HORIZON-HLTH-2023-CARE-04-03
Environmentally sustainable and climate neutral health and care systems

NetZeroAICT

Digital Contrast for Computerised Tomography

-Towards Climate Neutral and Sustainable Health Systems-

Starting date of the project: 01/12/2023
Duration: 48 months

= Deliverable D7.3 =

Iterative Communication Kit (website, factsheet, etc) V1

Due date of deliverable: 31/03/2024
Actual submission date: 04/04/2024

Work Package 7
Responsible Work Package Leader: Panagiotis Chatzis, AMI
Responsible Task Leader: Panagiotis Chatzis, AMI
Version: V1.3

Dissemination level		
PU	Public – fully open (automatically posted online on the Project Results platforms)	X
SEN	Sensitive — limited under the conditions of the Grant Agreement	
Classified R-UE/EU-R	EU RESTRICTED under the Commission Decision No2015/444	
Classified C-UE/EU-C	EU CONFIDENTIAL under the Commission Decision No2015/444	
Classified S-UE/EU-S	EU SECRET under the Commission Decision No2015/444	

Co-funded by the European Union

UK Research and Innovation

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DOCUMENT CONTROL

Document version	Date	Change
V1.0	28/03/2024	First draft
V1.1	28/03/2024	Internal Review by AMI
V1.2	31/03/2024	Review by UoO
V1.3	31/03/2024	First final draft

VALIDATION PROCESS

Reviewers		Validation date
Work Package Leader	Panagiotis Chatzis	31/03/2024
Project Manager	Martina Nešverová	31/03/2024
Scientific Coordinator	Regent Lee	31/03/2024
Coordinator	Anders Nordell	31/03/2024

DOCUMENT DATA

Keywords	Iterative Communication Kit (website, factsheet, etc) V1
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Delivery date	04/04/2024

DISTRIBUTION LIST

Date	Version	Recipients
04/04/2024	V1.3	All partners, EC

DISCLAIMER

Executive Summary

Deliverable 7.3 Iterative Communication Kit has been developed in order to increase public awareness of the NetZeroAICT project. This deliverable shows the communication materials that have been developed: (1) project logo, (2) leaflet, (3) factsheet, (4) slide deck, (5) press release, (6) website, (7) project video, and (8) social media channels.

The content of the NetZeroAICT website https://netzeroaict.eu/ is public, and the project information has been online since December 2023 in a provisional version and March 2024 in full version. The NetZeroAICT website will be actively maintained and updated throughout the course of the project.

The communication kit will be updated and expanded over the course of the project, based on the dissemination and communication strategy of the project, as well as to reflect the progress and results of the project. The updates will be demonstrated in the two versions of the *Plan for dissemination and communication activities,* submitted as D7.3 and D7.4. in M4 and M14, respectively.

Table of Contents

Glossary of Acronyms

AMI	AMIRES S.R.O.
AiSENTIA	AiSentia LTD
CA	Consortium Agreement
CMRAD	Collective Minds Radiology AB
DM	Dissemination Manager
DoA	Description of Action
EAB	External Advisory Board
EC	European Commission
EM	Exploitation Manager
GA	General Assembly
GZA VZW	GASTHUISZUSTERS ANTWERPEN
HaDEA	European Health and Digital Executive Agency
OPO	UNIWERSYTECKI SZPITAL KLINICZNY W OPOLU
PC	Project Coordinator
PSC	Project Steering Committee
SC	Scientific Coordinator
UoO	THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD
UoL	University of Leicester
Z-visie	Z-VISIE B.V.
WP	Work Package
WPL	Work Package Leader

1. Introduction

The deliverable 7.3 *Iterative Communication Kit (website, factsheet, etc.) V1* is part of task 7.3 *Stakeholder Engagement, Involvement and Ecosystem Building*. It is part of the NetZeroAICT dissemination and communication strategy and collects the first promotional materials for NetZeroAICT.

The iterative kit materials and tools are targeted to the broader public and aim to establish a common visual identity and messaging for the NetZeroAICT consortium.

The objective of this task is to ensure that the results of the project will be disseminated to the European research and industrial community, will target all important stakeholders, and will assure ongoing communication between the general public, experts in the field of CT scans, on one side and partners of the project on the other side.

The task also includes creating a comprehensive dedicated website for the project. A provisional website was created at the beginning of the project and is available to the public. The website was updated in M4 and will be actively maintained during the whole implementation of the project.

The deliverable presents the NetZeroAICT (1) logo, (2) leaflet, (3) factsheet, (4) slide deck, (5) first press release, (6) website, (7) project video, and (8) social media channels. All presented materials will be available on the project website as downloadable files for partners' use in the collaborative platform (Google Drive).

