DELIVERABLE REPORT

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Project acronym: LUCA

Project title: Laser and Ultrasound Co-Analyzer for thyroid nodules

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Deliverable reported: D6.5 Report on the dissemination activity Y1

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Name, title and organisation of partner: Katharina Krischak, EIBIR Gemeinnützige GmbH zur Förderung der Erforschung der biomedizinischen Bildgebung (EIBIR)

Project website address: www.luca-project.eu

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Content

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1) Introduction

The purpose of this deliverable is to provide an overview of the LUCA project's dissemination activities during the first twelve months of the project between February 1, 2016 and January 31, 2017. It summarises the progress and deliverables related to project identity, communication and dissemination.

2) Dissemination Strategy for the First Period (M1-M18)

As laid out in the Dissemination and Communication Plan (D6.4) for the LUCA project, the key dissemination activities in the first period (M1-M18) include:

- Establishing and maintaining the project's stakeholder database
- Establishing a clear and recognizable visual identity
- Establishing an online presence through the project website
- Developing promotional material with general project information
- Preparing an annual digital newsletter (M12)
- 2 Press releases distributed by the project and by consortium partners (M2, M16)
- Distributing information to external websites (e.g. project partner websites, and those of associates), but also to traditional print media
- Representing LUCA at events such as national or international scientific meetings or congresses, but also patient information conferences

As will be shown in this deliverable, the dissemination activities undertaken in year 1 fully comply with the strategy as defined at the start of the project.

3) Dissemination Activities Year 1

This section provides a detailed account of all dissemination activities undertaken during year 1 of the LUCA project including publication of scientific papers, press releases, a first newsletter, and the project website as well as dissemination activities at conferences and congresses and on social media.

a. Publications

i. Scientific Papers

During the first year, the scientific partners published and/or submitted three journal articles related to the LUCA project:

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#	Type of scientific publication	Title of the scientific publication	DOI	ISSN or eSSN	Authors	Title of journal or equivalent	Number, date	Place of publication	Year of publication	Relevant pages	Public & private participation	Peer-review	Status	Open Access
1	Article in Journal	Diffuse Optical Characterization of the Healthy human thyroid tissue and two pathological Case studies	10.1371/journal.pone.0147851.eCollection2016		Lindner C, Mora M, Farzam P, Squarcia M, et al	Plos One	27;11(11)		2016		No	Yes	Published	Yes - Gold Open Access
2	Article in Journal	A compact two-wavelength Time-Domain NIRS system based on SiPM and Pulsed Diode Lasers	10.1109/JPHOT.2016.2632061	1943-0655	Mauro Buttafava, Edoardo Martinenghi, Davide Tamborini, Davide Contini, Alberto Dalla Mora, Marco Renna, Alessandro Torricelli, Antonio Pifferi, Franco Zappa, Alberto Tosi	IEEE Photonics Journal	Volume 9, Number 1, February 2017	USA	2017	14	No	Yes	Published	Yes - Gold Open Access
3	Article in Journal	Time-resolved single-photon detection module based on silicon photomultiplier: A novel building block for time-correlated measurement systems	10.1063/1.4954968	0034-6748	E. Martinenghi, L. Di Sieno, D. Contini, M. Sanzaro, A. Pifferi, A. Dalla Mora	REVIEW OF SCIENTIFIC INSTRUMENTS	Volume 87, Issue 7, Article Number 073101, July 2016	USA	2016	8	No	Yes	Published	Yes - Gold Open Access

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ii. Press Releases

During the first project year, two independent press releases on LUCA were distributed: one by the consortium (in English with translations into Spanish and Catalan) and one by LUCA partner POLIMI (Italian). An additional press release was produced by the Photonics Public Private Partnership:

Type of Dissemination and Communication activities	Title (and any details you wish to add, e.g. web link)	Type of audience reached
Press release	Innovative technology for thyroid cancer screening/ Una tecnología innovadora para la detección de cancer de tiroides/ Una tecnologia innovadora per a la detecció de càncer de trioide	General Public
Press release	Laser e ultrasuoni per una diagnosi precisa e puntuale dei noduli alla tiroide	General Public
Press release	New photonics technique to eliminate unnecessary thyroid nodule surgery	General Public

