

CAMS AERosol Advancement



CAMAERA

D11.3 Plan for the exploitation and dissemination of results including communication activities

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CAMS AERosol Advancement

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1 Executive Summary

The project's dissemination and exploitation activities is a crucial element in the success of the CAMAERA project, as they ensure that results are taken up by the wider community and are sustainable beyond the initial funding period, thus providing value for money.

This deliverable (D11.3) provides the starting point for both dissemination and exploitation in the project.

The Dissemination Plan identifies instruments and targets. These include activities organised by CAMAERA (including workshops, website, news items, etc.) as well as important events attended by CAMAERA members (i.e. workshops, conferences, seminars, etc.).

The present deliverable also provides the potential exploitation avenues in terms of outputs as well as respective exploitation activities during and after the end of the project, thus fulfilling the requirements of the DoA.

The Dissemination and Exploitation Plans are to be considered living documents as new avenues might become important to the project over its lifetime. Thus, both will be updated regularly as the need arises.

A mid-term Dissemination and Exploitation Report (Month 18) will provide an update of the dissemination and exploitation activities, whilst a final Dissemination and Exploitation Report with detailed descriptions of dissemination activities, exploitable results and related activities will be produced towards the end of the project (Month 36).

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2 Introduction

2.1 Background

2.1.1 CAMS-related projects

Monitoring the composition of the atmosphere is a key objective of the Copernicus programme. The Copernicus Atmosphere Monitoring Service (CAMS) combines satellite observations with numerical modelling by means of data assimilation and inversion techniques to turn the content of Earth-Observation data into information products that address some of today's major societal topics.

The CAMS EvOLution (CAMEO) project, led by ECMWF, contributes to the medium- to long-term evolution of the CAMS production systems and products, with emphasis on data-assimilation capabilities and uncertainty estimations of CAMS products. CAMEO tackles some challenges for enhancing the quality and service efficiency.

The HORIZON Europe-funded CAMS AERosol Advancement (CAMAERA) project aims at providing strong improvements of the aerosol modelling capabilities of the regional and global CAMS systems, on the assimilation of new sources of data, and on a better representation of secondary aerosols and their precursor gases.

The overall goal is to enhance the quality of key products of the CAMS service such as PM_{2.5}, PM₁₀ and therefore help CAMS to monitor air pollutants. To achieve this purpose, CAMAERA develops new prototype service elements of CAMS, beyond the current state-of-the-art, and complements research topics addressed in the CAMEO project.

CAMAERA will upgrade and improve the aerosol and precursor gases modelling capabilities of the global and regional CAMS systems, focusing on key topics such as dust emissions and secondary organic aerosols.

CAMAERA will test the assimilation of new streams of data, allowing for a better constraint of the simulated state of the composition of the atmosphere.

CAMAERA will contribute to the medium- to long-term evolution of the CAMS production systems and products.

The transfer of developments from CAMAERA into subsequent improvements of CAMS operational service elements is a main driver for the project and is the main pathway to impact for CAMAERA.

The CAMAERA consortium, led by HYGEOS, includes all of the partners operating the regional and global CAMS systems, as well as most of partners contributing to the development and upgrade of these systems. This allows CAMAERA developments to be carried out directly within the CAMS production systems and facilitates the transition of CAMAERA results to future upgrades of the CAMS service.

This will maximise the impact and outcomes of CAMAERA as it can make full use of the existing CAMS infrastructure for data sharing, data delivery and communication, thus supporting policymakers, business and citizens with enhanced atmospheric environmental information.

2.2 Scope of this deliverable

2.2.1 Objectives of this deliverables

This deliverable 11.3 provides the Dissemination and Exploitation Plan.

The Dissemination Plan uses the project website (D11.2) and identifies instruments and targets for dissemination, including important conferences, journals, and events.

The Exploitation Plan initiates the exploitation work within the CAMAERA project by identifying initial exploitation routes and innovation ideas. The deliverable summarises, in a first version, the general project aims. Subsequent versions will include feedback from CAMAERA partners on their exploitation intentions as well as ideas for joint exploitation, where possible.

2.2.2 Work performed in this deliverable

In this deliverable the work outlined in The Description of Action WP11 T11.4 was performed. The aim being to “outline the dissemination activities as well as identify the potential for exploitation and their routes”.