2. Dissemination Materials and Discussion

2.1 NetZeroAICT Logo

The project logo was prepared by the Scientific Coordinator (SC) and WP7 leader (AMI) to establish a visual identity for the project and its consortium. The logo is used in all project-related communication materials, website, leaflets, and slide deck, as well as internal document templates and confidential materials. The logo is inspired by the Iris of the eye. The colour scheme refers to the NetZero technology in the device. All partners presented and approved the logo.

Figure 1 NetZeroAICT logo

2.2 NetZeroAICT Leaflet

A project leaflet is a short print material to provide a brief overview of the project overview/goals/impacts/partners at a glance to those interested in the topic. The leaflet can be distributed at conferences and events and on the partners' premises.

Figure 2 NetZeroAICT leaflet

2.3 NetZeroAICT Factsheet

The project factsheet was prepared to provide general information about the project while including more details on the intended technology than the leaflet, which is limited in format. The factsheet elaborates on project objectives, expected impact, partners, and funding details. The contacts of the Project Coordinator, Scientific Coordinator, and Project Manager, as well as the website and social media accounts of the NetZeroAICT project, are included for networking and clustering purposes.

NetZeroAICT
Digital Contrast for Computerised Tomography
-Towards Climate Neutral and Sustainable Health Systems-

Horizon Europe Project Factsheet

NetZeroAICT

Digital Contrast for Computerised Tomography

-Towards Climate Neutral and Sustainable Health Systems-

Project description:

The NetZeroAICT project is developing a novel AI solution, combining deep learning methods with non-contrast CT scans to synthesise contrast 'digitally'. Our goal is to reduce the environmental and health impact of contrast enhanced CTs (CECTs), which generate significant CO2 emissions, iodine waste, and potential harm to patients.

We are creating a reference framework for scalable development of AI health tools for a future of sustainable health systems. We will develop and validate five use cases of CT 'Digital Contrast' for different clinical scenarios, such as stroke, cancer, and trauma. The NetZeroAICT platform will use cloud computing technology and user-friendly application interfaces to integrate, process, and interpret non-contrast CT scans and synthesise contrast images that are comparable to CECTs in quality and diagnostic value.

The digital contrast solution is designed not only to avoid the need to administer radiocontrast media (RCM) for CECTs, but also to enable the clinician to personalise the scan for each patient and receive accurate and meaningful results from the interpretation of this multi-modal data by Artificial Intelligence.

The universality of the NetZeroAICT solution will allow its uptake worldwide, including in low resource environments, which will benefit from its cost-effective and eco-friendly nature and access to international expert derived interpretive algorithms. By implementing 'Digital Contrast' for scans globally, we aim to reduce 30% of the CO2e and iodine RCM waste generated from CECTs by 2033. NetZeroAICT has a grand vision to accelerate the EU's trajectory towards NetZero and advance EU's globally recognised leadership position on Healthcare sustainability.

Patient Journey for a 'CT Digital Contrast'

Figure 1 Digital Contrast CTs do not require the insertion of needles. After the first non-contrast scan, the AI algorithm synthesises contrast digitally and overlays this over the original non-contrast CT image

NETZEROAICT

Project facts:

Start date: 01/12/2023
End date: 30/11/2027

Duration in months: 48

EU budget: €3.79 M

HORIZON Research and Innovation Actions

Call: HORIZON-HLTH-2023-CARE-04

Topic: HORIZON-HLTH-2023-CARE-04-03 Ensuring access to innovative, sustainable and high-quality healthcare

Project number: 101136679

Keywords: Health services, Health care research, Artificial Intelligence, MedTech, Sustainability, Radiology, NetZero

Co-funded by the European Union

Co-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 Health and Digital Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

NetZeroAICT
Digital Contrast for Computerised Tomography
-Towards Climate Neutral and Sustainable Health Systems-

Project objectives:

Our ambition is to develop state-of-the-art trustworthy Green AI to synthesise 'CT Digital Contrast' and reduce the global reliance on iodinated radiocontrast media (RCM) for computerised tomography (CT) imaging.

