, E-FCR and inter-sector prototypes). This includes any additional instantiation of systems and software in support of the demonstration and conducting a 'dry-run' of associated demonstrations. This task includes the preparation of surveys to be delivered during demonstration cases events as well.

This document collects a survey used to gather feedback from participants of the demonstration cases with the purpose of:

- Evaluate the effectiveness of the E-EWS and E-FCR assets and understand if their needs for the market have been either met or there is a need to make changes.
- Determine the degree of maturity and applicability of other ECHO assets demonstrated in relation to E-FCR and fix any gaps by the end of the ECHO project.

This document also collects (in Section 2) the methodology used for the implementation of the questions, the specific objectives of the document, the thematic areas that inspire the survey (ISO/IEC 25010:2011), the target groups and how they are chosen and sampled. It also specifies the scales and measurement methods adopted, the context and the procedure of applying the survey.



### 1.3 Structure of the document

This deliverable is organized as follows:

- Section 1 constitutes a general introduction to the whole document and frames the deliverable as part of the macroscopic project structure, highlighting the relations with other deliverables. Standard subsections are dedicated to some routine matters of IPR and glossary.
- Section 2 is particularly important as it presents the methodology used to collect the questions to ask. In particular, this section explains the specific objectives of the document, the thematic areas that inspire the survey (ISO/IEC 25010:2011), the target groups and how they are chosen and sampled, also specifying the scales and measurement methods adopted, the context and procedure of applying the survey.
- Section 3 is the heart of this document as the survey with all the questions in details is reported here
- Section 4 is finally devoted to closing remarks and it summarizes the main aspects of the document.

### 1.4 Relation to other work in the project

The ECHO project focuses on the research and development of highly complex and transversal aspects of cybersecurity. Demonstrations are constructed to incorporate composite, interconnected scenarios involving the outcomes of several streams of work. To showcase the real-life application of the products, solutions developed by ECHO will not be demonstrated in isolation but in combination with other ECHO assets, prototypes developed in WP4 ‘Inter-sector technology roadmaps’ and outcomes of WP2 ‘Multi-sector needs analysis’.

Surveys will be used to collect feedback not only about E-EWS and E-FCR, but also ECHO Cyberskill Framework (E-CSF), ECHO Cybersecurity Certification Scheme (E-CCS) developed in T2.6 and T2.7.

Questions reported in this document relate to demonstration cases, closer described in *D8.1 Demonstration readiness report* (which is a necessary read to follow this present document). Feedbacks from participants will be collected, analysed and summarised in *D8.4 Completed E-EWS and E-FCR demonstration surveys* in October 2022. The results of the Demonstration Cases will be reported in *D8.6 ECHO demonstration report* in January 2023.

### 1.5 Applicable and reference documents

The following documents contain requirements applicable to the generation of this document:

Reference	Document Title	Document Reference	Version	Date
[GA]	Grant Agreement 830943 – ECHO	-	1.0	02/04/2019
[PH]	D1.1 Project Handbook	ECHO_D1.1_v1.42	1.42	20/10/2019
[PQP]	D1.3 Project Quality Plan	ECHO_D1.3_v1.3	1.3	15/06/2020

Table 1: Applicable documents

The following documents have been consulted for the generation of this document:

Reference	Document Title	Document Reference	Version	Date
[D5.1]	D5.1 E-EWS High-Level Design	ECHO_D5.1 E-EWS_High-level_design_v1.2	1.2	31/10/2019
[D5.5]	D5.5 UPDATE – E-EWS High-Level Design	ECHO_D5.5 Update - E-EWS_High-level_design_v3.4	3.4	31/07/2020
[D6.1]	D6.1 E-FCR High-Level Design	ECHO_D6.1 E-FCR_High-level_design_v1.1	1.1	31/10/2019
[D6.5]	D6.5 UPDATE – E-FCR High-Level Design	ECHO_D6.5 E-FCR_High-level_design_v1.0	1.0	31/07/2020
[D2.6]	D2.6 ECHO Cyberskills Framework	ECHO_D2.6_Cyberskills_Framework_v1.4	1.4	31/01/2021
[D2.9]	D2.9 ECHO Cybersecurity Certification Scheme	D2.9 ECHO Cybersecurity Certification Scheme v1.0	1.0	07/02/2021
[D8.1]	D8.1 Demonstrations Readiness Report	D8.1 Demonstrations Readiness Report v0.8	1.0	09/06/2021

Table 2: Reference documents

## 1.6 Intellectual Property Rights

Based on the legal framework provided in the ECHO Grant Agreement and the Consortium Agreement, ECHO specific IPR procedures have been established to protect the innovations and knowledge developed within this deliverable. No specific items have been added to the ECHO IPR registry in relationship to this deliverable.