The initial version of this document will summarise the aims at project commencement. Feedback from the partners pertaining to both dissemination and exploitation will be garnered throughout the project and be presented in the interim reports planned at months 9 and 27 of the project.

2.2.3 Deviations and counter measures

No deviations have been encountered.

2.2.4 Reference Documents

[1] Project: 101134927 — CAMAERA — HORIZON-CL4-2023-SPACE-01

2.2.5 CAMAERA Project Partners:

(Participant number order)

HYGEOS SARL (HYGEOS),

NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO (TNO),

RESEARCHCONCEPTS IO GMBH (RC.io),

METEOROLOGISK INSTITUTT (METNorway),

KONINKLIJK NEDERLANDS METEOROLOGISCH INSTITUUT-KNMI (KNMI),

ILMATIETEEN LAITOS (FMI),

BARCELONA SUPERCOMPUTING CENTER CENTRO NACIONAL DE SUPERCOMPUTACION (BSC CNS),

EUROPEAN CENTRE FOR MEDIUM-RANGE WEATHER FORECASTS (ECMWF),

METEO-FRANCE (METEO-FRANCE),

INSTYTUT OCHRONY SRODOWISKA - PANSTWOWY INSTYTUT BADAWCZY (IOS-PIB),

CAMAERA

FORSCHUNGSZENTRUM JULICH GMBH (FZJ),
AARHUS UNIVERSITET (AU),
SVERIGES METEOROLOGISKA OCH HYDROLOGISKA INSTITUT (SMHI),
AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO
SVILUPPO ECONOMICO SOSTENIBILE (ENEA),
INSTITUT NATIONAL DE L ENVIRONNEMENT INDUSTRIEL ET DES RISQUES
- INERIS (INERIS),

3 Project Communication & Dissemination

3.1 Internal & External Communication Channels

A restricted web-based environment (NextCloud collective space) has been set up at HYGEOs that includes a document repository and acts as the project's collaborative platform. The CAMAERA Website acts as the main location to showcase all project information and outputs. The details of the website architecture are described in D11.2.

3.2 EU funding acknowledgement & Disclaimer

Dissemination of results (including public and confidential deliverables, conference/workshop presentations, journal papers, and any type of information or promotional material) must display the EU emblem (see below "European Commission visual identity"); and include the following text:

"The CAMAERA project (Grant Agreement N°101134927) is funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Commission. Neither the European Union nor the granting authority can be held responsible for them."

When displayed together with another logo, the EU emblem must remain distinct and separate and cannot be modified by adding other visual marks, brands or text. For the purposes of their obligations under Article 17 of the Grant Agreement, the beneficiaries may use the EU emblem without first obtaining approval from the Commission. This does not however give them the right of exclusive use. Moreover, they may not appropriate the EU emblem or any similar trademark or logo, either by registration or by any other means.

In addition, any publication, presentation, poster etc. needs to include the project logo, the EU Emblem and the above statement. These logos and statement are accessible to all partners on the internal pages of CAMAERA's NextCloud's collective space (<https://docs.hygeos.com/apps/collectives/p/GZiwRPbcHJfaNgW/CAMAERA>).

The project coordinator, HYGEOs, has provided presentation and poster (PowerPoint) templates and Deliverable (Word) templates to the consortium partners that fulfil the above-mentioned requirements.

4 The Dissemination Plans

As per the DoA, CAMAERA dissemination activities are designed in T11.4. It will provide the dissemination, communication, and exploitation activities. In a first step, a Dissemination and Exploitation Plan are developed, outlining the dissemination activities as well as identifying the potential for exploitation and their routes. In addition, a dedicated Media and Communication Plan is developed, outlining communication objectives, channels (including relevant social media channels), audiences and approach and providing scripts and templates for communication. The task will develop and maintain the project website as the main project dissemination route. The task will also develop and maintain the Data Management Plan according to the Horizon Europe Data Management Template.