To achieve the project aims, the following objectives have been set:

1. Implement legal, ethical and sustainable frameworks that promote the trustworthiness of NetZeroAICT.
2. Establish a centralised, trusted CT image repository for medical AI development which champions the FAIR principles.
3. Classify CT images by their characteristics through a central computation platform.
4. Implement a 'green', sustainable and integrated computational pipeline for the training, validation and deployment of medical AI.
5. Develop and validate **5 clinical applications** (Indication For Use (IFU): CT angiogram of aorta, pulmonary artery, neck and brain arteries, limb arteries, coronary arteries) of 'Digital Contrast' for CT imaging. Each IFU is validated using 1,000 cases.
6. Validation of the trustworthy NetZeroAICT products through engaging stakeholders
7. Demonstrate the environmental impact of our innovations through comprehensive social-life cycle analyses. A global reduction of 900,000 tonnes of CO2 emission is expected if conventional contrast imaging is reduced by 30%. Projected savings of €2B in EU and UK per year.
8. Define the roadmap to wider exploitation and impact for the NetZeroAICT ecosystem – towards sustainable and climate-neutral health systems.
9. Promote awareness of NetZeroAICT innovations to key stakeholders, with additional focus on 5 key economies (Germany, UK, France, Italy, Spain) in Europe.

Expected impact:

The impact of our innovation is to reduce the environmental footprint created by CT scans, which are one of the most commonly performed clinical scans in healthcare systems. CT scans are estimated to result in 3 mega tons of CO2 emission globally (9kg/scan) and iodinated RCM required for CT scans further accounts for 3% of pharmaceutical waste released into the wastewater (estimated 200,000 tons of iodine/year). We aim to reduce 30% of this environmental footprint by 2033 by deploying the Digital Contrast AI in all European countries.

Ultimately, NetZeroAICT is expected to refine the AI / deep learning pipeline to simulate contrast enhancement in CT images in a pathology-agnostic manner

Project consortium

NetZeroAICT Consortium

Consortium:

CMRAD	Sweden
RH	USA
Z-Visie	Netherlands
Unilabs	Sweden
BETT	Czech Republic
AMI	Czech Republic
CHUN	France
OPO	Poland
PAGNI	Greece
GZA VZW	Belgium
AZSTJBO	Belgium
UoQ	United Kingdom
USP	Brazil
UFF	Brazil
AiSentia	United Kingdom
UI	United Kingdom
UoL	United Kingdom
UoG	United Kingdom
USYD	Australia

Contacts:

Project coordinator:

Anders Nordell
Collective Minds Radiology (Sweden)
anders@cmrad.com

Project scientific coordinator:

Regent Lee
University of Oxford (United Kingdom)
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Project manager:

Martina Nesverova
Amires (Czech Republic)
nesverova@amires.eu

Website and social media:

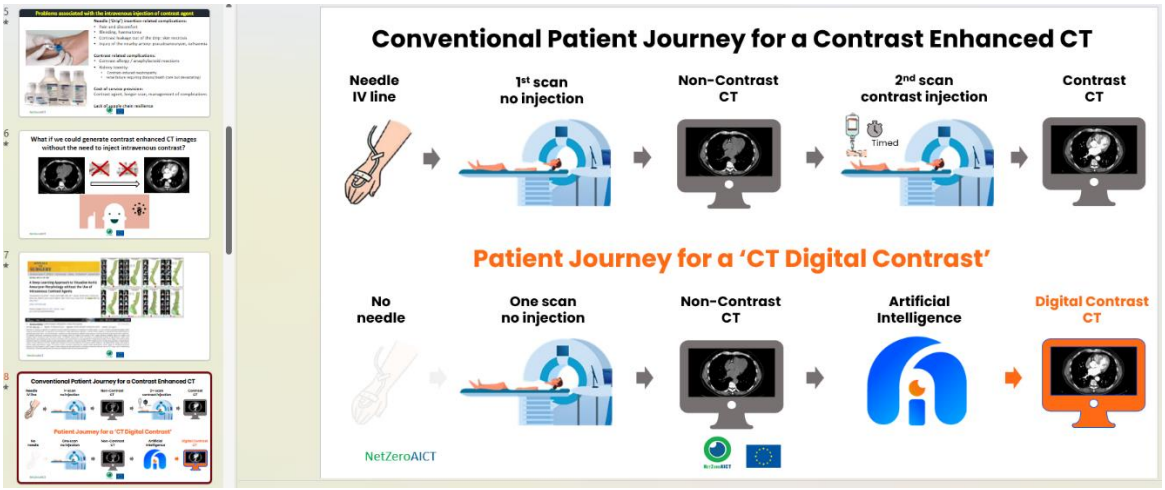
https://netzeroaict.eu/

#NetZeroAICT #CTScan #DigitalContrast #GreenAI #Innovation #Healthcare #HorizonEurope

Figure 3 NetZeroAICT Factsheet

2.4 NetZeroAICT Slide Deck

The project slide deck is a collection of slides that can be used to present the NetZeroAICT project in a clear and engaging way. It can help the partners showcase the project's objectives, activities, impacts, and consortium to various audiences, such as potential end-users, stakeholders, or the general public.



