SMARTBEAR

CALL H2020-SC1-FA-DTS-2018-2020
Trusted digital solutions and Cybersecurity in Health and Care
TOPIC DT-TDS-01-2019
Smart and healthy living at home

SMART BEAR

"Smart Big Data Platform to Offer Evidence-based Personalised Support for Healthy and Independent Living at Home"

D58 – Interim Communication, Dissemination, Impact Creation, Exploitation & Standardisation Report
Version 2

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Duration: 60 months

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CO = Confidential, restricted under conditions set out in Model Grant Agreement	
CI = Classified, information as referred to in Commission Decision 2001/844/EC.	
Int = Internal Working Document	

D13.2 (D58) – Interim Communication, Dissemination, Impact Creation, Exploitation & Standardisation Report

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Change Log

Version	Date	Description
1	28-02-2022	First version of the deliverable. Submitted by the deadline of 2022-02-28
2	14-07-2022	Second version of the deliverable. Updates respond to the requests for revision released on the review report of the 13-04-2022. Updates on partners' individual exploitation plans.

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Executive Summary

This document will describe an interim report for SMART BEAR dissemination, communication, Impact Creation, exploitation and standardization activities. It will provide a presentation of the current communication, dissemination, exploitation activities and impact as well as estimations on the activities that are yet to be performed, like presentations, papers publications, articles in popular media, participation in standardization bodies, etc.

Widespread communication and dissemination are of paramount importance for SMART BEAR outcomes adoption and project's sustainability. The SMART BEAR communication and interim dissemination report describes the up-to-date results of the initial plan, that outlines several channels and tools that will be exploited throughout the whole lifetime of the project targeting the engagement of several groups spreading from specific scientific communities to various groups and stakeholders and, of course, the general public.

The current deliverable includes the following:

- Introduction – introductory presentation of the SMART BEAR project focusing on dissemination, communication, Impact Creation, exploitation and standardization activities;
- Dissemination and exploitation objectives of the reporting period – a detailed description of WP13 efforts on developing and implementing an appropriate dissemination and exploitation strategy that will result in the most effective promotion of the project;
- Dissemination and exploitation tools and activities – an overview of the dissemination tools and activities carried out by the SMART BEAR partners to raise visibility of the project during its implementation;
- Planned Dissemination and exploitation activities – outline of the dissemination and exploitation activities that will be carried out in the remainder of the project;
- Conclusions.

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List of acronyms

AAL	Ambient Assisted Living
AHA	Active and Healthy Ageing
BDVA	Big Data Value Association
BSN	Body Sensor Network
DSS	Decision Support System
DSVM	Data Sharing Valorisation Model
EIP	European Innovation Partnership
SAE	Smart Anything Everywhere
SDO	Standards Developing Organization
WSN	Wireless Sensor Network

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1 Introduction

1.1 Purpose of the document

SMART BEAR is funded under the topic of DT-TDS-01-2019. It aims to provide an intelligent and personalised digital solution for sustaining and extending healthy and independent living. The offered solution will be an affordable, accountably secure and privacy-preserving innovative platform with off-the-shelf smart and medical devices, at TRL9, to support the healthy and independent living of elderly people with five prevalent health-related conditions; Hearing Loss, Cardiovascular Diseases, Cognitive Impairments, Mental Health Issues and Balance Disorders, as well as Frailty.

The purpose of the deliverable D13.2- Interim Communication, Dissemination, Impact Creation, Exploitation & Standardisation Report is to provide an overview regarding the execution of the strategy and plan regarding the activities that SMART BEAR will engage in the context of work package 13 in order to raise awareness about the project concept, developments and findings to all key stakeholders and to ensure the exploitation and sustainability of the project after its lifetime.

1.2 Intended Readership

This deliverable is intended to provide an update on the initial plan for communication, dissemination, impact creation, exploitation and standardisation strategy that the SMART BEAR consortium will follow. This plan is intended to be read by all consortium members.

1.3 Relation with other SMART BEAR deliverables

This deliverable is related to D13.1 - Communication, Dissemination, Impact Creation, Exploitation & Standardisation plan. Furthermore, this deliverable relates to all upcoming deliverables of work package 13.