## 1.7 Glossary of acronyms

Acronym	Description
DC	Demonstration Case
ECHO	European network of Cybersecurity centres and competence Hub for innovation and Operations
E-MAF	ECHO Multisector Assessment Framework
E-CCS	ECHO Cybersecurity Certification Scheme
E-CSF	ECHO Cyber Skill Framework
E-EWS	ECHO Early Warning System
E-FCR	ECHO Federated Cyber-Range

Acronym	Description
<b>GA</b>	Grant Agreement
<b>IPR</b>	Intellectual Property Rights
<b>ISO</b>	International Organization for Standardization
<b>R&amp;D</b>	Research and Development
<b>UI</b>	User Interface
<b>WP</b>	Work Package

Table 3: Glossary of acronyms, initialisms, and abbreviations

## 2. Methodology

The Demonstration Cases that will be performed in T8.2 aim to validate the E-EWS, E-FCR, E-CSF and E-CCS assets and how they work together. More in detail, the Demonstration Cases are structured as follows:

- Demonstration Case #1 (E-EWS reference library exchange): it evaluates the E-EWS, specifically the Reference Library Exchange (RLE). This demonstration case will illustrate the collaborative information sharing aspect of the reference library information. You can find more details in D8.1, Section 5;
- Demonstration Case #2 (E-EWS cyber incident coordination and response): Similarly, as Demonstration Case #1, it will showcase capabilities of the E-EWS but focusing on showcasing the system from the perspective of a tool allowing participants to simulate and thereafter assess real-time incident and response activities. You can find more details in D8.1, Section 6;
- Demonstration Case #3 (E-FCR use for cyberskills education and training/exercising): it will validate the E-FCR and E-CSF assets exploring the possible connections between the theoretical and fundamental training content with practical learning with real-world scenarios (cyber- attacks and incidents) and its impacts on better acquisition of skills and knowledge. The E-FCR itself allows building of complex and distributed scenarios where the participants can apply their knowledge in offensive and defensive roles. You can find more details in D8.1, Section 7;
- Demonstration Case #4 (E-FCR use for cybersecurity certification of new technologies): it will validate E-FCR and E-CCS assets simulating certification activities following the schema provided by E-CCS and using one of the federated cyber ranges. You can find more details in D8.1, Section 8;
- Demonstration Case #5 (E-FCR use for R&D activities of the technology roadmaps): it will validate the E-FCR asset using it for R&D activities which consist in executing and testing at least 2 prototypes developed in T4.3. You can find more details in D8.1, Section 9;

The survey that has been developed in this document is based on the results of the Demonstration Cases explained briefly above and is dedicated to testing:

- The functionalities of the E-EWS and E-FCR assets and the way they are perceived by the end users;
- The degree of applicability and maturity of the ECHO Cybersecurity Certification Scheme;
- The degree of maturity of the Cyberskills Framework

We expect that a careful examination of demonstrations survey result will also allow us to estimate the readiness of the E-EWS and E-FCR assets for commercialization after the end of the ECHO project.

We decided to use as a reference the ISO/IEC 25010 standard in order to fulfil the questions presented in Section 3. This strategy was adopted with a twofold intention:

- i. to be compliant with internationally recognized standards
- ii. to have a set of predetermined parameters to assess software quality, thus obtaining an objective evaluation.

## 2.1 Objective of the Survey

The overall objective of the survey is to determine the effectiveness of the E-EWS and E-FCR assets during the Demonstration Cases in order to understand if their needs for the market have been either met or there is a need to make changes.

Another important objective of this survey is to understand the degree of maturity of E-CCS and E-CSF assets in order to fix any gaps immediately after the execution of the Demonstration Cases.

Several questions have been developed in order to perform both a qualitative and a quantitative analysis after the Demonstration Cases. Some questions can be answered via a scale of preference which varies in a bounded interval. An analysis will be performed on these categorical data. On the other hand, there are also a number of questions that can be answered via open answers. The design of these questions specifically targets those aspects of user experience that are difficult to capture via a quantitative assessment and are more easily expressed in natural language.

The analyzes that will be done on this data in T8.4 will be the input for

- The E-EWS and E-FCR developers in order to improve and refine the two assets to meet the needs of the market
- The partners involved in E-CCS and E-CSF assets in order to fix any gaps identified through the survey results

## 2.2 Thematic areas

The survey is based on the international ISO standard on software quality: the ISO/IEC 25010:2011. The standard offers two models, one for the quality in use and one for the product quality. Both models define quality in terms of a set of first-level characteristics associated with a set of second-level sub-characteristics that best describe each characteristic. The ISO/IEC 25010:2011 standard defines the quality in use model with the following 5 first-level characteristics:

1. Effectiveness: accuracy and completeness with which users achieve specified goals
2. Efficiency: resources expended in relation to the accuracy and completeness with which users achieve goals
3. Satisfaction: the degree to which user needs are satisfied when a product or system is used in a specified context of use
4. Freedom from risk: the degree to which a product or system mitigates the potential risk to economic status, human life, health, or the environment
5. Context coverage: the degree to which a product or system can be used with effectiveness, efficiency, freedom from risk and satisfaction in both specified contexts of use and in contexts beyond those initially explicitly identified

The ISO/IEC 25010:2011 standard defines the product quality model with the following 8 first-level characteristics:

1. Functional suitability: the degree to which a product or system provides functions that meet stated and implied needs when used under specified conditions;
2. Usability: the degree to which a product or system can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use;
3. Reliability: the degree to which a system, product or component performs specified functions under specified conditions for a specified period of time;
4. Security: the degree to which a product or system protects information and data so that persons or other products or systems have the degree of data access appropriate to their types and levels of authorization;
5. Compatibility: Degree to which a product, system or component can exchange information with other products, systems or components, and/or perform its required functions, while sharing the same hardware or software environment;
6. Maintainability: This characteristic represents the degree of effectiveness and efficiency with which a product or system can be modified to improve it, correct it or adapt it to changes in environment, and in requirements;
7. Portability: Degree of effectiveness and efficiency with which a system, product or component can be transferred from one hardware, software or other operational or usage environment to another;
8. Performance efficiency: performance relative to the number of resources used under stated conditions.

The adoption of the ISO/IEC 25010 was useful for the design of the survey because its characteristics and sub-characteristics provide consistent terminology for specifying, measuring and evaluating system and software product quality, thus providing a consistent a logically organized framework.

### 2.3 Survey Target Groups and Sampling

The target of our survey are the users who participated in the Demonstration Cases including:

- People from ECHO consortium;
- Participants who joined the ECHO project during the course of the project;
- Possible external people interested in the assets of the ECHO project

The users of the survey are meant to be as diverse as possible in order to grasp a broad and complete view of the final results of E-EWS, E-FCR, E-CSF and E-CCS assets. We will tribute a particular attention to the input of people who were not directly involved in the development of the 4 assets, since their point of view is of great value in pointing out some issues that might have defied the assets developers in the design stage. A broad participation in the survey will be incentivized, making explicit to respondents the high value of their input for the improvement and refinement of E-EWS, E-FCR, E-CSF and E-CCS assets.

### 2.4 Scales and Level of Measurement

The questions that have been developed can be open-ended or closed-ended.

- For the open-ended questions, we give the respondent a number of lines to fill, expressing their thoughts regarding the question freely.
- For the closed-ended questions, we devised an ordinal scale depending on the question. The natural ordering of this expression naturally enforces a very intuitive encoding that allows for straightforward statistical evaluation of the answers.

## 2.5 Context and procedure of applying the questionnaires

Demonstration Cases are planned to begin in autumn 2021 and continue throughout 2022 and may be quite long in terms of duration (even several weeks). For this reason, we will deliver the survey to the participants of the Demonstration Cases in several steps.

In particular, we will deliver the general questions (in Section 3.1) and the Demonstration Cases specific questions (in Section 3.2) in the following way:

- Questions related to Demonstration Case #1 (in Section 3.2.1) immediately after its termination. If it is the first Demonstration Case, the general questions (in Section 3.1) will also be delivered;
- Questions related to Demonstration Case #2 (in Section 3.2.2) immediately after its termination. If it is the first Demonstration Case, the general questions (in Section 3.1) will also be delivered;
- Questions related to Demonstration Case #3 (in Section 3.2.3) immediately after its termination. If it is the first Demonstration Case, the general questions (in Section 3.1) will also be delivered;
- Questions related to Demonstration Case #4 (in Section 3.2.4) immediately after its termination. If it is the first Demonstration Case, the general questions (in Section 3.1) will also be delivered;
- Questions related to Demonstration Case #5 (in Section 3.2.5) immediately after its termination. If it is the first Demonstration Case, the general questions (in Section 3.1) will also be delivered.

After the end of all Demonstration Cases, questions related to user perception (in Section 3.3), asset improvements (in Section 3.4), user satisfaction (in Section 3.5) and exploitation (in Section 3.6) will be delivered.

We decided to implement the survey with Qualtrics<sup>2</sup>, an online survey tool that began by supporting the research needs of academics and companies which needed sophisticated questionnaires. Qualtrics (which SAP acquired in January 2019) is among the market leaders in implementing the survey. The direct question access of its user interface (UI), block-based questionnaire design, logical branching options, and Survey Flow overview option played a part in our decision in using this tool for our survey.

We expect users to complete the overall survey will take a maximum of 30 minutes.