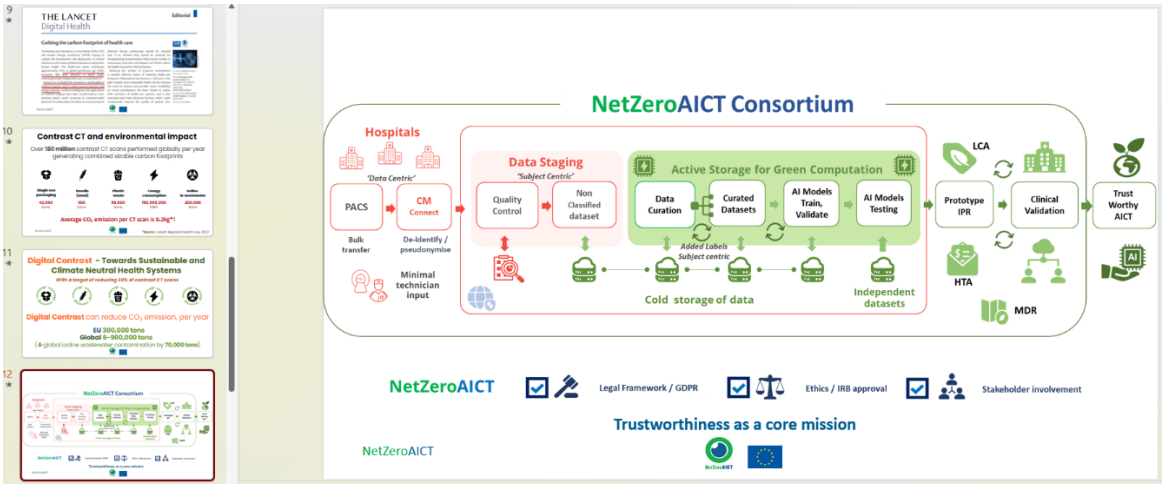
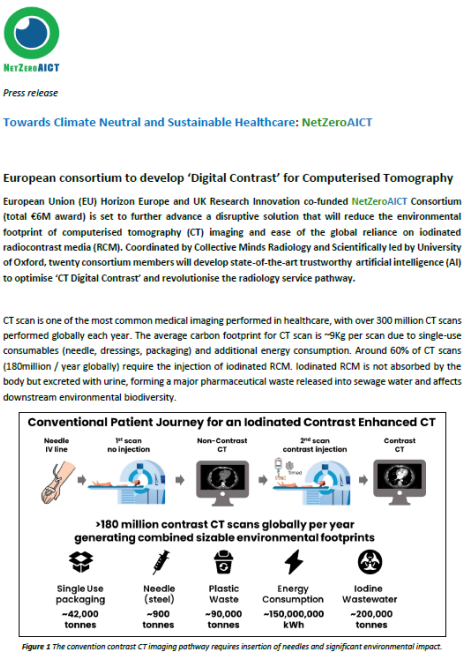


Figure 4 NetZeroAICT Slide deck

2.5 NetZeroAICT Press Release

In the first month of the project, a press release announcing the launch of NetZeroAICT was published. The press release introduced the topic and current challenges in CT imaging and showcased how the consortium aims to address these issues. The press release was shared on the website and social media channels of the project and project partners (e.g. UoO, Z-Visie, OPO, GZA VZW, UoL).

Other press releases will be produced during the course of the project in connection to important results/milestones achieved. All the press releases will be made available on the project website and circulated on NetZeroAICT's social media channels.



NetZeroAICT

Press release

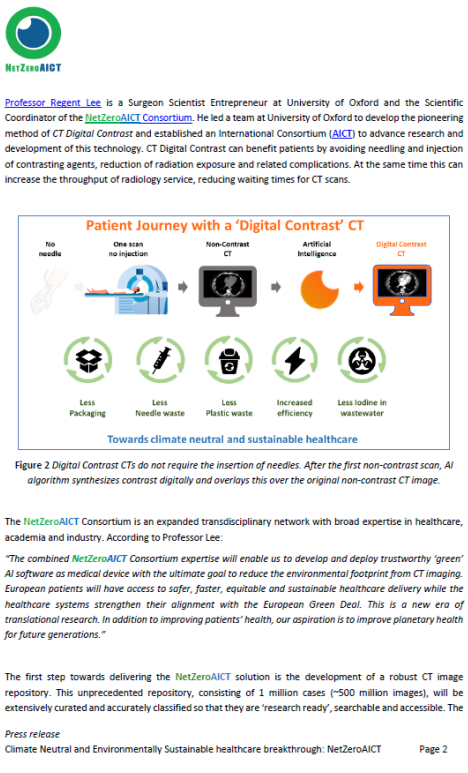
Towards Climate Neutral and Sustainable Healthcare: NetZeroAICT

