Project title: Implementing verifiable oncological imaging by quality assurance and optimisation

Grant Agreement: 101056832

Call identifier: EU4H-2021-PJ

Topic: EU4H-2021-PJ-03 Action grants for a project on the quality and safety of radiation technology in diagnosis and treatment of cancer

Deliverable D2.1 Project information on partners' websites

Lead partner:	EIBIR
Author(s):	Andreea Bucur (EIBIR)
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Co-funded by the European Union

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Disclaimer

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Abbreviations

EU European Union

HaDEA European Health and Digital Executive Agency

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1. Introduction

This deliverable presents the implementation of one of the dissemination activities under work package 2, Task 2.2 – publication of project related information on partners' websites.

The webpage created by EIBIR (Project Coordinator) on its own website (www.eibir.org) will serve throughout the lifetime of the project as the main webpage of the i-Violin project where all the relevant updates will be published. Detailed information about the webpage and its content is presented in "Chapter 2 – i-Violin main webpage".

In addition, each project partner has created on their institution's website, a page dedicated to the project. Details about the respective webpages are presented in "Chapter 3 – i-Violin project information on project partners' websites".

2. i-Violin main webpage

The i-Violin main webpage has been created as a sub-page on the Project Coordinator's website. This will serve as the main information hub about any results and dissemination activities throughout the lifetime of the project.

The following sections have been created:

- main page with a short description of the project, including a short "facts and figures"
- links to secondary pages:
  - partners – list of project partners
  - objectives – present the objectives of the project as laid out in the Grant Agreement
  - work packages – list of the work packages
  - deliverables – public deliverables will be uploaded here after formal approval by the funding agency, HaDEA
  - press releases – a page dedicated to press releases; the first press release announcing the kick-off of the project has already been published

Screenshots of the page are included in Annex 1 to this report.

3. i-Violin project information on project partners' websites

In addition to the main webpage of the project available on the Project Coordinator's website, each project partner has created on their institution's website, a page dedicated to the project. In Table 1 the links to the respective webpages are provided. In addition, screenshots of these pages are presented in Annex 2.

The information on these webpages is available in both English and the respective national language, and includes the following elements:

- Project's logo
- Project's objectives

- Disclaimer
- EU (co-funding) logo + funding statement
- Details about the role in the project of the respective institution
- Link to the main webpage of project hosted on EIBIR's website: https://www.eibir.org/projects/i-violin/
- Links to any dissemination activity of the respective institution (press releases, conference participation, etc.) that will be carried out throughout the lifetime of the project

Table 1. Links to the webpages hosted on project partners' websites

No.	Institution	Acronym	Link to i-Violin webpage
1	EIBIR Gemeinnützige GmbH zur Förderung der Erforschung der Biomedizinischen Bildgebung	**EIBIR**	https://www.eibir.org/projects/i-violin/ (English language)
2	Otto-Von-Guericke-Universitaet Magdeburg	**OvGU**	https://www.lms.ovgu.de/lms/en/Research/Current+projects/i_Violin+%7C+Oncological+Imaging_+Quality+assurance+_+optimisation-p-364.html (English language)
3	Universitaetsmedizin der Johannes Gutenberg-Universitaet Mainz	**UMC-Mainz**	https://www.unimedizin-mainz.de/radiologie/forschung/drittmittelprojekte/eu-projekt-i-violin.html#c260561 (English and German language)
4	Instituto Politecnico de Coimbra	**IPC**	https://www.estesc.ipc.pt/index.php/escola/id/i-violin/i-violin-en/ (English language); https://www.estesc.ipc.pt/index.php/escola/id/i-violin/ (Portuguese language)
5	Panepistimio Kritis	**UoC**	http://www.english.med.uoc.gr/?q=node/230 (English language) https://med.uoc.gr/researchprojects-i-violin-gr/ (Greek language)
6	Klinicka Bolnica Dubrava Zagreb	**UCHD**	https://www.kbd.hr/en/departments/clinical-department-of-diagnostic-and-interventional-radiology/projects/i-violin-2/ (English language); https://www.kbd.hr/odjeli-zavodi-klinike/klinicki-zavod-za-dijagnosticku-i-intervencijsku-radiologiju/projekti/i-violin/ (Croatian language)
7	Univerzitetni Klinicni Center Ljubljana	**UMCL**	https://www.kclj.si/index.php?dir=/about_us/news_from_us/i-violin (English language); https://www.kclj.si/index.php?dir=/strokovna_javnost/izobrazevanje_in_raziskovanje/evropski_projekti/i-violin (Slovenian language)
8	Katholieke Universiteit Leuven	**KUL**	https://gbiomed.kuleuven.be/english/research/50000677/i-Violin (English language)
9	University College Dublin, National University of Ireland, Dublin	**UCD**	https://www.ucd.ie/medicine/research/i-violin/ (English language)
10	Sateilyturvakeskus	**STUK**	https://stuk.fi/en/iviolin-guidance-for-optimization-of-oncological-imaging (English language);

			https://stuk.fi/iviolin-ohjeistusta-syopapotilaiden-kuvantamisen-optimointiin (Finish language)

Annexes

Annex 1

Project partner 1 (EIBIR) - EIBIR Gemeinnützige GmbH zur Förderung der Erforschung der Biomedizinischen Bildgebung (DE) / European Institute for Biomedical Imaging Research (EN)