The survey is available at the following link:

[https://maynoothpsychology.qualtrics.com/jfe/form/SV\\_cuR6Ta298WfV6qW](https://maynoothpsychology.qualtrics.com/jfe/form/SV_cuR6Ta298WfV6qW)

---

<sup>2</sup> <https://www.qualtrics.com>

### 3. Survey

The survey that will be delivered to the users participating in the Demonstration Cases is presented below.

#### 3.1 General questions

The aim of this section is to identify our target audience so that we can better evaluate the rest of the answers and use the data that we receive in the most efficient way. Collecting some initial information regarding the respondents is pivotal in assessing their feedback and opinion.

Particular attention was given to questions 8 and 9 as their answers will affect the questions presented in sections 3.3, 3.4, 3.5 and 3.6.

1. What is your job title? [Provide a textbox]
2. What is your industry? [Provide a textbox]
3. Which country do you work in? [Provide a textbox]
4. Which department do you work in? [Provide a textbox]
5. How many employees does your company have? [1-9/10-49/50-249/250-499/500 or more]
6. Does your organization have (or it is subscribed to) an Early Warning System (or a similar system) to coordinate and share cyber threat warning and incident data? [Yes/No] - [If the answer is Yes, nested questions:
  - a. How many professionals are involved in the Early Warning System (or similar) of your organization? [Provide a textbox]
  - b. How often is the Early Warning System (or similar) used in your organization? [Daily/At least once per week/At least once per month/At least once per 3 months/Less]
  - c. Which alternatives did you consider before using the Early Warning System (or similar) of your organization? [Provide a textbox for additional comments]
  - d. Which are the needs that your organisation's EWS is not covering with its features? [Provide a textbox for additional comments]
  - e. Which Early Warning System (or similar) feature do you use most often in your day-to-day? [Provide a textbox for additional comments]]
7. Does your organization have a Cyber Range or leverages on Cyber Range services provided by a third party? [If the answer is Yes, nested questions:
  - a. How many professionals are involved in the Cyber Range of your organization? [Provide a textbox]
  - b. How often is the Cyber Range used by your organization? [Daily/At least once per week/At least once per month/At least once per 3 months/Less]
  - c. How critical is the use of Cyber Range for your organization? [Scale 1-10 where 10 is the most critical]
  - d. What are the needs you think are missing in the Cyber Range of your organization or the third party? [Provide a textbox for additional comments]
  - e. For what purposes is the Cyber Range of your organization or the third party being used? [Provide a textbox for additional comments]]



- f. Which Cyber Range feature do you use most often in your day-to-day? [Provide a textbox for additional comments]
8. Did you actively participate in the development of the E-EWS? [Yes/No]
9. Did you actively participate in the development of the E-FCR? [Yes/No]

### 3.2 Demonstration Cases specific questions

The aim of this section is to evaluate the functionalities tested in the Demonstration Cases so that we can fix any errors/lacks found.

Particular attention was given to the first question of each subsection (3.2.1, 3.2.2, 3.2.3, 3.2.4 and 3.2.5) as their answers will affect the questions presented in sections 3.4, 3.5 and 3.6.

#### 3.2.1 DC #1 E-EWS reference library exchange

1. Did you participate in Demonstration Case #1? [Yes/No] [If the answer is Yes, nested questions:
  - a. Do you think the quality (completeness, consistency, accuracy, validity, timeliness) of threat intelligence data collected by E-EWS is enough for your needs? [Yes/No] - [if No provide a textbox for additional comments]
  - b. Did you find it easy to add additional data sources? (i.e. specific plugin) [scale 1-10]
  - c. Which important data sources should be added? [Provide a textbox]
  - d. To what extent has the E-EWS addressed any relevant gaps in your organization when it comes to information sharing? [1-10 scale]
  - e. How do you rate the value added of reference library exchange with other organizations? (exchange of ticket/warning including references) [scale 1-10]
  - f. How do you rate the usability of E-EWS reference library? [scale 1-10]
  - g. How do you rate the usability of E-EWS Wiki? [scale 1-10]

#### 3.2.2 DC #2 E-EWS cyber incident coordination and response

1. Did you participate in Demonstration Case #2? [Yes/No] [If the answer is Yes, nested questions:
  - a. How many features of EWS did you use in the demonstration? [scale 1-10, 1=just explore the UI but not sure if I understand how it works, 5= I understand the basic features and value, 10= I used all capabilities of the tool in full]
  - b. Do you see the value added of integrating E-EWS in cyber incident and response processes of your organization? [scale 1-10]
  - c. Do you think that E-EWS can help your organization to address potential cyber threats/vulnerabilities quicker? [scale 1-10]
  - d. Do you think that E-EWS can help your organization to address potential cyber threats/vulnerabilities more effectively? [scale 1-10]
  - e. How do you rate the usability of E-EWS Ticket creation and exchange for incident coordination and response? [scale 1-10]
  - f. How do you rate the usability of E-EWS Warning creation and exchange for incident coordination and response? [scale 1-10]