European consortium to develop 'Digital Contrast' for Computerised Tomography

European Union (EU) Horizon Europe and UK Research Innovation co-funded NetZeroAICT Consortium (total €6M award) is set to further advance a disruptive solution that will reduce the environmental footprint of computerised tomography (CT) imaging and ease of the global reliance on iodinated radiocontrast media (RCM). Coordinated by Collective Minds Radiology and Scientifically led by University of Oxford, twenty consortium members will develop state-of-the-art trustworthy artificial intelligence (AI) to optimise 'CT Digital Contrast' and revolutionise the radiology service pathway.

CT scan is one of the most common medical imaging performed in healthcare, with over 300 million CT scans performed globally each year. The average carbon footprint for CT scan is ~9Kg per scan due to single-use consumables (needle, dressings, packaging) and additional energy consumption. Around 60% of CT scans (180million / year globally) require the injection of iodinated RCM. Iodinated RCM is not absorbed by the body but excreted with urine, forming a major pharmaceutical waste released into sewage water and affects downstream environmental biodiversity.

Figure 1 The convention contrast CT imaging pathway requires insertion of needles and significant environmental impact.



NetZeroAICT

Professor Regent Lee is a Surgeon Scientist Entrepreneur at University of Oxford and the Scientific Coordinator of the NetZeroAICT Consortium. He led a team at University of Oxford to develop the pioneering method of *CT Digital Contrast* and established an International Consortium (AICT) to advance research and development of this technology. CT Digital Contrast can benefit patients by avoiding needling and injection of contrasting agents, reduction of radiation exposure and related complications. At the same time this can increase the throughput of radiology service, reducing waiting times for CT scans.

Figure 2 *Digital Contrast CTs do not require the insertion of needles. After the first non-contrast scan, AI algorithm synthesizes contrast digitally and overlays this over the original non-contrast CT image.*

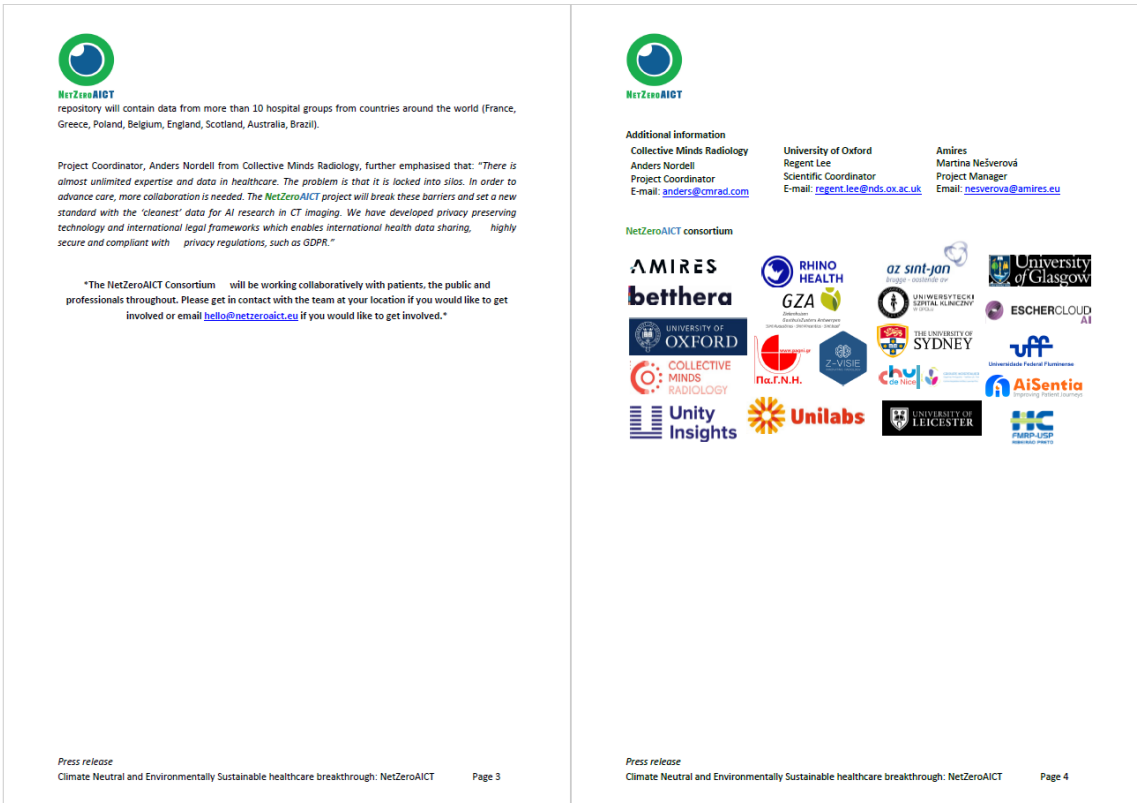
The NetZeroAICT Consortium is an expanded transdisciplinary network with broad expertise in healthcare, academia and industry. According to Professor Lee:

"The combined NetZeroAICT Consortium expertise will enable us to develop and deploy trustworthy 'green' AI software as medical device with the ultimate goal to reduce the environmental footprint from CT imaging. European patients will have access to safer, faster, equitable and sustainable healthcare delivery while the healthcare systems strengthen their alignment with the European Green Deal. This is a new era of translational research. In addition to improving patients' health, our aspiration is to improve planetary health for future generations."

The first step towards delivering the NetZeroAICT solution is the development of a robust CT image repository. This unprecedented repository, consisting of 1 million cases (~500 million images), will be extensively curated and accurately classified so that they are 'research ready', searchable and accessible. The

Press release

Climate Neutral and Environmentally Sustainable healthcare breakthrough: NetZeroAICT Page 2



repository will contain data from more than 10 hospital groups from countries around the world (France, Greece, Poland, Belgium, England, Scotland, Australia, Brazil).

Project Coordinator, Anders Nordell from Collective Minds Radiology, further emphasised that: *"There is almost unlimited expertise and data in healthcare. The problem is that it is locked into silos. In order to advance care, more collaboration is needed. The NetZeroAICT project will break these barriers and set a new standard with the 'cleanest' data for AI research in CT imaging. We have developed privacy preserving technology and international legal frameworks which enables international health data sharing, highly secure and compliant with privacy regulations, such as GDPR."*

The NetZeroAICT Consortium will be working collaboratively with patients, the public and professionals throughout. Please get in contact with the team at your location if you would like to get involved or email hello@netzeroaict.eu if you would like to get involved.

Press release
Climate Neutral and Environmentally Sustainable healthcare breakthrough: NetZeroAICT Page 3

Additional information

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Amires
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NetZeroAICT consortium

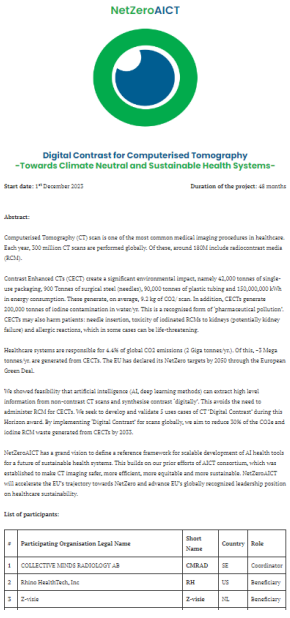
Press release
Climate Neutral and Environmentally Sustainable healthcare breakthrough: NetZeroAICT Page 4

Figure 5 NetZeroAICT Press Release

2.6 NETZEROAICT Website

The domain https://netzeroaict.eu/ has been procured for use by the project NetZeroAICT. It has been set up to increase public awareness about project aims and to reach potential end users.

The NetZeroAICT website has been operational since December 2023 in a provisional version and March 2024 in full version.



NetZeroAICT

Digital Contrast for Computerised Tomography
-Towards Climate Neutral and Sustainable Health Systems-

Start date: 1st December 2023 **Duration of the project:** 48 months

Abstract:

Computerised Tomography (CT) scan is one of the most common medical imaging procedures in healthcare. Each year, 300 million CT scans are performed globally. Of these, around 180M include radiocontrast media (RCM).

Contrast Enhanced CTs (CECT) create a significant environmental impact, namely 42,000 tonnes of single-use packaging, 900 Tonnes of surgical steel (needles), 90,000 tonnes of plastic tubing and 150,000,000 kWh in energy consumption. These generate, on average, 9.2 kg of CO_2/ scan. In addition, CECTs generate 200,000 tonnes of iodine contamination in water/yr. This is a recognised form of 'pharmaceutical pollution'. CECTs may also harm patients: needle insertion, toxicity of iodinated RCMs to kidneys (potentially kidney failure) and allergic reactions, which in some cases can be life-threatening.

Healthcare systems are responsible for 4.4% of global CO_2 emissions (2 Giga tonnes/yr). Of this, ~3 Mega tonnes/yr. are generated from CECTs. The EU has declared its NetZero targets by 2050 through the European Green Deal.