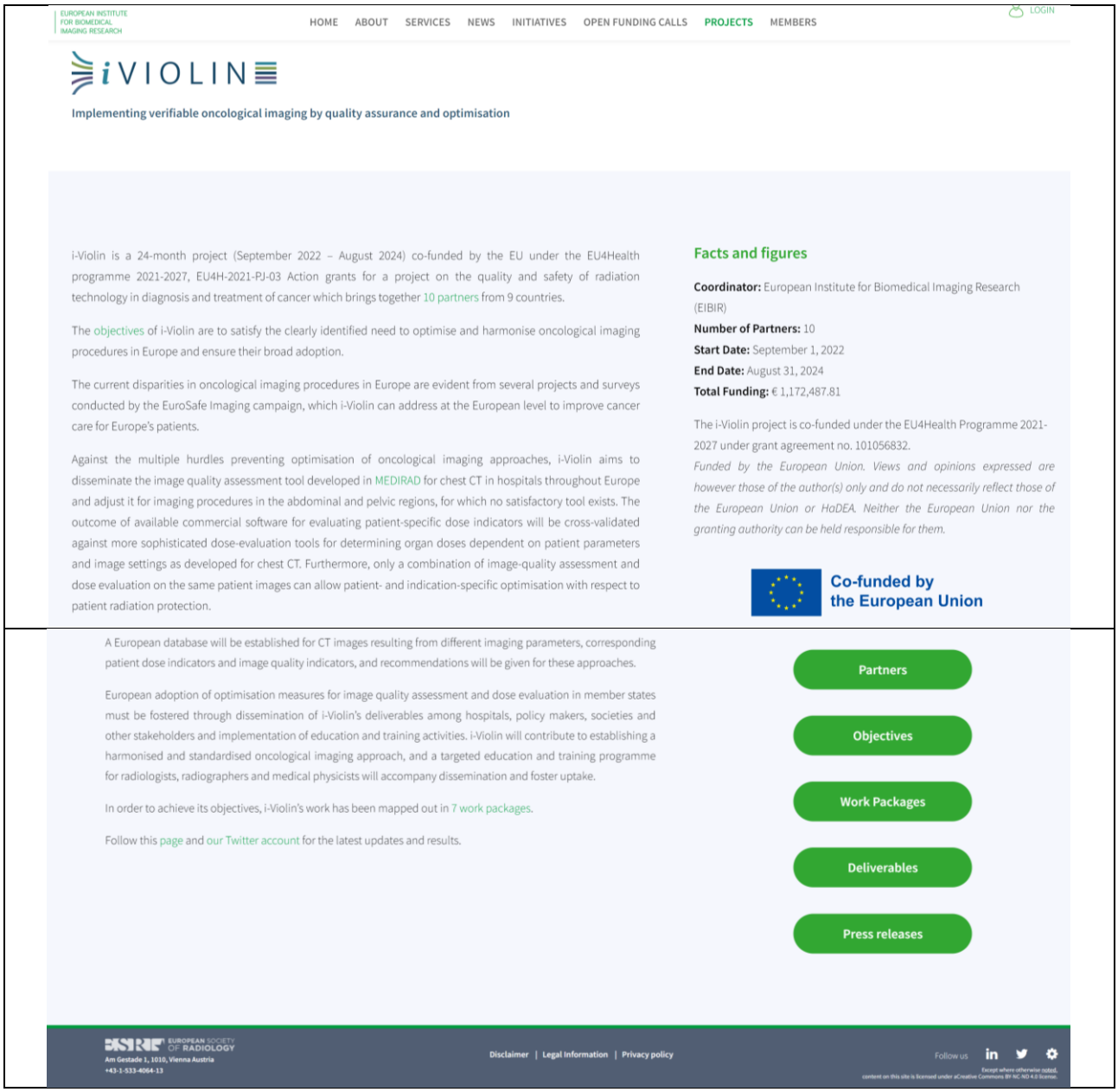
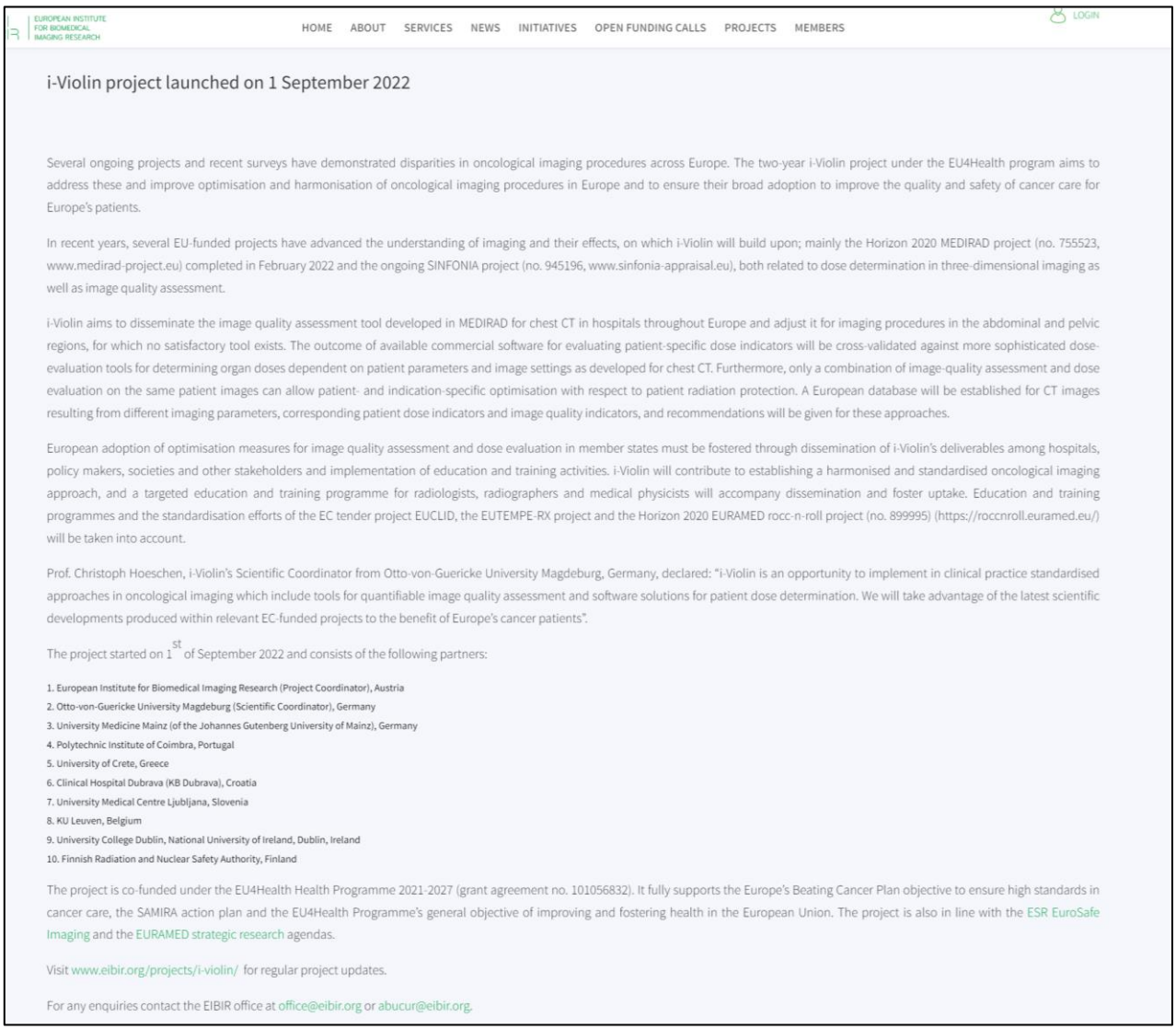