CAMAERA dissemination activities are designed around providing/disseminating information to the scientific communities and relevant stakeholders in three areas:

1. Scientific and technical results through
 - a. Scientific Publications
 - b. Conference Talks
 - c. Organised Workshops, providing updates on the project results
 - d. Reports to and feedback from Committees and Boards
2. Products through dissemination of
 - a. Datasets and accompanying material (e.g. descriptions, meta data)
 - b. Algorithms / Specifications
 - c. Graphics and animations
3. Progress information through provision of
 - a. News items
 - b. Public Deliverables
 - c. Dissemination Materials (brochures, posters, flyers)
 - d. Website and social media ((X/Twitter, LinkedIn)

The following table provides information on the CAMAERA Dissemination (and Communication) Targets.

Table 1: Dissemination Targets

Target audience	Communication/ Dissemination Means	Responsibility
European Commission, EU Member States (incl. policy makers)	Dissemination: – Workshops and resulting reports Communication: – Project news – Tailored updates on the results – CAMAERA website	HYGEOS with support from all partners
Scientific community	Dissemination: – Peer-reviewed scientific papers – CAMAERA website – Workshops – Conferences Communication – News items	All partners
Satellite agencies, technology providers	Dissemination – CAMAERA website Communication – Targeted publication material	All partners

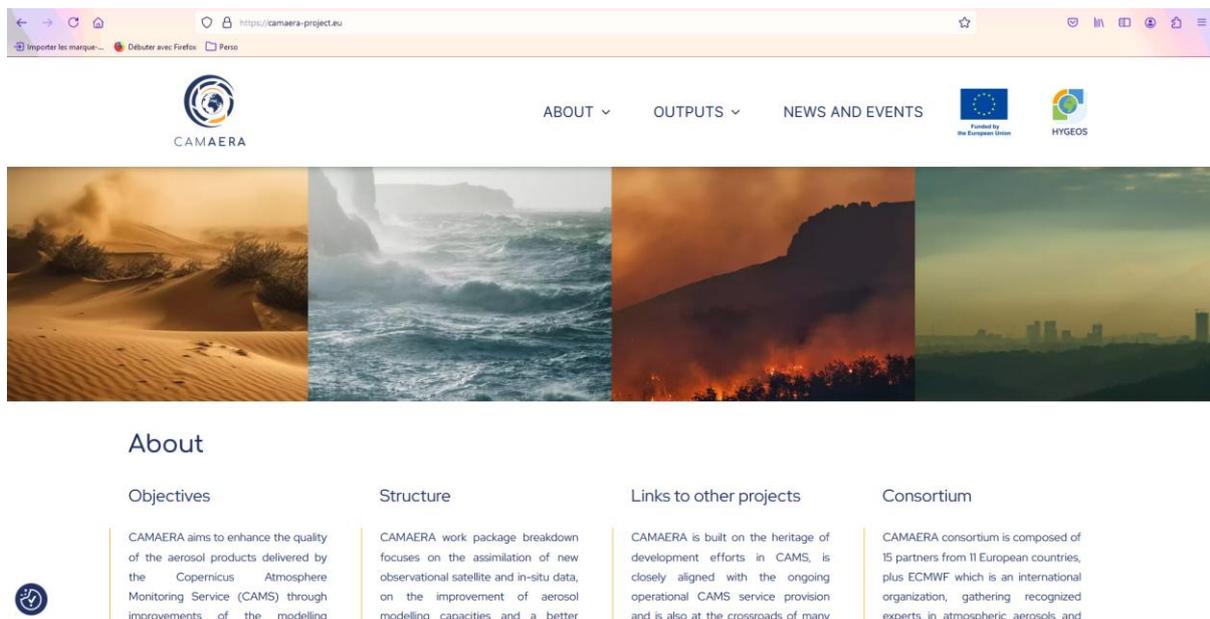
	<ul style="list-style-type: none"> – Link with relevant H2020, Horizon Europe, and other initiatives – Representation at relevant conferences and fairs – News items 	
General public	<p>Communication</p> <ul style="list-style-type: none"> – General Information Material – CAMAERA website – Project news/ News items – Dissemination Material – Press releases 	HYGEOS with support from all partners and in close collaboration with the European Commission (HaDEA).

4.1 Dissemination Instruments

This subsection provides an overview of the instruments used for dissemination.

4.1.1 CAMAERA Website

The CAMAERA website (<https://camaera-project.eu/>) serves as the main dissemination instrument for the project. It contains various sections both for the general public as well as specifically targeted towards stakeholders including the scientific community.