We showed feasibility that artificial intelligence (AI, deep learning methods) can extract high level information from non-contrast CT scans and synthesise contrast 'digitally'. This avoids the need to administer RCM for CECTs. We seek to develop and validate 3 uses cases of CT 'Digital Contrast' during this Horizon award. By implementing 'Digital Contrast' for scans globally, we aim to reduce 30% of the CO_2e and iodine RCM waste generated from CECTs by 2050.

NetZeroAICT has a grand vision to define a reference framework for scalable development of AI health tools for a future of sustainable health systems. This builds on our prior efforts of AICT consortium, which was established to make CT imaging safer, more efficient, more equitable and more sustainable. NetZeroAICT will accelerate the EU's trajectory towards NetZero and advance EU's globally recognized leadership position on healthcare sustainability.

List of participants:

#	Participating Organisation Legal Name	Short Name	Country	Role
1	COLLECTIVE MINDS RADIOLOGY AB	CMRAD	SE	Coordinator
2	Rhino HealthTech, Inc	RH	US	Beneficiary
3	Z-visie	Z-visie	NL	Beneficiary

Figure 6 NetZeroAICT provisional website

Figure 7 Extracts from NetZeroAICT website

The website was created using WordPress, an open-source software. WordPress started as a blogging system but has evolved into a full content management system that is entirely customisable and can be used for almost anything within the field of web design. It allows fast and reliable customisation and has a user-friendly back-office environment, which will simplify the requirement for regular updates and file uploads. A screenshot of the website is shown below.

The project website integrates sections on NetZeroAICT project details (funding details, abstract, objectives, expected impact, public deliverables), consortium partners (role in the project, team members), news & events, and contacts (with a message section and e-mail addresses of the Project Coordinator, Scientific Coordinator and Project Manager. The website acknowledges EU funding and includes the EU emblem.

The project will also be promoted through the NetZeroAICT partners' websites (e.g., news and project sections).

Additional information will be published throughout the project's lifetime.

Beyond the periodic updates and publication of results, further website optimisation will ensure its positioning among the first search results for relevant keywords.

2.7 NetZeroAICT Project Video

During the NetZeroAICT kick-off meeting in Barcelona held on December 4-5, 2023, a project video was produced to raise awareness about the NetZeroAICT initiative. A project trailer, spanning 140 seconds, encapsulates the project's essence and objectives. The video has been shared on the project website and social media channels on LinkedIn and Twitter/X, amplifying its reach and impact.

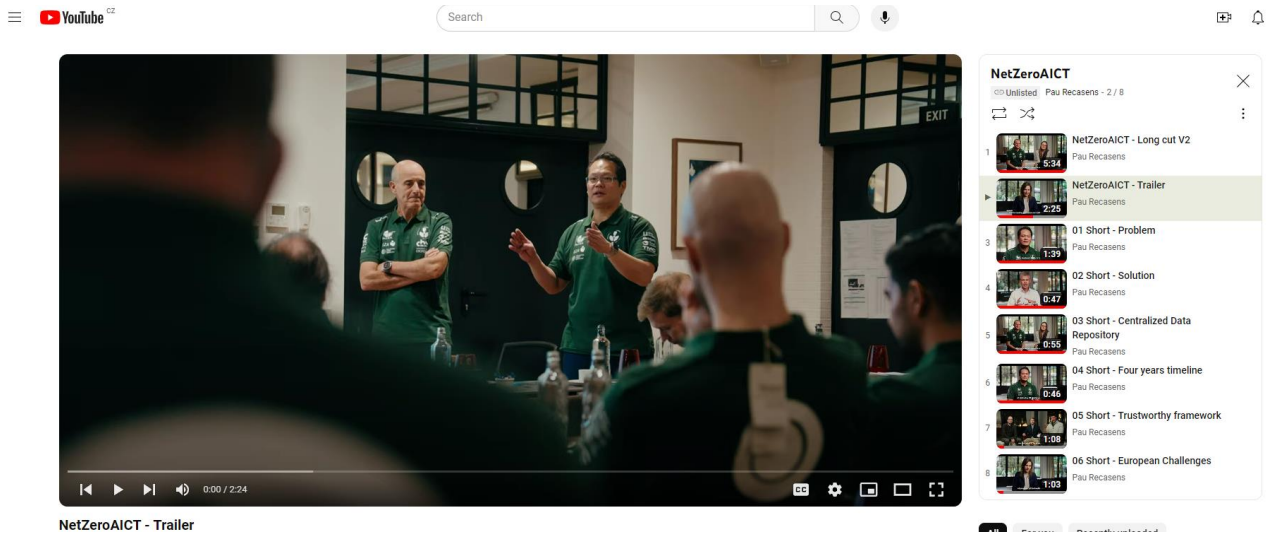


Figure 8 NetZeroAICT Project Trailer

2.8 NetZeroAICT Social Media Channels

In addition to the website and print materials, LinkedIn and X/Twitter accounts have been set up for the NetZeroAICT Project to allow for more dynamic updates of project progress, engage a wider audience and enable feedback from various audiences. The need to use additional social media partners will be assessed over the course of the project.