In total, the press releases distributed by the consortium were sent out to over 900 journalists. The English-language press release by the LUCA consortium was also made available via the EC public repository CORDIS. The press releases were picked up by several news media, both pan-European and national, and led to interviews with local media and magazines. Links to selected articles and publications are available on the LUCA website.

iii. Newsletter

Work is currently underway for the first LUCA newsletter providing an overview of year 1 of the project. It will be available in electronic (html) and print (pdf) format and distributed via e-mail, social media, the LUCA and the partner institution's websites in M12. Printed copies will be made available to relevant target groups and at events of main stakeholders, such as the European Congress of Radiology. The first issue of the newspaper will feature an editorial by the project's scientific coordinator Prof. Turgut Durduran, an interview with a member of the LUCA Medical Advisory Board Dr. Manuel Puig, and three newsflashes covering an overview of the project, the kick-off meeting in February 2016 in Vienna, Austria, and the consortium meeting in September 2016 in Barcelona, Spain. Finally a descriptive map of the consortium has also been included to give visibility to the different partners (Academic, Industry, End-users) members of the consortium.

The newsletter layout was designed in line with the LUCA visual identity as the following previews of the printed and online versions of the newsletter show:

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LASER AND ULTRASOUND CO-ANALYZER FOR THYROID NODULES

ISSUE – 1 | Winter 2017

NEWSLETTER

Welcome to the LUCA Newsletter

On behalf of all its members and partners, the European LUCA project welcomes you to this newsletter, intended to give visibility to the project during its creation and development as well as help raise awareness towards the need for a new medical tool that could help provide much better and accurate information on thyroid cancer.

In this publication, which will be published every semester, the members of LUCA will show you the advancements, goals and objectives they accomplish as well as their different experiences, bringing to the table their expertise, professional background and the reasons why they have joined this exciting project that will most definitely change the chances of survival and recovery of patients that suffer this illness.

THYROID CANCER

A FASTER AND MORE EFFECTIVE SCANNING PROBE

Thyroid cancer is a major and growing health challenge with around three hundred thousand new cases diagnosed worldwide annually. Current methods do not provide sufficient support to surgeons in their decision on the appropriate course of action, which leads to a significant number of unnecessary surgeries and a reduced quality of life for patients. This calls for an increased sensitivity and specificity of the conventionally applied screening process.

The **EU-funded project Laser and Ultrasound Co-analyzer for Thyroid Nodules (LUCA)** aims to develop a new, low-cost device that will provide doctors with enhanced information required to provide better and more specific results in thyroid nodule screening and enable better diagnosis.

"The device combines ultrasound and near-infrared diffuse optical technologies in a single device and a probe. By combining information about tissue hemodynamics, chemical constitution as well as anatomy, it will overcome the shortcomings of present techniques while screening for malign thyroid nodules. If successful, this will save millions of euros over the coming decades and improve the lives of millions of Europeans", says ICREA Professor at ICFO **Turgut Durduran**, Scientific Coordinator of LUCA.

A multidisciplinary team made up of eight partners including clinical endocrinologists, radiologists, physicists, engineers and industry players will carry out this ambitious research project. Phase 1 of the project will be focused on the development and construction of device components, while phase 2 will see the implementation and clinical validation of the LUCA demonstrator.

"A new tool made concomitantly with thyroid ultrasound may provide additional information to help us distinguish between benign and malignant nodules. This would allow a reduction in the number of surgeries for these reasons and would have an important socio-economic impact, diminishing the number of surgeries and the associated comorbidities, as well as improving the quality of life of the patients affected", comments **Dr. Mireia Mora** from the August Pi i Sunyer Biomedical Research Institute (IDIBAPS) in Barcelona, Spain, which will be responsible for the clinical application of the tool, under the direction of Prof. Ramon Gomis.