2 Communication and Dissemination

All dissemination and communication activities of the project are defined in the D13.1 developed at the beginning of the project. The plan is continuously monitored and updated and describes both the dissemination activities planned and those already carried out.

In establishing the dissemination plan, first, the main targets of the dissemination activities were defined. Subsequently, dissemination objectives and levels were defined to ensure effective promotion and communication of project results. Finally, the main dissemination channels to be used were identified, and some performance indicators were developed.

2.1 Target Audience

One of the primary purposes of *SMART BEAR* dissemination and communication strategy is to influence stakeholders' views, so that they will become aware of the project's new ideas, services and results and probably adopt and exploit them. The main strategic stakeholder groupings have been identified for the dissemination and communication of the project and are as follows:

- Scientific Communities
  - Ambient Assisted Living
  - Internet Of Things and Intelligent Systems
  - Service-Based Computing
  - Big Data Management and Analytics
  - Data Semantics and Web-Centric Systems
  - Process Mining
  - Grid And Cloud Computing
  - Social Sciences
  - Interoperability
  - Cyber And Information Security
  - Panhellenic ENT Community
  - Biomedical Engineering
  - Persuasive Design
  - Cybersecurity
  - Medical -IoT
- Stakeholders
  - Mental Health Professionals
  - Practicians
  - Hearing Loss and/or Balance Training
  - Cardiologists
  - Caregivers
  - Medical Engineers
  - Social Workers
  - European Federation of Nurses Associations, EFN
  - Senior Residence Managers
  - Officials
  - Researchers
  - General Practitioners / Family Doctors
  - Health Care Decision Makers
  - Private Health Care Providers
  - Patients Organizations
- Communities for Health Care and Ageing
  - EUROCARES, European Association Working For Careers (https://eurocarers.org/)

    - Health Provider Organizations
    - Caregivers Associations
    - Health Services Manager Associations
    - Social Assistance Agencies
    - Elderly People's Advocate Groups - AGE EUROPE- (https://www.age-platform.eu)
    - Covenant on Demographic Change (https://www.agefriendlyeurope.org) at European Level
    - Online Senior's Communities
    - European Seniors' Union
    - Panhellenic ENT Community
    - Quirónsalud (https://www.quironsalud.es/en)
    - General Council of Official Colleges of Physicians (https://www.cgcom.es/)
    - Spanish Society of Cardiology (https://secardiologia.es/)
    - Spanish Heart Foundation (http://www.secardiologia.es/)
    - Spanish Society of Health Informatics (SEIS - https://seis.es/)
    - Spanish National Health System
    - European University Hospital Alliance (EUHA) - Ospedale San Raffaele is member of EUHA
    - European Connected Health Alliance Members
- Biomedical communities
    - Biomedical Engineering Schools
    - National Groups in Bioengineering
- Policy Makers
    - National and EU Health Authorities
    - Ministries
    - Municipalities
    - Health Care Decision Makers
    - Region Government Officers
    - Region Health Authorities
    - Region Government Officers
    - EIP on AHA Action Groups
- Technology provider domains
    - IoT/IoMT
    - Decision Support Systems (DSS)
    - Wireless Sensor Networks (WSN)
    - Brain Health Gaming
    - Collaborative Platforms
    - Smart Anything Everywhere (SAE)
    - Persuasive Design Researchers
- Technology Centres
    - Tecnalia (https://www.tecnalia.es/en/)
    - Vicomtech (https://www.vicomtech.org)
    - Gaiker (http://www.gaiker.es/)
    - Digital Health Research Unit (https://eng.isciii.es/eng.isciii.es/QuienesSomos/CentrosPropios/UITES/Paginas/default.html)
    - Veneto's Research Center for eHealth Innovation (http://consorzioarsenal.it/)
- Other
    - Media and Advertising
    - Clusters on ITC in Health Care
    - Big Data Value Association (BDVA)
    - Universities
    - General Public

2.2 Communication channels

2.2.1 Visual Identity and brand

The brand identity is the project's look and feel. It includes features such as name, design, and so on. Our brand identity was created using physical and visual elements. Another important tool that made up our brand is the emotional connection the user feels while using *SMART BEAR* services. Brand identity is the first interaction with the users that leaves a lasting impression on them. We used various elements for building the visual identity of the brand as it is all the things that the user can see about the *SMART BEAR* project. The important thing is to build a visual identity that resonates with the project's goal and overall nature.