- g. Did you find obstacles in creating E-EWS Tickets and sharing them with partners? [Yes/No]  
- [if Yes provide a textbox for additional comments]
- h. Did you find obstacles in creating E-EWS Warnings and sharing them with partners?  
[Yes/No] - [if Yes provide a textbox for additional comments]

### 3.2.3 DC #3 E-FCR use for cyberskills education and training/exercising

1. Did you participate in Demonstration Case #3? [Yes/No] [If the answer is Yes, nested questions:
  - a. Did you participate in the Demonstration Case #3 as a learner? [Yes/No] [If the answer is Yes, nested questions:
    - i. Did you find the type of cyber skill education you were looking for in E-FCR? [Yes/No]  
- [if Yes, describe which cyber education skill is the most wanted. if No provide a textbox for additional comments]
    - ii. How easy was it to find the solution you were looking for? [1-10 scale]
    - iii. Was the connection to the cyber range of the selected provider successful? [Yes/No]  
- [if No provide a textbox for additional comments]
    - iv. Do you think that the use of E-FCR can improve generation of relevant cyber skills in your organization? [Yes/No] - [if No provide a textbox for additional comments]
    - v. Do you think that E-FCR functionalities can help your organization to address to the operational competence (scenario-action-tactical & decision-making competence)? [Yes/No] - [if No provide a textbox for additional comments]
    - vi. To what extent are the training cyber range scenarios in the Health Care sector relevant to your needs? [1-10 scale]
    - vii. Do you think the software tools used for Health Care training scenarios implementation have been suited to the training objectives? [1-10 scale]
    - viii. Do you think the Guidelines for Health Care training scenarios implementation were detailed and adequate to the training objectives? [Yes/No] - [if No provide a textbox for additional comments]
    - ix. To what extent are the training cyber range scenarios in the Energy sector relevant to your needs? [1-10 scale]
    - x. Do you think the software tools used for Energy training scenarios implementation have been suited to the training objectives? [1-10 scale]
    - xi. Do you think the Guidelines for Energy training scenarios implementation were detailed and adequate to the training objectives? [Yes/No] - [if No provide a textbox for additional comments]
    - xii. To what extent are the training cyber range scenarios in the Maritime sector relevant to your needs? [1-10 scale]
    - xiii. Do you think the software tools used for Maritime training scenarios implementation have been suited to the training objectives? [1-10 scale]
    - xiv. Do you think the Guidelines for Maritime training scenarios implementation were detailed and adequate to the training objectives? [Yes/No] - [if No provide a textbox for additional comments]
  - b. Did you participate in the Demonstration Case #3 as a training provider? [Yes/No] [If the answer is Yes, nested questions:

- i. Are the services returned through the E-FCR informative enough in terms of price and description? [Yes/No] - [if No provide a textbox for additional comments]
- ii. Were you satisfied enough with the negotiation process with the Service Provider? [Yes/No] - [if No provide a textbox for additional comments]
- iii. Was the connection to the cyber range of the selected provider successful? [Yes/No] - [if No provide a textbox for additional comments]
- iv. To what extent is the Health Care cyber range infrastructure proper for the training scenarios implementation? [1-10 scale]
- v. Do you think the software tools used for Health Care training scenarios implementation have been suited to the training objectives? [1-10 scale]
- vi. Do you think the Guidelines for Health Care training scenarios implementation were detailed and adequate to the training objectives? [Yes/No] - [if No provide a textbox for additional comments]
- vii. To what extent the Health Care cyber range infrastructure is proper for the knowledge and skills of the participants?
- viii. To what extent is the Energy cyber range infrastructure proper for the training scenarios implementation? [1-10 scale]
- ix. Do you think the software tools used for Energy training scenarios implementation have been suited to the training objectives? [1-10 scale]
- x. Do you think the Guidelines for Energy training scenarios implementation were detailed and adequate to the training objectives? [Yes/No] - [if No provide a textbox for additional comments]
- xi. To what extent the Energy cyber range infrastructure is proper for the knowledge and skills of the participants?
- xii. To what extent is the Maritime cyber range infrastructure proper for the training scenarios implementation? [1-10 scale]
- xiii. Do you think the software tools used for Maritime training scenarios implementation have been suited to the training objectives? [1-10 scale]
- xiv. Do you think the Guidelines for Maritime training scenarios implementation were detailed and adequate to the training objectives? [Yes/No] - [if No provide a textbox for additional comments]
- xv. To what extent the Maritime cyber range infrastructure is proper for the knowledge and skills of the participants?]]]