The LUCA device has the potential to represent a very innovative tool for other types of cancer diagnosis, screening and therapy monitoring in areas of the body accessible to both techniques. Therefore, LUCA is expected to have a significant impact not only in the field of thyroid cancer but also in additional areas of cancer screening.

Figure 1: Layout LUCA Newsletter Printed Version

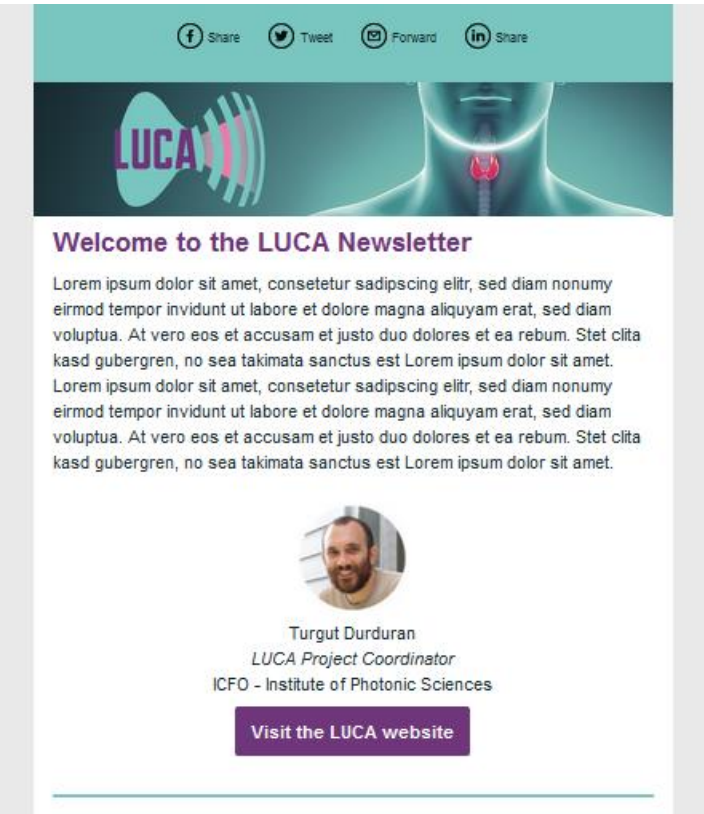

Figure 2: Layout LUCA Newsletter Online Version

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iv. Other Publications

During the first year of the project, one popularised publication about LUCA was published by project partner ECM:

Type of Dissemination and Communication activities	Title (and any details you wish to add, e.g. web link)	Type of audience reached	Estimated number of persons reached
Non-scientific and non-peer reviewed publications (popularised publications)	Publication of an article in "L'Europe de la R&D", a web newspaper published by "Agence de développement et de l'Innovation Nouvelle Aquitaine" (French local agency supporting companies to develop their R&D activity including support to build EC project proposals): http://www.agence-alpc.fr/wp-content/uploads/2016/12/Bull_253.pdf	Industry	1,530 subscribers
Non-scientific and non-peer reviewed publications (popularised publications)	Publication of an article in the Spanish newspaper La Vanguardia "Los fotones mejoran el diagnóstico del cáncer de tiroides"	General public	Approx. 200.000 copies circulated

Within the first project year, the LUCA consortium developed a visual identity for the project and a variety of dissemination material. Upon project start, a PowerPoint slide deck presenting the LUCA project was developed (D6.10), which is available on the project website. It provides an overview of the project's background, the vision and mission shared by the project partners, as well as an introduction to the project work plan and the consortium.

As a highlight, a video targeted towards the general public was produced (D.6.3) by M3, which provides overall information on the vision and mission shared by the project partners, the project background, objectives and activities. It also gives visibility to the project partner institutions and their respective expertise. To disseminate the video, it was embedded in the project website and shared via different media channels. A QR code was included in all printed dissemination material, a YouTube channel was set up and the link (https://youtu.be/GeVQS0MzJ4U) was distributed in press releases and as a result displayed on various news websites, and shared on the partners' Facebook, Twitter and LinkedIn accounts. It is envisaged to produce further videos and to disseminate them via these channels.