The CAMAERA website provides access to information on the progress of the project. All deliverables that are published in the form of reports will be hosted on the website. A news slot on the website will draw attention to highlights such as new data deliveries and reports, eye-catching developments, and so forth, when they become available.

Important information of general interest will be published on the CAMAERA website, including the project status on milestones and deliverables. Further details are provided in the CAMAERA deliverable D11.2 Project Website.

Reports will be openly available from the public pages of the central CAMAERA website. To increase its visibility, the CAMAERA website will be linked on the websites CAMEO and ideally the CAMS website <https://camaera-project.eu/links-to-other-projects/>

4.1.2 Journals, Conferences and Workshops

Strong engagement with the academic sector and national meteorological agencies will promote the work performed in CAMAERA and at the same time follow the scientific developments taking place outside the consortium. This exchange of information and knowledge will be realised through attendance of scientific conferences, organisation of sessions devoted to CAMAERA and related topics at relevant scientific conferences (e.g., EGU, AEROCOM, ICAP), and by the general process of CAMAERA scientists attending and presenting seminars and engaging in discussion at universities and research institutes. Conferences and Workshops of interest for CAMAERA include, but are not limited to:

- European Geoscience Union General Assembly
- [American Geophysical Union Fall Meetings](#)
- WMO/WCRP/ WWRP reanalysis conference
- ECMWF Machine learning workshop
- GEIA (Global Emission Initiative) <https://www.geiacenter.org/>
- IGAC (International Global Atmospheric Chemistry) <https://igacproject.org/>

Publication in open-access scientific journals will play a major role as this allows a rigorous peer-review to take place, ensuring that CAMAERA results are relevant to the community. Relevant Journals include:

- Geoscientific Model Development (GMD) - <https://www.geoscientific-model-development.net/>
- Atmospheric Chemistry and Physics (ACP) - <https://www.atmospheric-chemistry-and-physics.net/>

It is envisaged that over the course of the project, and for up to one year after project closure, a minimum of 3 peer-reviewed, co-authored (journal) publications will be produced covering the topics of the scientific-technical work packages of the CAMAERA project (WPs 1 to 10). In addition, regular conference and workshop publications and attendance with talks on topics from CAMAERA will complement these publications.

4.1.3 Scientific Committees

The representation of HYGEOS and project partners in international committees will be used as a channel for disseminating CAMAERA results and output in the weather and climate prediction communities, in particular to support of the CAMS capacity.

Scientific results from CAMAERA will be conveyed to international programmes and bodies such as the World Climate Research Programme (WCRP), WMO-IG3IS, GEIA and IGAC. Finally, progress and results will be directly shared with the European Commission.

4.2 Other Instruments

Other instruments used by the CAMAERA project to disseminate its results include:

- Web / Wiki pages
- Dissemination of information through relevant social medias (X/Twitter, LinkedIn),
- Linked communication with the CAMS communication sites,

CAMAERA

- Overview of project results in partners' newsletters.

Our social media communication strategy centers on LinkedIn. The HYGEOS LinkedIn account will publish posts corresponding to each update of the CAMAERA website, corresponding to event, results, etc. In order to increase the audience of these LinkedIn posts, ECMWF (Mark Parrington and Rafael Cereceda, responsible for CAMS communication at ECMWF) and HaDEA have agreed to reshare them.

Other instruments also include ad-hoc and planned interactions and liaison with relevant international research activities, such as Horizon Europe projects, as well as the relevant Copernicus Services, CAMS and CAMEO with their annual General Assemblies.

The products of CAMAERA will comprise reports, graphical displays, datasets and improved methods, algorithms and code. Their content and access policy will be detailed in the Data Management Plan (D11.4). All these elements have their own important role. Reports are targeted at informing CAMS on assessments, innovation progress and future directions. Graphical displays, where applicable, are targeted at all users as supportive information for the various model runs, method comparisons, and input datasets. The datasets will also target a wide user community to support them with parallel or alternative studies. Finally, improved methods, algorithms and code are meant to form the basis for follow-on development after the CAMAERA project has finished.

Reports will be openly available from the public pages of the central CAMAERA website. To increase its visibility, the CAMAERA Website will be linked to the websites of ECMWF, CAMS and other partners.

The data outputs will be made available, subject to the Data Management Plan.