#### 3.2.4 DC #4 E-FCR use for cybersecurity certification of new technologies

1. Did you participate in Demonstration Case #4? [Yes/No] [If the answer is Yes, nested questions:
  - a. Did you find the type of certification services (in the E-FCR) you were looking for? [Yes/No] - [if No provide a textbox for additional comments]
  - b. How easy was it to find the cyber range service you were looking for? [1-10 scale]
  - c. Are the services information returned through the E-FCR informative enough in terms of price, and description? [Yes/No] - [if No provide a textbox for additional comments]
  - d. Were you satisfied enough with the negotiation process with the Service Provider via the E-FCR? [Yes/No] - [if No provide a textbox for additional comments]

- e. What product categories do you need to certify? [Provide textbox]
- f. Do you think the threats identified to build the Protection Profile of your product are exhaustive? [Yes/No] - [if No provide a textbox for additional comments]
- g. Do you think we need to consider other international EU schemes or standards? [Yes/No] - [if Yes provide a textbox for additional comments]
- h. Do you think the defined Assurance Levels are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- i. Do you think we need to consider other evaluation standards? [Yes/No] - [if Yes provide a textbox for additional comments]
- j. Do you think the evaluation criteria are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- k. Do you think the information to be supplied to the conformity assessment bodies for certification is enough? [Yes/No] - [if No provide a textbox for additional comments]
- l. Do you think the rules for marks and labels are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- m. Do you think the rules for condition of use of labels are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- n. Do you think the rules for monitoring compliance are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- o. Do you think the rules for issuing a certificate are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- p. Do you think the rules for renewing a certificate are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- q. Do you think the rules for extend the scope of a certificate are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- r. Do you think the rules for reduce the scope of a certificate are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- s. Do you think the rules for non-conformity are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- t. Do you think the rules relating vulnerabilities management are suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]
- u. Do you think the retention period of certification information is suitable for the product categories of your sector? [Yes/No] - [if No provide a textbox for additional comments]

### 3.2.5 DC #5 E-FCR use for R&D activities of the technology roadmaps

1. Did you participate in Demonstration Case #5? [Yes/No] [If the answer is Yes, nested questions:
  - a. Did you find the type of service/technology you were looking for future development or research purposes in E-FCR? [Yes/No] - [if No provide a textbox for additional comments]
  - b. How easy was it to find the solution you were looking for? [1-10 scale]
  - c. Are the services returned through the E-FCR informative enough in terms of price and description? [Yes/No] - [if No provide a textbox for additional comments]
  - d. Were you satisfied enough with the negotiation process with the Service Provider via the E-FCR? [Yes/No] - [if No provide a textbox for additional comments]

- e. Was the connection to the cyber range of the selected provider successful? [Yes/No] - [if No provide a textbox for additional comments]
- f. Were you satisfied with the implementation of the network topology in the selected cyber range before and then the instantiation of the targeted scenario environment? [Yes/No] - [if No provide a textbox for additional comments]
- g. Did you notice any gaps in the cybersecurity tools used (i.e. gaps relating to scanning the network to identify open ports and vulnerabilities on these open ports)? [Yes/No] - [if Yes provide a textbox for additional comments. Please specify which tool(s)]
- h. Do you think we should add new features to the cybersecurity tools used? [Yes/No] - [if Yes provide a textbox for additional comments. Please specify which tool(s)]
- i. Do you think the cybersecurity tools used to support your R&D activity could be useful to your organization for other purposes (vulnerability assessment, pen testing, etc.)? [Yes/No] - [if Yes provide the 3 tools in a multiple choice list to identify which one(s) would they use. If No provide a textbox for additional comments]]

### 3.3 User's perception

The aim of this section is to understand what are the user's perceptions from users who were not involved in the developments of the E-EWS and E-FCR assets. As a result, this survey aims to shed light upon the perceptions of the users and their experience while using the E-EWS and the E-FCR. The results of this section will be utilised in improving the effectiveness of the prototype and enhancing the quality of the E-EWS and E-FCR assets in terms of cybersecurity and user friendliness.

If the user was not involved in the development of the E-EWS (he/she answered "No" to question 8 of section 3.1), ask the following questions:

1. What comes to your mind when thinking about the E-EWS? [Provide a textbox]
2. If you review the E-EWS with a score from 1 to 10, what score would you give us? [scale 1-10]
3. In a few words, why did you rate E-EWS this way? [Provide a textbox]
4. What was your first impression when you entered the E-EWS? [Provide a textbox]
5. What were your expectations before trying the E-EWS? [Provide a textbox]
6. Does the E-EWS match your expectations and needs for such a kind of product? [Yes/No/Partially] [If No or Partially, provide a textbox for additional comments]

If the user was not involved in the development of the E-FCR (he/she answered "No" to question 9 of section 3.1), ask the following questions:

1. What comes to your mind when thinking about the E-FCR? [Provide a textbox]
2. If you review the E-FCR with a score from 1 to 10, what score would you give us? [scale 1-10]
3. In a few words, why did you rate E-FCR this way? [Provide a textbox]
4. What was your first impression when you entered the E-FCR? [Provide a textbox]
5. What were your expectations before trying the E-FCR? [Provide a textbox]
6. Does the E-FCR match your expectations and needs for such a kind of product? [Yes/No/Partially] [If No or Partially, provide a textbox for additional comments]

### 3.4 Asset improvements

The aim of this section is to improve the E-EWS and E-FCR assets through customer feedback. Thus, the questions are related with the existing features and the further improvement of them. Finally, the results will be used in order to enhance the quality and the effectiveness of the 2 assets.