Short news stories about the NetZeroAICT project and its development will be prepared and shared on the identified tools, especially during events, conferences, and symposiums. Social media will also be used as a communication channel to disseminate potential clustering activities.

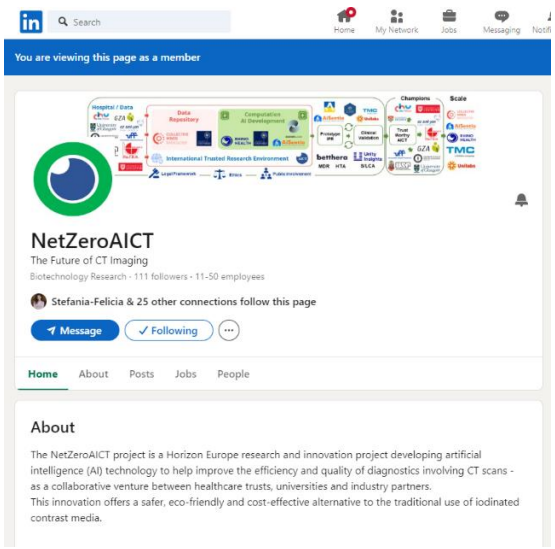


Figure 9 NetZeroAICT LinkedIn page

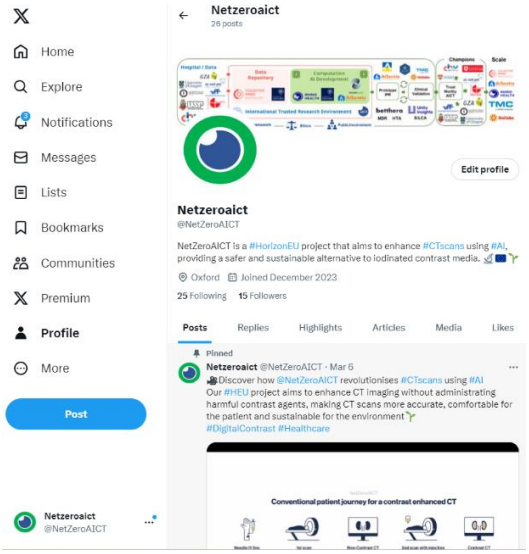


Figure 10 NetZeroAICT X/Twitter page

3. Conclusions

This document represents the D7.3 *Iterative Communication Kit*. It includes the first promotional materials for the NetZeroAICT project to create awareness and inform the wide and various target audiences about the project and its development. These materials will be extensively used by NetZeroAICT partners whenever they present at conferences, publish in journals and magazines, establish contacts with media, attend exhibitions, organise workshops, etc. The materials will be revised over the course of the project to integrate the project results as they are produced. Moreover, the communication kit will be expanded to include a roll-up and a poster, with additional communication means considered on a running basis.

When disseminating the results of the NetZeroAICT project, the following sentence, alongside the EU emblem, will always be included: "Co-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 Health and Digital Executive Agency. Neither the European Union nor the granting authority can be held responsible for them."

The dissemination of the project's achievements should never jeopardise the potential protection of generated intellectual property and further industrial application. Therefore, before any dissemination activity (publication, presentation), strict rules of prior notice to all partners will be applied, according to the EC guidelines and NetZeroAICT Consortium Agreement: prior notice of any planned publication should be given to other consortium members at least 45 calendar days before the publication. The Dissemination Manager, in cooperation with the Exploitation Manager, will follow the approval processes and act as an internal executive approval body for any dissemination action organised by different partners.

The full communication and dissemination strategy for the NetZeroAICT project is under development and will be submitted as part of DEL 7.1. *Dissemination and Communication Plan V1* at M6.

4. Degree of Progress

The deliverable is 100% fulfilled. Maintenance of the website will be carried out throughout the course of the project. The project leaflet, factsheet, and slide deck will also be adapted in case major changes (e.g., a change in a project partner) occur.

5. Dissemination level

The Deliverable 7.3 Iterative Communication Kit (website, factsheet, etc.) V1 is public – fully open (automatically posted online on the Project Results platforms).