5 Exploitation Plan

Exploitation has various intentions, though in the context of Horizon Europe projects these activities are geared towards increasing the impact of their project results, notably:

- They must share publicly research results with the scientific community, commercial players, civil society and policymakers ('dissemination').
- They must use their best efforts to exploit their results directly or to have them exploited indirectly by another entity – notably the use of results in further research and innovation activities other than those covered by the action concerned, ('exploitation')

Dissemination and exploitation are a requirement of the CAMAERA GA (Article 17 - Communication, Dissemination and Visibility), and provide a route for the use of results that ultimately:

- Lead to new legislation or recommendations
- For the benefit of innovation, the economy and the society
- Help to tackle a problem and respond to an existing demand

Both dissemination and exploitation activities need to adhere to fair and reasonable conditions.

5.1 Exploitation Targets

The CAMAERA Description of Action states the following with respect to exploitation:

“The important outputs of CAMAERA are the various **detailed designs and prototype components as well as best estimates of dust emissions**. Although various developments within CAMAERA will be based on pre-existing technology and will be realised through developing integrated technology, these developments will be shared publicly through proper documentation, either through public project documents or through articles in the peer-reviewed literature. Sharing this information publicly will support the implementation of the future CAMS elements, which is normally done through competitive Invitations To Tender. In addition, some data sets will be created, and these will be provided on data servers without any restrictions, as described above. Therefore, the **wider science community as well as the policy makers** will be exploitation targets. Science communities include those related to atmospheric monitoring, as well as the wider weather and climate modelling communities. Policy makers include those on regional, national as well as European level. There may in addition be some exploitation of CAMAERA products in the other activities undertaken by partners in the consortium operating CAMAERA, in particular at the national level.”

5.2 Exploitation Activities and Routes

To gather an overview of the exploitation intentions of the partners, and to identify potential exploitation actions, a questionnaire will be used to share with partners to collect their response for continual improvements to Table 2.

The questions outlined below will be used for the upcoming deliverables D11.5 and D12.1 that are due at the mid-term and the end of the project.

The information included in Table 2 in this first version of the Dissemination and Exploitation Plan is provided from the coordinator and reflects the original aims in the proposal.

The following questions will be included as a guide for partners:

Exploitable Results

- Which deliverables from CAMAERA do you intend to exploit?
- Which specific output(s) from the deliverable(s) do you intend to exploit?
- Is this output owned by you/another Partner/joint?
- At what TRL (Technology Readiness Level) do you expect this output to be at the end of the project (if applicable)?
- What assessments/ evaluations do you plan within CAMAERA to test whether outputs are exploitable?

Products/ Outputs resulting from Exploitation

- What final product/ output do you have in mind as the result of the exploitation?
- What are the key functions of this product/ output?
- What is the Unique Selling Point (USP) for this product/ output?
- What proportion of this product/ output will have been funded by CAMAERA?
- Who are the customers for this product/ output?
- What similar systems are already in the marketplace offered by other suppliers?

Exploitation Activities during the CAMAERA project

- What exploitation activities do you plan to perform in CAMAERA and when?

Exploitation Activities after the CAMAERA project

- What exploitation activities do you plan to perform post- CAMAERA and when?

Consortium-wide Exploitation

- What would be a consortium-wide results and product to be exploited?
- How might the Consortium work at a collective level to exploit the CAMAERA proposition?
- Would your organisation take a part in this, and in what role?
- Which additional stakeholders be needed to operate the model?

Naturally, at this early stage in the project (month 6 of 36) not all questions can be answered by all partners. Therefore, the questionnaire also serves the purpose of reminding partners of the importance of exploitation in a project such as CAMAERA, and to actively consider potential routes and related exploitation activities.

Based on the above responses to the questionnaire, the following table summarises the findings (**Table 2**).