Figure 1. i-Violin main webpage (www.eibir.org/projects/i-violin/)



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i-Violin project launched on 1 September 2022

Several ongoing projects and recent surveys have demonstrated disparities in oncological imaging procedures across Europe. The two-year i-Violin project under the EU4Health program aims to address these and improve optimisation and harmonisation of oncological imaging procedures in Europe and to ensure their broad adoption to improve the quality and safety of cancer care for Europe's patients.

In recent years, several EU-funded projects have advanced the understanding of imaging and their effects, on which i-Violin will build upon; mainly the Horizon 2020 MEDIRAD project (no. 755523, www.medirad-project.eu) completed in February 2022 and the ongoing SINFONIA project (no. 945196, www.sinfonia-appraisal.eu), both related to dose determination in three-dimensional imaging as well as image quality assessment.

i-Violin aims to disseminate the image quality assessment tool developed in MEDIRAD for chest CT in hospitals throughout Europe and adjust it for imaging procedures in the abdominal and pelvic regions, for which no satisfactory tool exists. The outcome of available commercial software for evaluating patient-specific dose indicators will be cross-validated against more sophisticated dose-evaluation tools for determining organ doses dependent on patient parameters and image settings as developed for chest CT. Furthermore, only a combination of image-quality assessment and dose evaluation on the same patient images can allow patient- and indication-specific optimisation with respect to patient radiation protection. A European database will be established for CT images resulting from different imaging parameters, corresponding patient dose indicators and image quality indicators, and recommendations will be given for these approaches.

European adoption of optimisation measures for image quality assessment and dose evaluation in member states must be fostered through dissemination of i-Violin's deliverables among hospitals, policy makers, societies and other stakeholders and implementation of education and training activities. i-Violin will contribute to establishing a harmonised and standardised oncological imaging approach, and a targeted education and training programme for radiologists, radiographers and medical physicists will accompany dissemination and foster uptake. Education and training programmes and the standardisation efforts of the EC tender project EUCLID, the EUTEMPE-RX project and the Horizon 2020 EURAMED rocc-n-roll project (no. 899995) (https://roccnroll.euramed.eu/) will be taken into account.

Prof. Christoph Hoeschen, i-Violin's Scientific Coordinator from Otto-von-Guericke University Magdeburg, Germany, declared: "i-Violin is an opportunity to implement in clinical practice standardised approaches in oncological imaging which include tools for quantifiable image quality assessment and software solutions for patient dose determination. We will take advantage of the latest scientific developments produced within relevant EC-funded projects to the benefit of Europe's cancer patients".

The project started on 1st of September 2022 and consists of the following partners:

1. European Institute for Biomedical Imaging Research (Project Coordinator), Austria
2. Otto-von-Guericke University Magdeburg (Scientific Coordinator), Germany
3. University Medicine Mainz (of the Johannes Gutenberg University of Mainz), Germany
4. Polytechnic Institute of Coimbra, Portugal
5. University of Crete, Greece
6. Clinical Hospital Dubrava (KB Dubrava), Croatia
7. University Medical Centre Ljubljana, Slovenia
8. KU Leuven, Belgium
9. University College Dublin, National University of Ireland, Dublin, Ireland
10. Finnish Radiation and Nuclear Safety Authority, Finland

The project is co-funded under the EU4Health Health Programme 2021-2027 (grant agreement no. 101056832). It fully supports the Europe's Beating Cancer Plan objective to ensure high standards in cancer care, the SAMIRA action plan and the EU4Health Programme's general objective of improving and fostering health in the European Union. The project is also in line with the ESR EuroSafe Imaging and the EURAMED strategic research agendas.

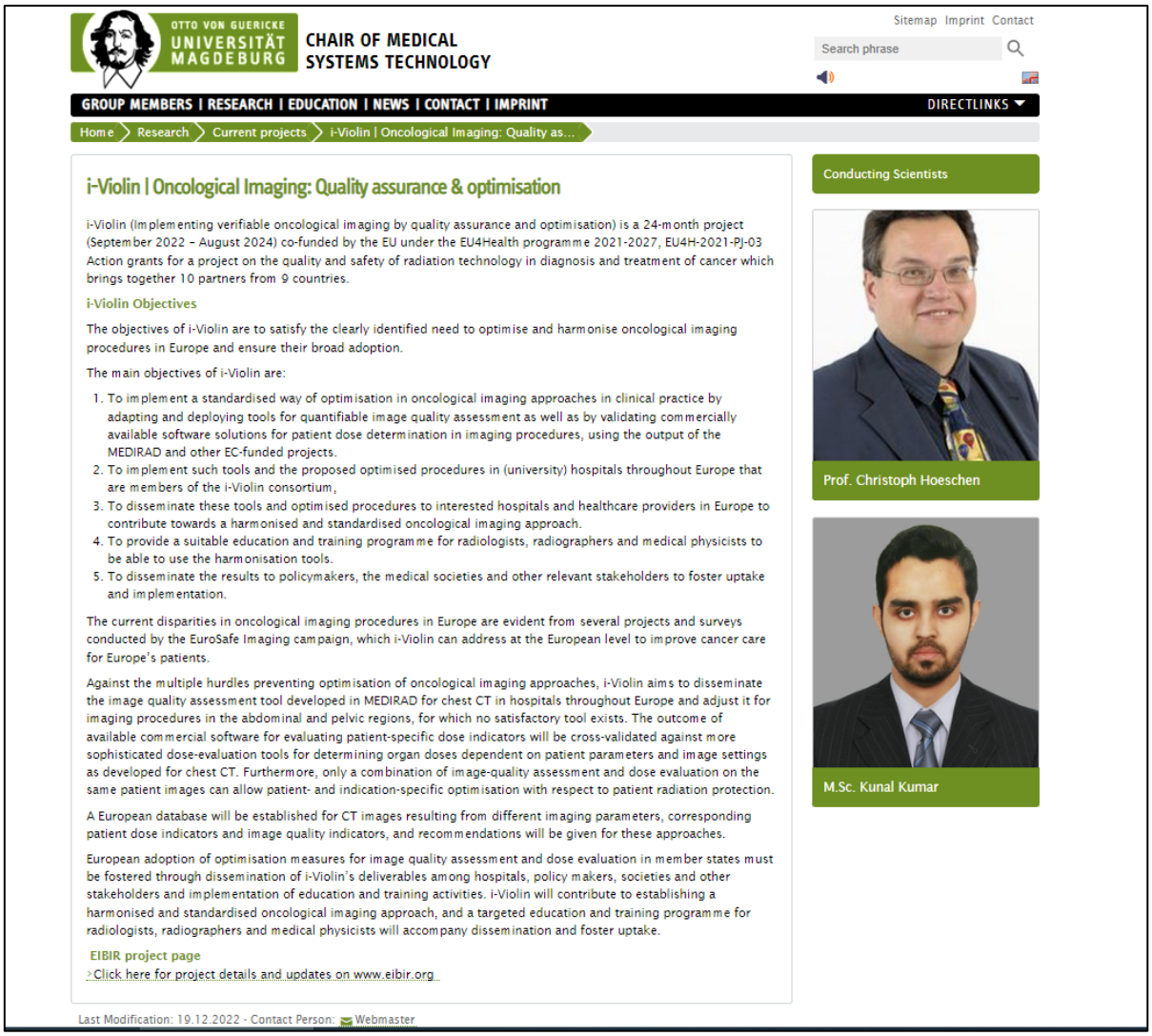
Visit www.eibir.org/projects/i-violin/ for regular project updates.