If the user was involved in at least one of Demonstration Case 1 and 2 (he/she answered "Yes" to question 1 of sections 3.2.1 or 3.2.2) or was involved in the development of the E-EWS (he/she answered "Yes" to question 8 of section 3.1), ask the following questions:

1. Which features of E-EWS are most important to you? [provide a textbox for additional comments]
2. Which features of the E-EWS are least important to you? [provide a textbox for additional comments]
3. What are the most important features you think we should add in E-EWS? [provide a textbox for additional comments]
4. If you could change one thing about the E-EWS what would it be and why? [provide a textbox for additional comments]
5. Do you have any other comments, suggestions or concerns which can help us to improve the E-EWS? [provide a textbox for additional comments]
6. Do you have any privacy concerns regarding the usage of E-EWS? [Yes/No] - [if Yes provide a textbox for additional comments]

If the user was involved in at least one of Demonstration Case 3, 4 and 5 (he/she answered "Yes" to question 1 of sections 3.2.3, 3.2.4 or 3.2.5) or was involved in the development of the E-FCR (he/she answered "Yes" to question 9 of section 3.1), ask the following questions:

1. Which features of E-FCR are most important to you? [provide a textbox for additional comments]
2. Which features of the E-FCR are least important to you? [provide a textbox for additional comments]
3. What are the most important features you think we should add in E-FCR? [provide a textbox for additional comments]
4. If you could change one thing about the E-FCR what would it be and why? [provide a textbox for additional comments]
5. Do you have any other comments, suggestions or concerns which can help us to improve the E-FCR? [provide a textbox for additional comments]
6. Do you have any privacy concerns regarding the usage of E-FCR? [Yes/No] - [if Yes provide a textbox for additional comments]

### 3.5 User satisfaction

The aim of this section is to understand how satisfied a user is with the E-EWS and E-FCR assets. As a result, this survey aims to shed light upon the perceptions of the users and their experience while using these assets. The results of this section will be utilised in improving the effectiveness of the prototypes and enhancing the quality of the 2 assets in terms of cybersecurity and user friendliness.

If the user was involved in at least one of Demonstration Case 1 and 2 (he/she answered "Yes" to question 1 of sections 3.2.1 or 3.2.2) or was involved in the development of the E-EWS (he/she answered "Yes" to question 8 of section 3.1), ask the following questions:

1. Overall, how satisfied are you with E-EWS? [Very dissatisfied, Unsatisfied, Neutral, Satisfied, Very satisfied]
2. How satisfied are you with the security of E-EWS? [Very dissatisfied, Unsatisfied, Neutral, Satisfied, Very satisfied] - [provide a textbox for short description/feedback]
3. How satisfied are you with the look and feel of E-EWS? [Very dissatisfied, Unsatisfied, Neutral, Satisfied, Very satisfied] - [provide a textbox for short description/feedback]
4. Are you satisfied with the overall usage of E-EWS? [Yes/No] - [If the answer is No, nested question: Would you require an additional user manual? [Yes/No]]
5. Did you encounter any bugs during operation in E-EWS? [Yes/No] - [If Yes provide a textbox for additional comments]
6. Would you recommend the E-EWS product? [Yes/No] - [If No provide a textbox for additional comments]
7. How likely are you to use the E-EWS again? [Definitely, Very Probably, Probably, Probably Not, Definitely Not]

If the user was involved in at least one of Demonstration Case 3, 4 and 5 (he/she answered "Yes" to question 1 of sections 3.2.3, 3.2.4 or 3.2.5) or was involved in the development of the E-FCR (he/she answered "Yes" to question 9 of section 3.1), ask the following questions:

1. Overall, how satisfied are you with E-FCR? [Very dissatisfied, Unsatisfied, Neutral, Satisfied, Very satisfied]
2. How satisfied are you with the security of E-FCR? [Very dissatisfied, Unsatisfied, Neutral, Satisfied, Very satisfied] - [provide a textbox for short description/feedback]
3. How satisfied are you with the look and feel of E-FCR? [Very dissatisfied, Unsatisfied, Neutral, Satisfied, Very satisfied] - [provide a textbox for short description/feedback]
4. Are you satisfied with the overall usage of E-FCR? [Yes/No] - [If the answer is No, nested question: Would you require an additional user manual? [Yes/No]]
5. Did you encounter any bugs during operation in E-FCR? [Yes/No] - [If Yes provide a textbox for additional comments]
6. Would you recommend the E-FCR product? [Yes/No] - [If No provide a textbox for additional comments]
7. How likely are you to use the E-FCR again? [Definitely, Very Probably, Probably, Probably Not, Definitely Not]

### 3.6 Exploitation questions

The aim of this section is to understand how it is possible to exploit the E-EWS and E-FCR assets from a commercial point of view after the end of the ECHO project.