An initial leaflet was created presenting the background, goal and objectives of and motivation for the project in M3. An updated version of the leaflet will be available by M14. Also, a fact sheet targeted towards a scientific audience was produced in M2 (with an update in M8), which was distributed at the European Congress of Radiology 2016 and the Congress of the European Society of Head and Neck Radiology 2016

b. Website

The LUCA project website has been designed in line with the project's visual identity to ensure consistency and establish a distinctive identity. The website's colour scheme is based on the colours

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in the LUCA Logo, which were chosen as a means to refer to the colours thyroid cancer awareness campaign pink, purple, and teal.

The LUCA website was set up by EIBIR and went public in M3 (D6.2). Since then, updates were made whenever necessary. Google Analytics is used to monitor the traffic. By early January 2017, over 850 sessions (i.e. views of home page and at least one subpage) were recorded, of which 75% can be attributed to new users:

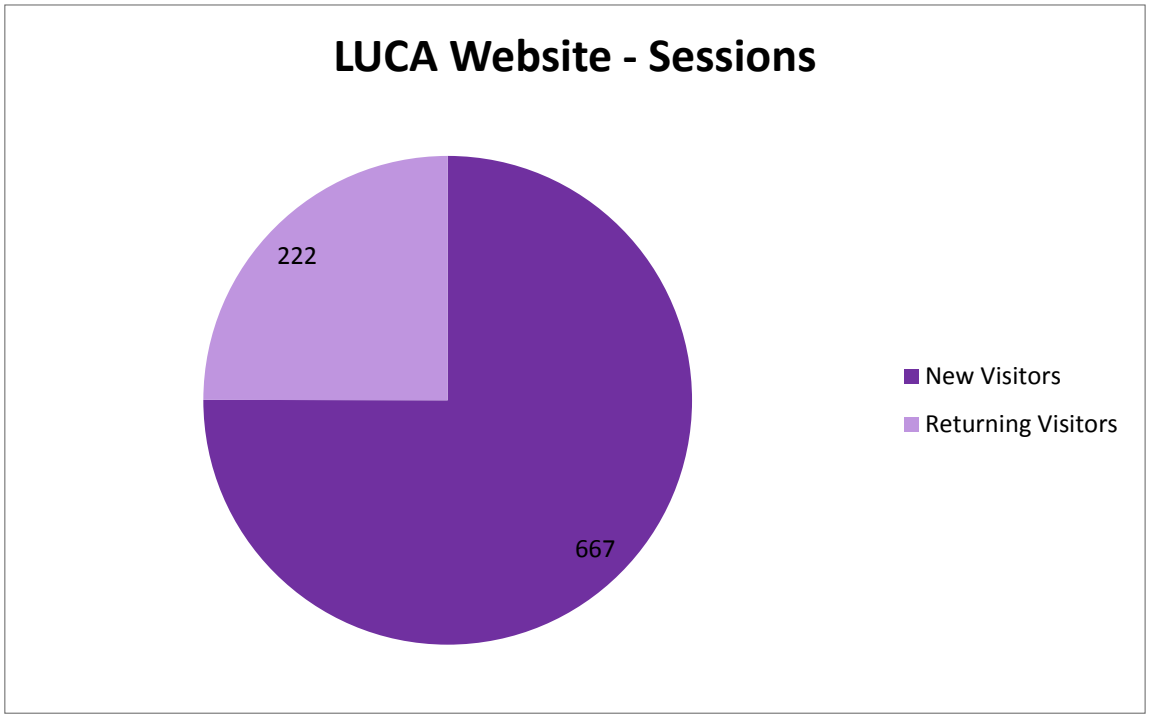

Figure 3: Website Session

During the first project year, the LUCA website was accessed from over 40 countries around the globe. Most visits were recorded from Italy with nearly 200 sessions:

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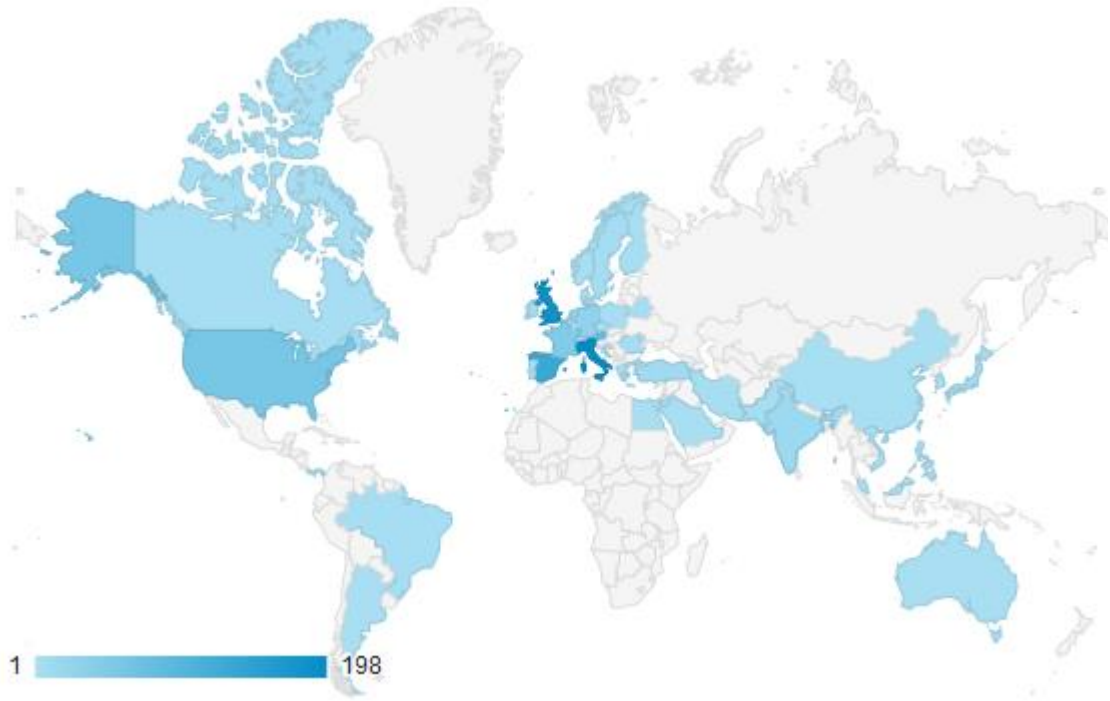

Figure 4: Website Vitistor Location (1)

The chart below provides an overview of the top ten countries from which the LUCA website was accessed:

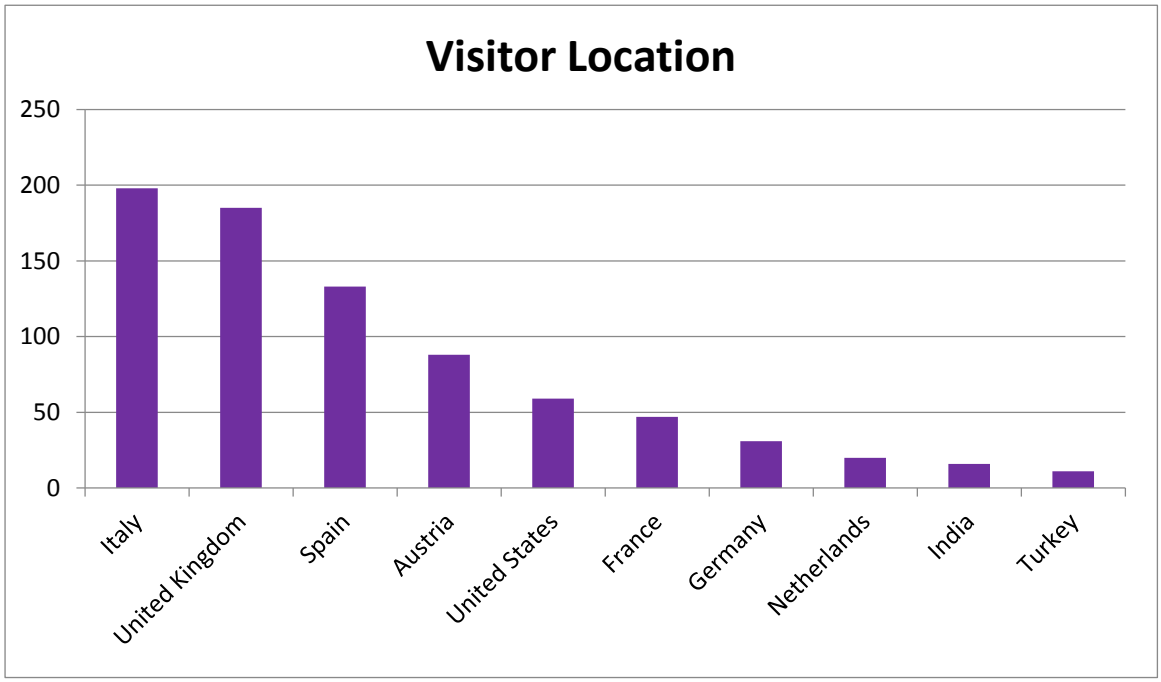

Figure 5: Website Visitor Location (2)

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c. Social Media

As mentioned above, a YouTube channel was set up for the project. To date, the LUCA video was viewed over 370 times. The chart below provides an overview. It can be seen that peaks tie in with the social media campaigns in last week of May, the press release published in late June, and the promotion activities on occasion of the LUCA meeting in late September:

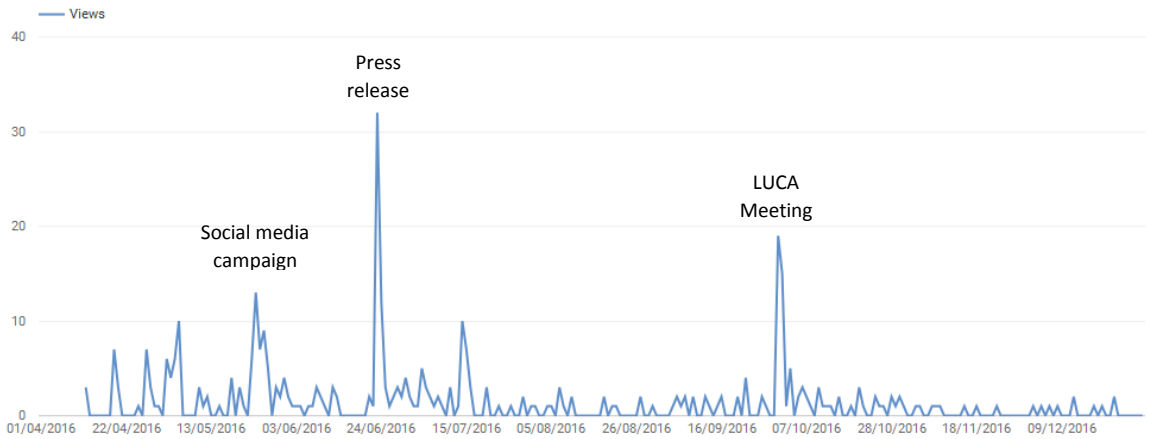

Figure 6: Views of LUCA Videos since April 2016

Viewers of the LUCA Video mainly come from Italy (41%) and Spain (21%), but also from the United States (8.8%), the United Kingdom (5.3%), Austria (3.7%), Germany (3.5%), France (2.5%), and Denmark (1.7%). The video was viewed around the world from Canada to Brazil, Australia, and Japan.