For any enquiries contact the EIBIR office at office@eibir.org or abucur@eibir.org.

Figure 2. i-Violin first press release (www.eibir.org/projects/i-violin/press-releases/launched/)

Annex 2

Project partner 2 (OvGU) - Otto-Von-Guericke-Universitaet Magdeburg (DE) / Otto-von-Guericke University Magdeburg (EN)



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i-Violin | Oncological Imaging: Quality assurance & optimisation

i-Violin (Implementing verifiable oncological imaging by quality assurance and optimisation) is a 24-month project (September 2022 – August 2024) co-funded by the EU under the EU4Health programme 2021-2027, EU4H-2021-PJ-03 Action grants for a project on the quality and safety of radiation technology in diagnosis and treatment of cancer which brings together 10 partners from 9 countries.

i-Violin Objectives

The objectives of i-Violin are to satisfy the clearly identified need to optimise and harmonise oncological imaging procedures in Europe and ensure their broad adoption.

The main objectives of i-Violin are:

1. To implement a standardised way of optimisation in oncological imaging approaches in clinical practice by adapting and deploying tools for quantifiable image quality assessment as well as by validating commercially available software solutions for patient dose determination in imaging procedures, using the output of the MEDIRAD and other EC-funded projects.
2. To implement such tools and the proposed optimised procedures in (university) hospitals throughout Europe that are members of the i-Violin consortium,
3. To disseminate these tools and optimised procedures to interested hospitals and healthcare providers in Europe to contribute towards a harmonised and standardised oncological imaging approach.
4. To provide a suitable education and training programme for radiologists, radiographers and medical physicists to be able to use the harmonisation tools.
5. To disseminate the results to policymakers, the medical societies and other relevant stakeholders to foster uptake and implementation.

The current disparities in oncological imaging procedures in Europe are evident from several projects and surveys conducted by the EuroSafe Imaging campaign, which i-Violin can address at the European level to improve cancer care for Europe's patients.

Against the multiple hurdles preventing optimisation of oncological imaging approaches, i-Violin aims to disseminate the image quality assessment tool developed in MEDIRAD for chest CT in hospitals throughout Europe and adjust it for imaging procedures in the abdominal and pelvic regions, for which no satisfactory tool exists. The outcome of available commercial software for evaluating patient-specific dose indicators will be cross-validated against more sophisticated dose-evaluation tools for determining organ doses dependent on patient parameters and image settings as developed for chest CT. Furthermore, only a combination of image-quality assessment and dose evaluation on the same patient images can allow patient- and indication-specific optimisation with respect to patient radiation protection.

A European database will be established for CT images resulting from different imaging parameters, corresponding patient dose indicators and image quality indicators, and recommendations will be given for these approaches.

European adoption of optimisation measures for image quality assessment and dose evaluation in member states must be fostered through dissemination of i-Violin's deliverables among hospitals, policy makers, societies and other stakeholders and implementation of education and training activities. i-Violin will contribute to establishing a harmonised and standardised oncological imaging approach, and a targeted education and training programme for radiologists, radiographers and medical physicists will accompany dissemination and foster uptake.

EIBIR project page
Click here for project details and updates on www.eibir.org

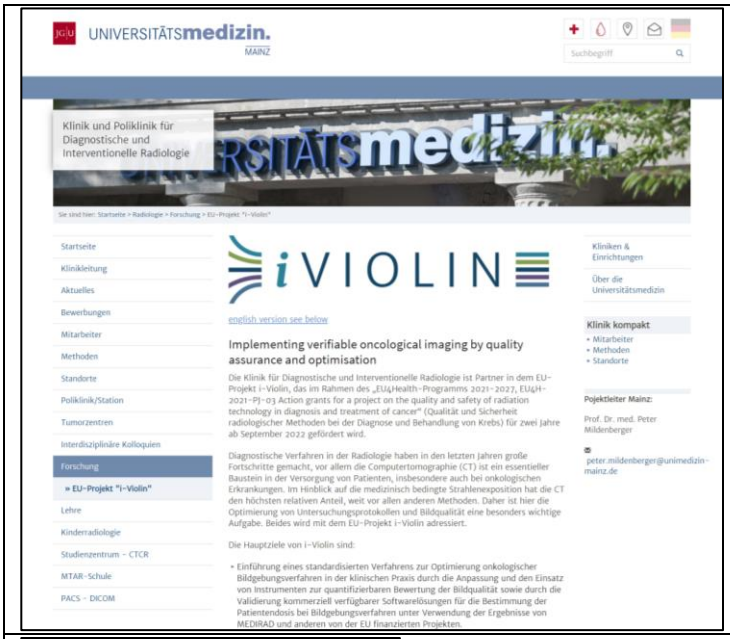
Last Modification: 19.12.2022 - Contact Person: Webmaster