If the user was involved in at least one of Demonstration Case 1 and 2 (he/she answered "Yes" to question 1 of sections 3.2.1 or 3.2.2) or was involved in the development of the E-EWS (he/she answered "Yes" to question 8 of section 3.1), ask the following questions:

1. How innovative would you describe E-EWS? [Very Low, Low, Normal, High, Very High]
2. Have you ever used tools similar to the E-EWS? [Yes/No] - [If the answer is Yes, nested question: How do E-EWS differentiate from any similar tools that you have used? [Very Low, Low, Normal, High, Very High] - [provide a textbox for short description/explanation]]
3. What additional use case would you like to use the E-EWS product for? [Provide a textbox to suggest possible uses]
4. Specify which versions of commercial/marketing packages are considered applicable to E-EWS? [1. Single package, including all modules, 2. Individual packages, per module, 3. Basic package, including certain modules considered essential with additional module options. 4. Other version of packaging] - [multiple choice with additional textbox for answer 4]
5. Specify which licensing version you consider applicable for the E-EWS? [1. License for product / modules plus periodic subscriptions, 2. Licensing per subscription, no license for product, 3. Other licensing method] - [multiple choice with additional textbox for answer 3]
6. Specify which deployment models you consider applicable to E-EWS? [1. Deployment on-site, 2. Deployment on cloud, 3. Deployment to a partner/reseller with remote access to the instance deployed by the client. 4. Other variants] - [multiple choice with additional textbox for answer 4]
7. Specify how you see the sales chain for E-EWS? [1. A single point of sale at ECHO level, 2. Network of resellers (ECHO partners), 3. Network of resellers (inside and outside the ECHO ecosystem), 4. Other option] - [multiple choice with additional textbox for answer 4]
8. If an E-EWS instance is used to deliver services to multiple clients, do you consider that the entity hosting this instance must go through a validation/certification process as an E-EWS service provider? [Yes/No] - [If No provide a textbox for additional comments]

If the user was involved in at least one of Demonstration Case 3, 4 and 5 (he/she answered "Yes" to question 1 of sections 3.2.3, 3.2.4 or 3.2.5) or was involved in the development of the E-FCR (he/she answered "Yes" to question 9 of section 3.1), ask the following questions:

1. How innovative would you describe E-FCR? [Very Low, Low, Normal, High, Very High]
2. Have you ever used tools similar to the E-FCR? [Yes/No] - [If the answer is Yes, nested question: How do E-FCR differentiate from any similar tools that you have used? [Very Low, Low, Normal, High, Very High] - [provide a textbox for short description/explanation]]
3. What additional use case would you like to use the E-FCR product for? [Provide a textbox to suggest possible uses]



## 4. Conclusions

The document reports a collection of questions that will be delivered through an online survey to the participants of the ECHO Demonstration Cases and the final demonstration workshops.

The key assets which will be evaluated in WP8 demonstration cases will be the: (1) E-EWS and its plugins (2) E-FCR (connected to a set of ECHO cyber ranges), (3) E-CSF, (4) E-CCS and (5) Prototypes but in the context of this document only the E-EWS, E-FCR, E-CSF and E-CCS are considered (since its scope, from the [GA], is E-EWs and E-FCR).

A total of five demonstration cases will be conducted, as planned in the Grant Agreement. The needs and objectives of these Demonstration Cases are detailed in D8.1, Sections 5-9.

The objectives of the survey described in this document are to determine:

- the effectiveness of the ECHO Early Warning System (E-EWS) and ECHO Federated Cyber Range (E-FCR) and understand if they meet the market needs and what features should be improved further.
- Determine the degree of maturity and applicability of other ECHO assets demonstrated in relation to E-FCR and fix any gaps by the end of the ECHO project.

Demonstration Cases are planned to begin in autumn 2021 and continue throughout 2022. For this reason, the delivery of the survey will take place in several steps, as described in section 2.5. The form of demonstrations may differ depending on whether they will be held in the form of physical or online events. Therefore survey questions may need to be adjusted to convey the structure of the demonstrations accordingly.

Feedback from participants will be collected, analysed and summarised in *D8.4 Completed E-EWS and E-FCR demonstration surveys* in October 2022.

The results of the Demonstration Cases will be reported in *D8.6 ECHO demonstration report* at the end of the project in January 2023.