Table 2: Summary of Exploitation Findings

Exploitable Results/ Products or Outputs	<ul style="list-style-type: none"> • Global system ready to assimilate ceilometer data • Global system ready to assimilate infrared reflectances • Best estimate of dust emissions from online and offline approach • Capacity of the global system to use a modal approach to represent aerosol species and processes, and links with precursor gases established. • Capacity of the global system to use pre-trained neural network algorithms • Prediction of sea-salt and desert dust aerosol emissions through neural networks, for use in the global system and selected regional systems • Better regional CAMS air quality products with direct benefit for users and European air quality reporting • Better knowledge of dry deposition thanks to intercomparison of regional and global models with observations • Better CAMS products thanks to improved emissions • Better representation of high latitude dust and road dust • First attempt at the representation of primary biogenic aerosol particles in selected regional models and the global system • Improvement in the representation of anthropogenic and biogenic secondary organic particles in regional and global systems • Better use of boundary conditions from the global system in regional systems
Exploitation Activities during the Project	<p>Any dataset that has been identified as public will be made available to external scientists.</p> <p>Project reports with recommendations will support uptake/implementation activities in CAMS and potentially other frameworks, already during the project.</p>
Exploitation Activities after the end of the Project	<p>Any dataset that has been identified as public will be made available to external scientists.</p> <p>Project reports with recommendations will support uptake/implementation activities in CAMS and potentially other frameworks.</p>
Consortium-wide/Joint Exploitation	<p>Outputs will be shared publicly as much as possible through documentation and peer-reviewed literature.</p> <p>Presentations at external conferences eg EGU and AGU, once project results are available</p>

(Any datasets and databases produced will follow the Data Management Plan).

The activities during the project will be taken up by the relevant work packages to ensure that exploitation is pursued and maximised. However, it should be noted that a complete consortium-wide exploitation of results (e.g., through structures such as a Joint Venture or Association) after the end of the project are unlikely, due to the nature of this research project CAMAERA.

The Exploitation Plan will be revisited regularly and is thus to be understood as a living document, as developments during the course of the project may open up new avenues for exploitation. These updates will be presented in the interim reports (D11.6 and D12.1).

5.3 Planned uptake of CAMAERA results in CAMS

The planned uptake of CAMAERA results in the global CAMS system is indicated in Table 3. The uptake of CAMAERA results in regional models is not indicated, as they each follow their own development plans. The years indicated in table 3 are indicative, as the development plan of the global CAMS system can be subjected to changes and updates. Not all CAMAERA tasks are represented in table 3, as the uptake in CAMS depends on a clear positive impact on skill scores, which is not ensured for all developments at this early stage. This also means that this table is not exhaustive, as more planned developments could be proposed for operational implementation if they bring an improvement of the skill of the global CAMS system.

Table 3: Yearly uptakes of CAMAERA results in the global CAMS system

2025	<ul style="list-style-type: none"> • New dust emission scheme (WP5) • Scaling factors for dust emission scheme (WP1)
2026	<ul style="list-style-type: none"> • Fungal spores (WP7) • SOA developments (WP7) • Assimilation of lidar/ceilometer data (WP1) • Dry deposition updates (WP5)
2027	<ul style="list-style-type: none"> • Operationalization of modal aerosol approach (WP3) • Online Ammonia emissions (WP5) • Dust emission scheme using neural networks (WP5) • Assimilation of IASI infrared reflectances (WP1)

In addition, the estimates of dust emissions from offline and online inversion produced in WP1/2 will be made available to the scientific community at months 18 and 36 of the project.

6 Conclusion

In this deliverable, the CAMAERA dissemination and exploitation has been defined.

For dissemination a set of instruments have been identified, namely a Website, news items and numerous scientific conference and workshop involvements.

Initial exploitation ideas from all partners have been collected in this document, complemented by the identification of exploitation activities. Project Office and Work Package leaders can now use this information to steer the activities towards innovation realisation within the various work packages and the project as a whole.

A mid-term Dissemination and Exploitation Report will provide an update of the dissemination and exploitation activities, whilst a final Dissemination and Exploitation Report with detailed descriptions of dissemination activities, exploitable results and related activities will be produced towards the end of the project. These will ensure that the results are sustainable and realised into innovations.

Document History

Version	Author(s)	Date	Changes
0.1	Silvia Jacob	16/05/2024	Initial version
1.0	Silvia Jacob, Samuel Rémy,	08/07/2024	Issued version
2.0	Samuel Remy, Silvia Jacob	18/12/2024	Added details about communication in social media, and more details on exploitation routes

Internal Review History

Internal Reviewers	Date	Comments
Vincent Huijnen	09/07/2024	Small textual revisions

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