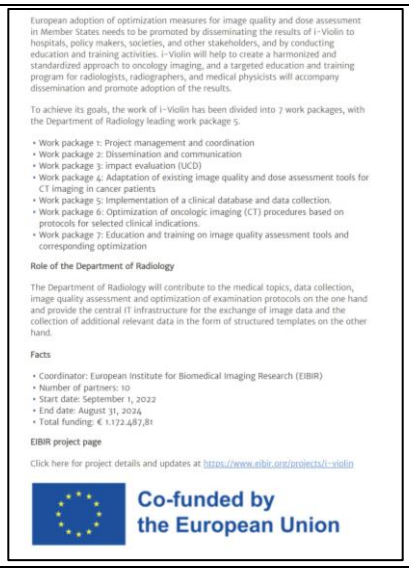
Conducting Scientists

Prof. Christoph Hoeschen

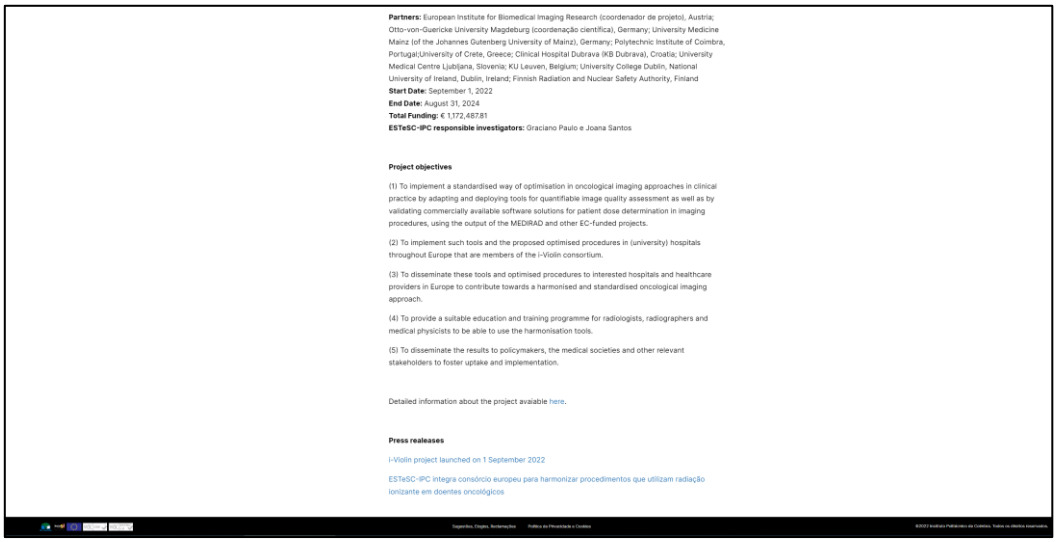
M.Sc. Kunal Kumar

Project partner 3 (UMC-Mainz) - Universitaetsmedizin der Johannes Gutenberg-Universitaet Mainz (DE) / University Medicine Mainz (of the Johannes Gutenberg University of Mainz) (EN)





Project partner 4 (IPC) - Instituto Politecnico de Coimbra (PT) / Polytechnic Institute of Coimbra (EN)



Project partner 5 (UoC) - Panepistimio Kritis (GR)/ University of Crete (EN)

Project partner 6 (UCHD) - Klinicka Bolnica Dubrava Zagreb (HR) / Clinical Hospital Dubrava (KB Dubrava) (EN)

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iVIOLIN

i-Violin is a project that will last for two years (September 2022 – August 2024).

The project is co-financed by the European Union within the EU4Health program 2021-2027, EU4H-2021-PJ-03 Action grants for a project on the quality and safety of radiation technology in diagnosis and treatment of cancer. Ten institutions from nine European countries participate in the implementation of the project, and among them is the Dubrava University Hospital with its experts employed at the Department of Diagnostic and Interventional Radiology.

The project was designed with the aim of optimizing and harmonizing the imaging methods of oncological patients, which will improve the quality of treatment of oncological patients at the European level. The existence of differences in imaging methods for oncological patients is indicated by the results of projects and research previously carried out within the framework of the *EuroSafe Imaging* initiative (an initiative of the European Society of Radiologists), which will be the basis of the activities to be carried out within the i-Violin project.

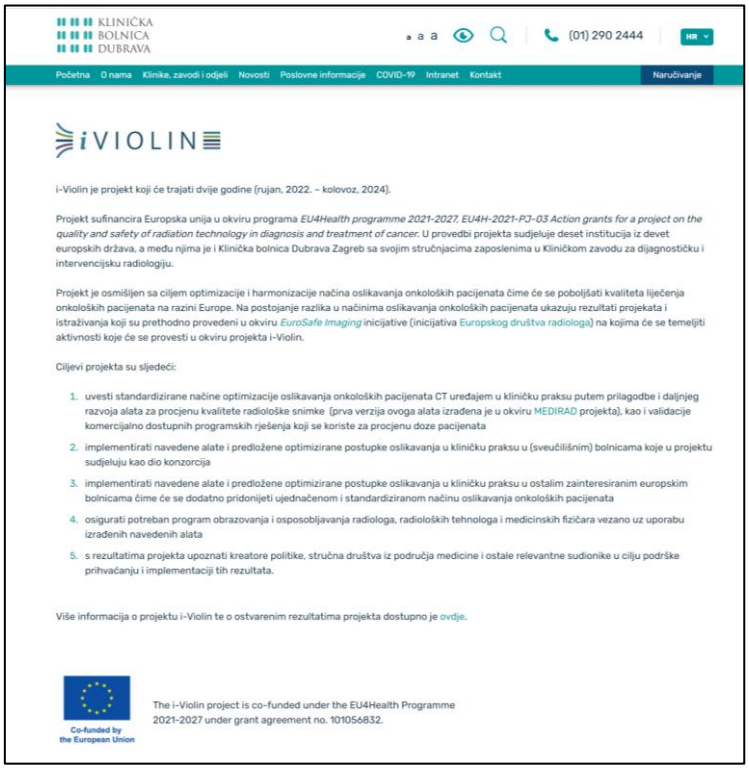
The objectives of the project are as follows:

1. to introduce standardized ways of optimizing the imaging of oncological patients with a CT device into clinical practice through the adaptation and further development of a tool for assessing the quality of radiological imaging (the first version of this tool was created within the MEDIRAD project), as well as the validation of commercially available software solutions used for assessment of patient doses
2. to implement the mentioned tools and proposed optimized imaging procedures into clinical practice at the (university) hospitals participating in the project as part of the consortium
3. to implement the mentioned tools and proposed optimized imaging procedures into clinical practice in other interested European hospitals, which will further contribute to a uniform and standardized way of imaging of oncological patients
4. to ensure the necessary education and training program for radiologists, radiographers and medical physicists related to the use of the above-mentioned tools
5. to introduce the results of the project to policy makers, professional societies in the field of medicine and other relevant participants in order to support the acceptance and implementation of these results.

More information about the i-Violin project and the achieved results of the project is available here.

Co-funded by the European Union

The i-Violin project is co-funded under the EU4Health Programme 2021-2027 under grant agreement no. 101056832.



KLINIČKA BOLNICA DUBRAVA

(01) 290 2444 HR

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iVIOLIN

i-Violin je projekt koji će trajati dvije godine (rujan, 2022. – kolovoz, 2024).

Projekt sufinancira Europska unija u okviru programa *EU4Health programme 2021-2027, EU4H-2021-PJ-03 Action grants for a project on the quality and safety of radiation technology in diagnosis and treatment of cancer.* U provedbi projekta sudjeluje deset institucija iz devet europskih država, a među njima je i Klinička bolnica Dubrava Zagreb sa svojim stručnjacima zaposlenima u Kliničkom zavodu za dijagnostičku i intervencijsku radiologiju.

Projekt je osmišljen sa ciljem optimizacije i harmonizacije načina oslikavanja onkoloških pacijenata čime će se poboljšati kvaliteta liječenja onkoloških pacijenata na razini Europe. Na postojanje razlika u načinima oslikavanja onkoloških pacijenata ukazuju rezultati projekata i istraživanja koji su prethodno provedeni u okviru *EuroSafe Imaging* inicijative (inicijativa Europskog društva radiologa) na kojima će se temeljiti aktivnosti koje će se provesti u okviru projekta i-Violin.

Ciljevi projekta su sljedeći:

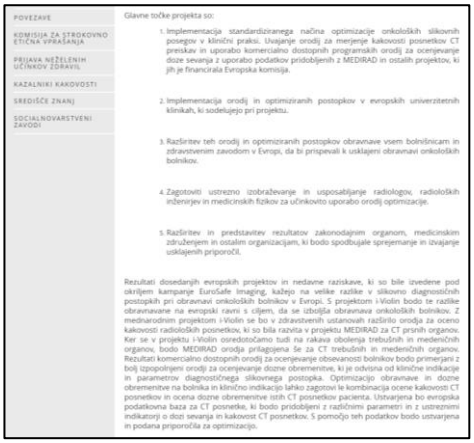
1. uvesti standardizirane načine optimizacije oslikavanja onkoloških pacijenata CT uređajem u kliničku praksu putem prilagodbe i daljnjeg razvoja alata za procjenu kvalitete radiološke snimke (prva verzija ovoga alata izrađena je u okviru MEDIRAD projekta), kao i validacije komercijalno dostupnih programskih rješenja koji se koriste za procjenu doze pacijenata
2. implementirati navedene alate i predložene optimizirane postupke oslikavanja u kliničku praksu u (sveučilišnim) bolnicama koje u projektu sudjeluju kao dio konzorcija
3. implementirati navedene alate i predložene optimizirane postupke oslikavanja u kliničku praksu u ostalim zainteresiranim europskim bolnicama čime će se dodatno pridonijeti ujednačenom i standardiziranom načinu oslikavanja onkoloških pacijenata
4. osigurati potreban program obrazovanja i osposobljavanja radiologa, radioloških tehnologa i medicinskih fizičara vezano uz uporabu izrađenih navedenih alata
5. s rezultatima projekta upoznati kreatore politike, stručna društva iz područja medicine i ostale relevantne sudionike u cilju podrške prihvaćanju i implementaciji tih rezultata.

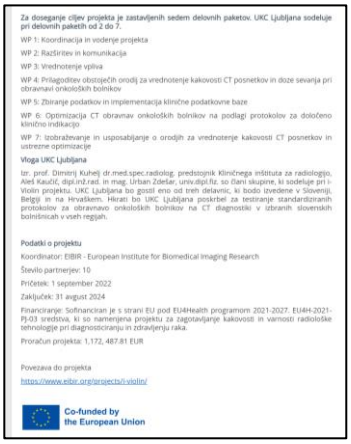
Više informacija o projektu i-Violin te o ostvarenim rezultatima projekta dostupno je ovdje.