Using the partners' social media accounts, LUCA has been promoted on platforms such as Twitter, Facebook and LinkedIn. Social medial activities related to and during the European Congress of Radiology, the European Week Against Cancer, Head and Neck Cancer Awareness Week, Thyroid Awareness Week, and on International Thyroid Day were carried out to boost LUCA's visibility during these periods in an effort to engage with stakeholders all over the world. For example, the below social media card was developed for the European Week Against Cancer:

Figure 7: Social Media Card for European Action Week Against Cancer in May 2016

Tweets during the European Week Against Cancer and Thyroid Awareness week received between 5,400 and 11,200 impressions. An example tweeted via the EIBIR account are presented below:

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Figure 8: Tweet during European Action Week Against Cancer in May 2016

Figure 9: Tweet during Thyroid Awareness Week in May 2016

Moreover, twitter is also used to disseminate articles about LUCA in the general press and general information about the project is shared on occasion of project meetings. For instance:

Figure 10: Tweet about News Medical article on LUCA Project with over 24,000 impressions

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Figure 11: Tweet about LUCA 2nd Consortium General Assembly Meeting

LUCA has also been promoted on HemoPhotonic's LinkedIn Page:

Figure 12: LinkedIn Post about LUCA

d. Events

i. Presentations

The LUCA project was presented and promoted by the consortium partners on several occasions as part of scientific talks throughout the first year of the project. The list below provides an overview:

Type of Dissemination and Communication activities	Title (and any details you wish to add, e.g. web link)	Type of audience reached	Estimated number of persons reached
Participation to a conference	D. Contini: presentation on compact time-domain NIRS systems during fNIRS 2016, Paris, France, October 2016.	Scientific Community (higher education, research)	200-300
Participation to a conference	T. Durduran: Development and applications of diffuse correlation spectroscopy for non-invasive measurement of blood flow in clinics. Optical Society of America, 2016.	Scientific Community (higher education, research)	100-150
Participation to a conference	T Durduran: Using light to probe inside the body. Invited talk. Pint of science festival, May 2016.	General Public	50
Participation to a conference	T Durduran: Hybrid near-infrared diffuse optical methods for bed-side cerebral monitoring. Invited talk. 9th International Update on Neuro-Anesthesia & Neuro-intensive care. Hospical Clinic Barcelona, April	Scientific Community (higher education, research)	200-250

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	2016.		
Participation to a conference	T Durduran: 'why is my hand red?' or the tales of diffuse light in tissues. Invited talk. IEEE EMBS BCN Student Club, July 2016.	Scientific Community (higher education, research)	100-150
Participation to a conference	T Durduran: Using diffuse light and speckle statistics to non-invasively measure blood flow; from theoretical foundations to clinical applications. Invited talk. Universidad Internacional Menendez Pelayo, June 2016.	Scientific Community (higher education, research)	200-250
Participation to a conference	T Durduran: Non-invasive, diffuse optical techniques for functional imaging. Invited talk. VIII Spanish Drug Discovery Network Meeting, November 2016.	Scientific Community (higher education, research)	300-350
Participation to a conference	T. Durduran: Hybrid near-infrared diffuse optical methods for bed-side cerebral monitoring. Invited talk. XVII Simposium Internacional de Neuromonitorizacion y Tratamiento Del Paciente Neurocritico (PIC 2016), Vall d'Hebron University Hospital, November 2016.	Scientific Community (higher education, research)	200-250
Participation to a conference	T Durduran: Neuromonitoring and imaging of cerebral blood flow with diffuse correlation spectroscopy. Invited talk. 4th European autumn school on cerebral oxymetry and optical imaging, University of Picardie Jules Verne and the Faculty of Medicine, November 2016.	Scientific Community (higher education, research)	50-100

ii. Promotional Activities

In addition to scientific presentations, the LUCA project was also introduced and presented at conferences and meetings with promotional material.