2.2.2 Project Website

The site is a key instrument for supporting the dissemination of the research results. A dedicated website has been created for the *SMART BEAR* project sharing information regarding objectives, results, partners and events. Furthermore, the website includes a portal for sustained longitudinal studies and participant engagement. The site traffic can be seen in the following figures (from https://seranking.com/competitor-traffic-research.html?ga=1404709&source=link and Google Analytics).

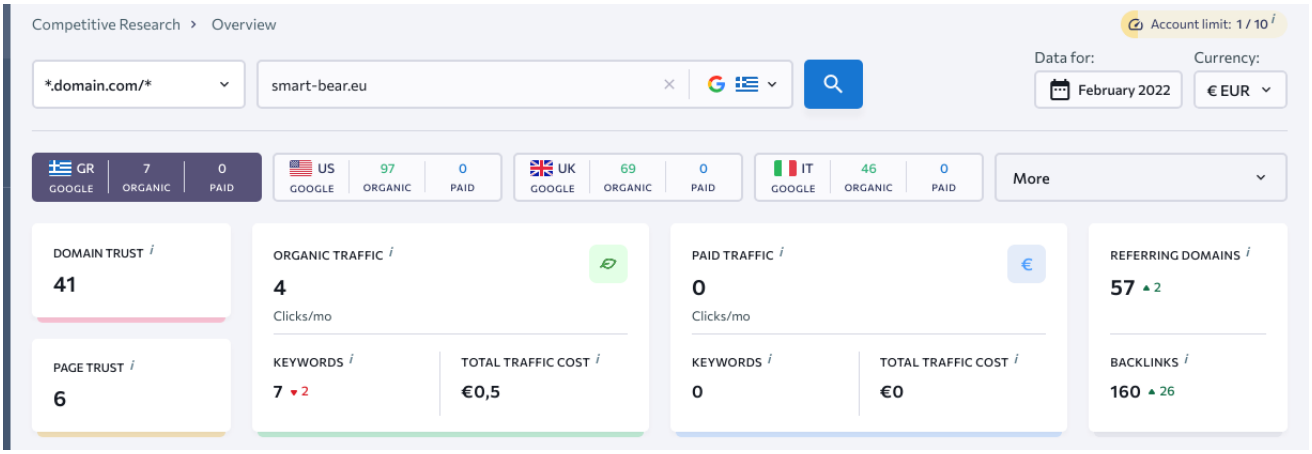


Figure 1 overview

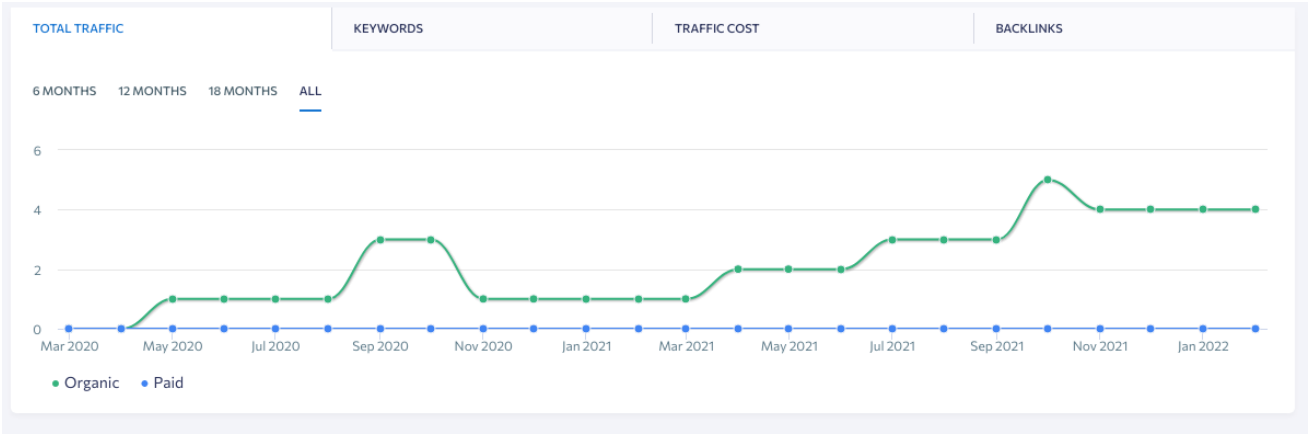


Figure 2 Total traffic

Figure 3 Traffic per keywords

Figure 4 Traffic cost

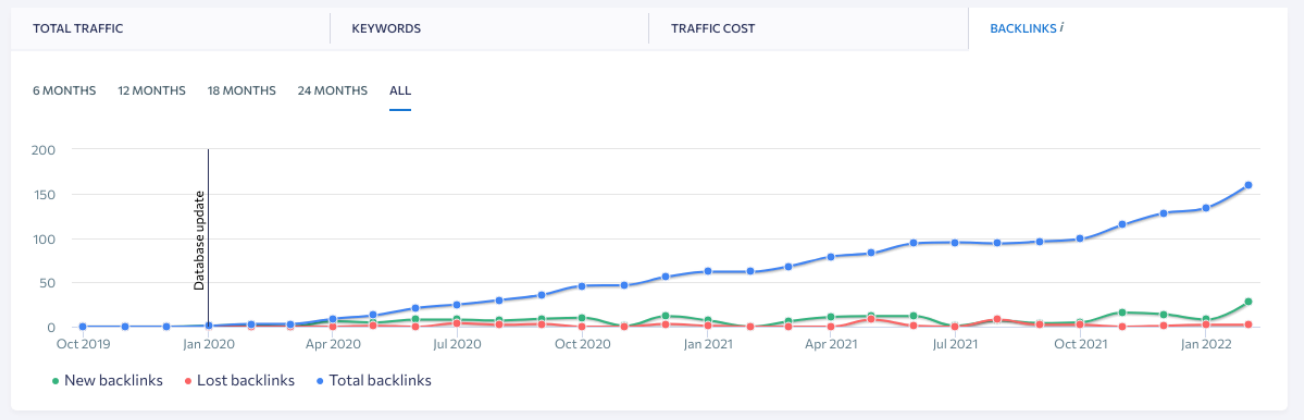


Figure 5 Backlinks

Organic keywords

ALL (7) IMPROVED (5) DECREASED (1) NEW (1) LOST (3)

KEYWORD	SEARCH VOL.	POSITION	COMPETITION	CPC
smartbear	40	5 ▼ 1	0,11	€0,15
project ioannina	100	22 ▲ 9	0,02	€0,14
medlab uoi	10	3 ▲ 3	0,03	–
iccs	30	11 NEW	0	–
uoi	20	13 ▲ 2	0	–