Co-funded by the European Union

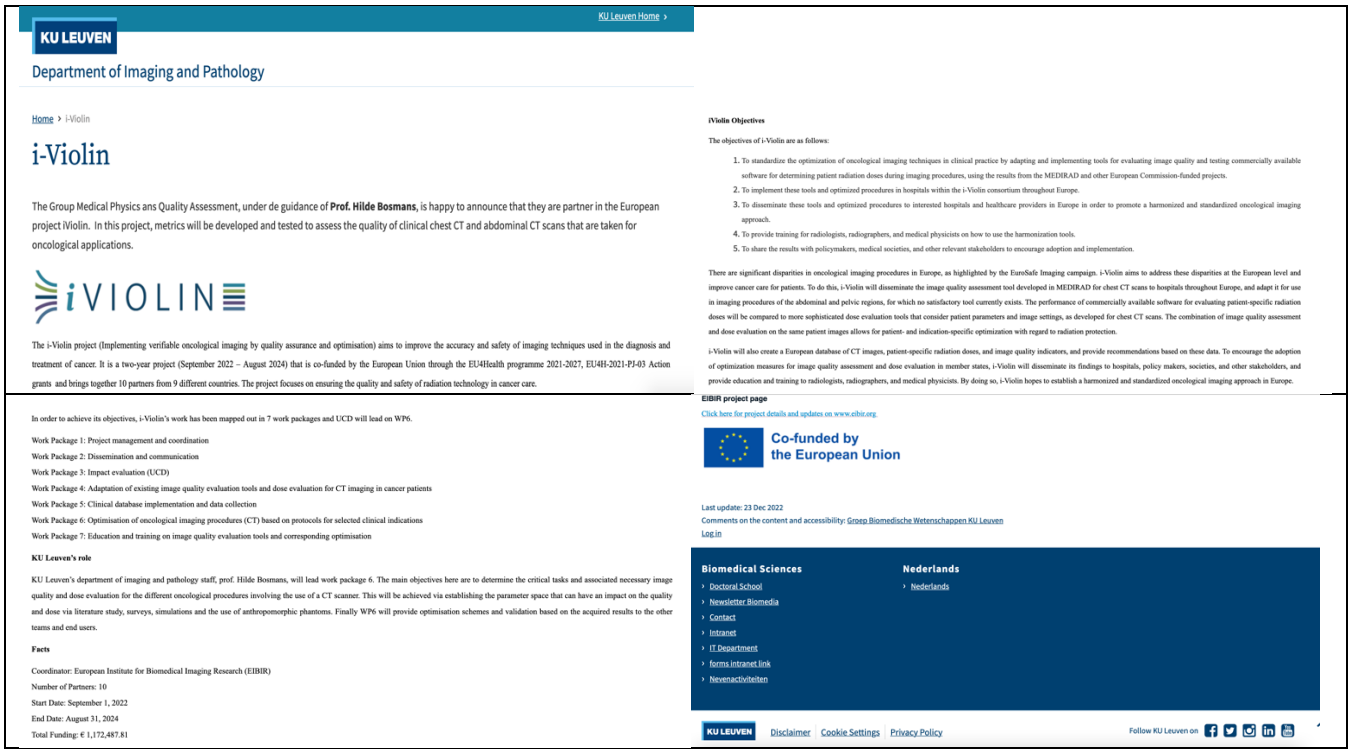
The i-Violin project is co-funded under the EU4Health Programme 2021-2027 under grant agreement no. 101056832.

Project partner 7 (UMCL) - Univerzitetni Klinicni Center Ljubljana (SL)/ University Medical Centre Ljubljana (EN)





Project partner 8 (KU) - Katholieke Universiteit Leuven (NL) / KU Leuven (EN)



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i-Violin

The Group Medical Physics ans Quality Assessment, under de guidance of **Prof. Hilde Bosmans**, is happy to announce that they are partner in the European project iViolin. In this project, metrics will be developed and tested to assess the quality of clinical chest CT and abdominal CT scans that are taken for oncological applications.

The i-Violin project (Implementing verifiable oncological imaging by quality assurance and optimisation) aims to improve the accuracy and safety of imaging techniques used in the diagnosis and treatment of cancer. It is a two-year project (September 2022 – August 2024) that is co-funded by the European Union through the EU4Health programme 2021-2027, EU4H-2021-PJ-03 Action grants and brings together 10 partners from 9 different countries. The project focuses on ensuring the quality and safety of radiation technology in cancer care.

iViolin Objectives

The objectives of i-Violin are as follows:

1. To standardize the optimization of oncological imaging techniques in clinical practice by adapting and implementing tools for evaluating image quality and testing commercially available software for determining patient radiation doses during imaging procedures, using the results from the MEDIRAD and other European Commission-funded projects.
2. To implement these tools and optimized procedures in hospitals within the i-Violin consortium throughout Europe.
3. To disseminate these tools and optimized procedures to interested hospitals and healthcare providers in Europe in order to promote a harmonized and standardized oncological imaging approach.
4. To provide training for radiologists, radiographers, and medical physicists on how to use the harmonization tools.
5. To share the results with policymakers, medical societies, and other relevant stakeholders to encourage adoption and implementation.

There are significant disparities in oncological imaging procedures in Europe, as highlighted by the EuroSafe Imaging campaign. i-Violin aims to address these disparities at the European level and improve cancer care for patients. To do this, i-Violin will disseminate the image quality assessment tool developed in MEDIRAD for chest CT scans to hospitals throughout Europe, and adapt it for use in imaging procedures of the abdominal and pelvic regions, for which no satisfactory tool currently exists. The performance of commercially available software for evaluating patient-specific radiation doses will be compared to more sophisticated dose evaluation tools that consider patient parameters and image settings, as developed for chest CT scans. The combination of image quality assessment and dose evaluation on the same patient images allows for patient- and indication-specific optimization with regard to radiation protection.

i-Violin will also create a European database of CT images, patient-specific radiation doses, and image quality indicators, and provide recommendations based on these data. To encourage the adoption of optimization measures for image quality assessment and dose evaluation in member states, i-Violin will disseminate its findings to hospitals, policy makers, societies, and other stakeholders, and provide education and training to radiologists, radiographers, and medical physicists. By doing so, i-Violin hopes to establish a harmonized and standardized oncological imaging approach in Europe.

In order to achieve its objectives, i-Violin's work has been mapped out in 7 work packages and UCD will lead on WP6.

Work Package 1: Project management and coordination
Work Package 2: Dissemination and communication
Work Package 3: Impact evaluation (UCD)
Work Package 4: Adaptation of existing image quality evaluation tools and dose evaluation for CT imaging in cancer patients
Work Package 5: Clinical database implementation and data collection
Work Package 6: Optimisation of oncological imaging procedures (CT) based on protocols for selected clinical indications
Work Package 7: Education and training on image quality evaluation tools and corresponding optimisation

KU Leuven's role

KU Leuven's department of imaging and pathology staff, prof. Hilde Bosmans, will lead work package 6. The main objectives here are to determine the critical tasks and associated necessary image quality and dose evaluation for the different oncological procedures involving the use of a CT scanner. This will be achieved via establishing the parameter space that can have an impact on the quality and dose via literature study, surveys, simulations and the use of anthropomorphic phantoms. Finally WP6 will provide optimisation schemes and validation based on the acquired results to the other teams and end users.