Type of Dissemination and Communication activities	Title (and any details you wish to add, e.g. web link)	Type of audience reached	Estimated number of persons reached
Flyers	LUCA Fact Sheet for distribution at EIBIR Booth at ECR 2016	Scientific Community (higher education, research)	200
Non-scientific and non-peer reviewed publications (popularised publications)	Article on LUCA in congress newspaper ECR Today at ECR 2016: "New EU-funded project to develop innovative technology for thyroid cancer screening"	Scientific Community (higher education, research)	1,500
Flyers	LUCA Fact Sheet for distribution at Congress of the European Society of Head and Neck Radiology 2016	Scientific Community (higher education, research)	100

e. Collaboration Activities

LUCA partners continued their activities in other related projects (mentioned in the project description) and in new projects that have begun during 2016.

On the European level, POLIMI and ICFO continue to collaborate on LaserLab Europe. POLIMI, ICFO and VERMON on OILTEBIA. HemoPhotonics, ICFO and POLIMI collaborate on BabyLux. UoB,

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HemoPhotonics, ICFO and POLIMI on BitMap. EIBIR, ICFO and POLIMI have collaborated on successful and unsuccessful project proposals.

On national level, ICFO and IDIBAPS/Hospital Clinic continued their collaboration on clinical studies. HemoPhotonics and ICFO on product development and technology spin-off activities.

4) Planned Activities for Year 2

During year 2, work will continue on dissemination material and the communication kit, and the dissemination and communication plan will be kept up-to-date. The project website will be updated on a regular basis to include current activities and new results. The consortium will continue to promote the scientific activities of the project and their results on the project website and via social media channels.

Already planned activities during year 2 include:

Type of Dissemination and Communication activities	Title (and any details you wish to add, e.g. web link)	Type of audience reached	Estimated number of persons reached
Participation to a conference	S. Wojtkiewicz et al "Ultrasound Guided Diffuse Optical Characterization of Human Thyroid Tissue" at the European Conferences on Biomedical Optics January 2017	Scientific Community (higher education, research)	500
Participation to a conference	D. Contini: presentation on compact time-domain NIRS systems during PHOTONIC WEST 2017, San Francisco, California USA, January/February 2017.	Scientific Community (higher education, research)	200
Participation to a workshop	A. Tosi: presentation on compact time-domain NIRS systems during Single Photon Workshop 2017, Boulder, Colorado, August 2017.	Scientific Community (higher education, research)	200
Participation to a conference	T. Durduran: presentation on "Multi-modal imaging with diffuse optics for cancer theranostics" during EIBIR Session on "EU Research on cancer imaging" at ECR March 2017	Scientific Community (higher education, research)	500
Participation to a conference	U. M. Weigel: "Multi-modal imaging with diffuse optics for cancer diagnostics" at the European Conferences on Biomedical Optics June 2017	Scientific Community (higher education, research)	500
Participation to a conference	G. Lo Presti et al.: "The overview and current status of the LUCA project - Laser and Ultrasound Co-analyzer for Thyroid Nodules" at the European Conferences on Biomedical Optics June 2017	Scientific Community (higher education, research)	500
Flyers	LUCA Flyer for distribution at EIBIR Booth at ECR March 2017	Scientific Community (higher education, research)	200
Non-scientific and non-peer reviewed publications (popularised publications)	Article with update on LUCA in congress newspaper ECR Today at ECR March 2017	Scientific Community (higher education, research)	1,500
Non-scientific and non-peer reviewed publications (popularised publications)	Article in EIBIR Annual Report 2016 (published in February 2017)	Scientific Community (higher education, research)	250

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5) Conclusion

As has been shown, the LUCA partners actively engaged in dissemination activities throughout the first project year and have already taken steps to further disseminate information about LUCA during year 2. All dissemination activities comply with the LUCA dissemination strategy: a visual identity and an online presence were established; promotional material was produced; LUCA was and will be presented at international scientific congresses and meetings, and information on the project was distributed via social as well as traditional print media. Moreover, first annual newsletter will be distributed to the project's stakeholder database in M12.

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