Facts

Coordinator: European Institute for Biomedical Imaging Research (EIBIR)
Number of Partners: 10
Start Date: September 1, 2022
End Date: August 31, 2024
Total Funding: € 1,172,487.81

EIBIR project page

Click here for project details and updates on www.eibir.org

Co-funded by the European Union

Last update: 23 Dec 2022
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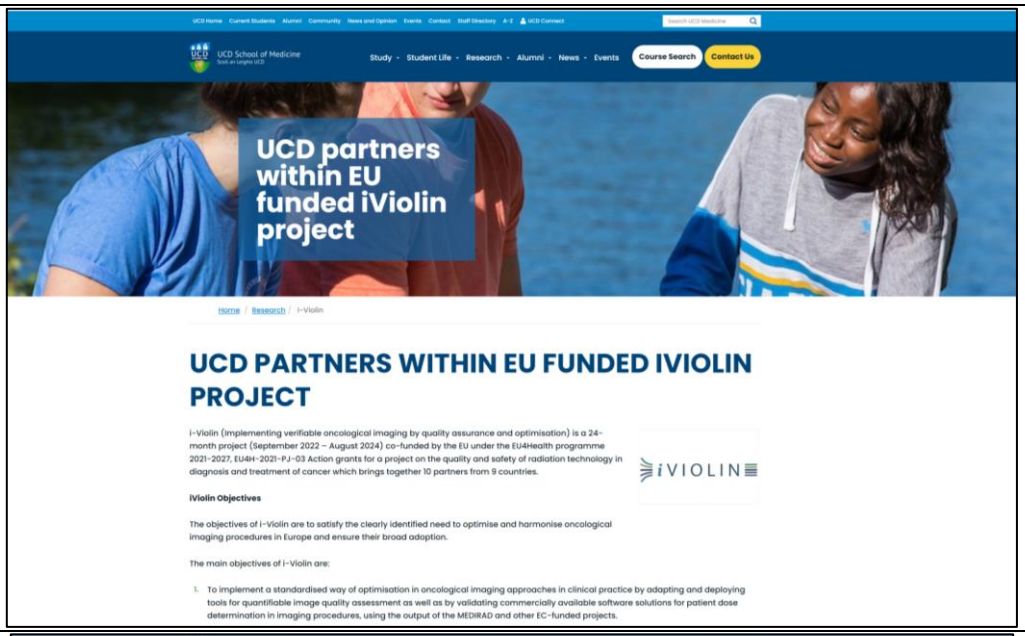
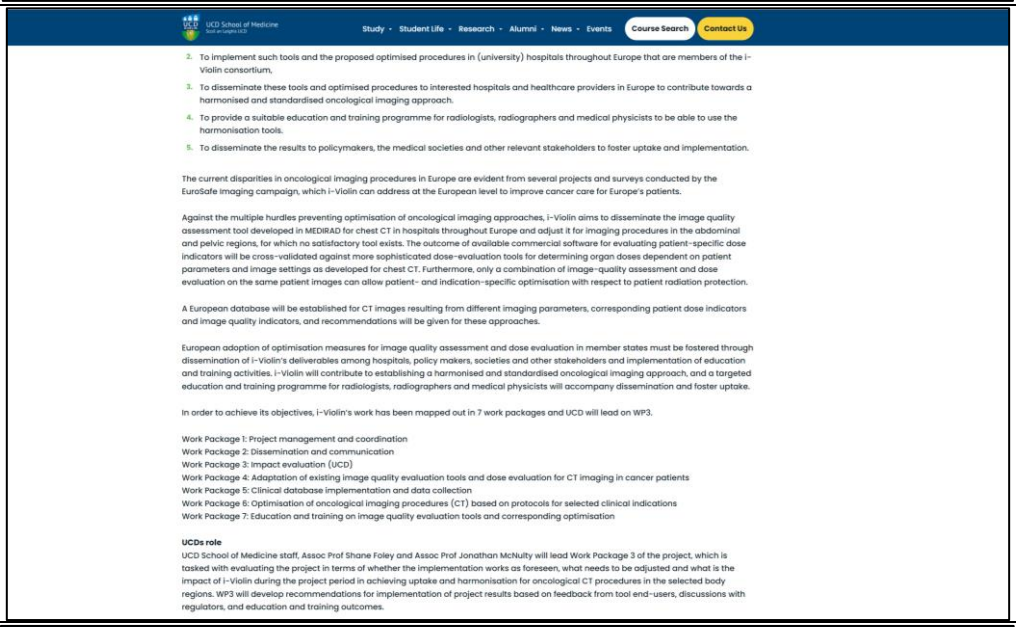
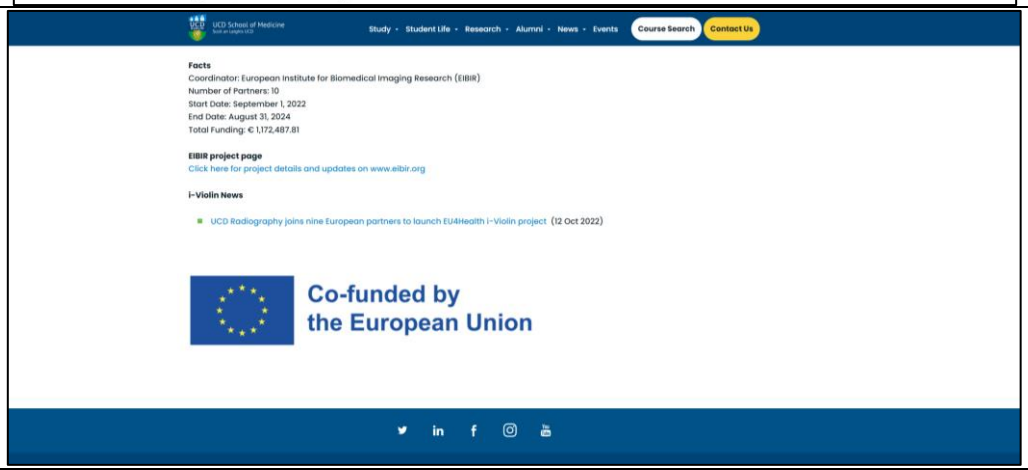
Project partner 9 (UCD) - University College Dublin, National University of Ireland, Dublin (EN)







Project partner 10 (STUK) - Sateilyturvakeskus (FI) / Finnish Radiation and Nuclear Safety Authority (EN)