VIEW DETAILED REPORT

Figure 6 Organic keywords

Distribution of organic keyword rankings

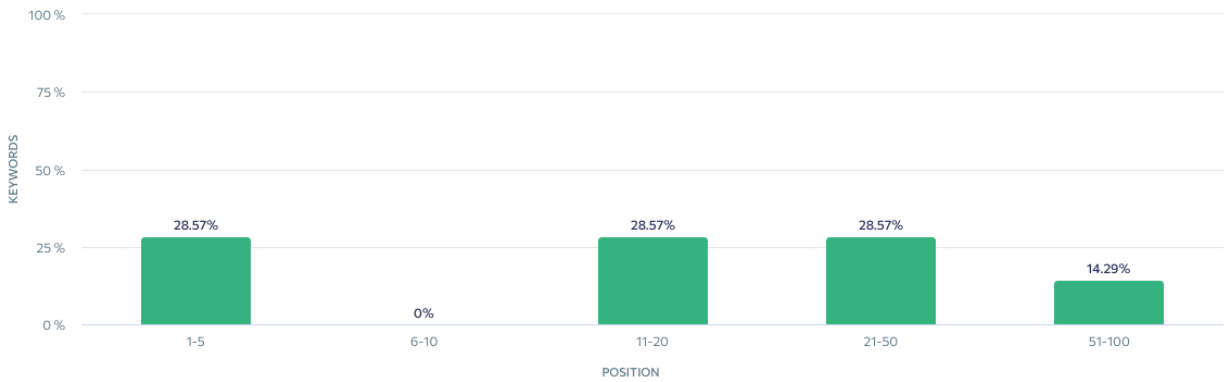


Figure 7 Distribution of organic keyword rankings

SERP Features

Reviews Keywords: 9	Images Keywords: 6	Local Pack Keywords: 5	Sitelinks Keywords: 5
Video Keywords: 5	Find results on Keywords: 2	Knowledge Card Keywords: 2	Top Ads Keywords: 1

Figure 8 SERP features

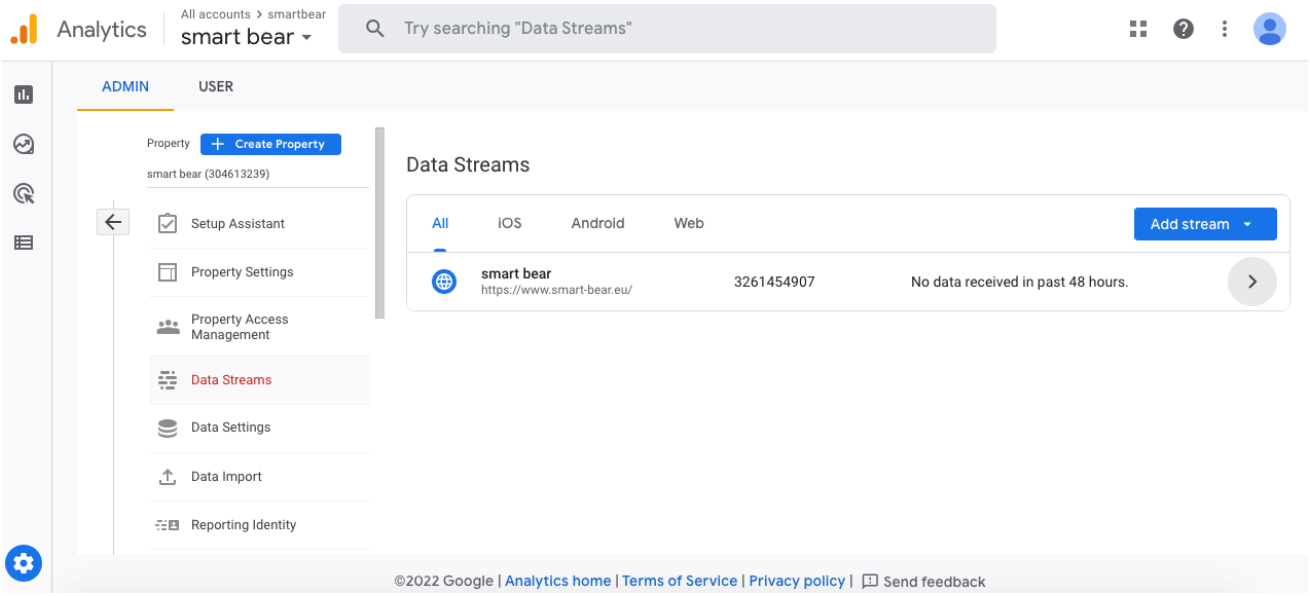


Figure 9 Google analytics

2.2.3 Social media platforms

Social media platforms play an important role in disseminating the *SMART BEAR* results. There are lots ofsocial media platforms available today, and they can play a major role in social media marketing success. The social media sector is changing almost daily, with new tools and utilities being rolled out, adding more ways to connect, track and maximize *SMART BEAR* online marketing performance.

One of the toughest challenges is to create an interesting visual content. A Venngage infographic showed 36.7% of marketers said their top struggle with creating visual content was doing so consistently. This shows how important highly-visual content is to marketers and the people they want to reach.

We consider our active presence and participation in the field of social media and networking streams (e.g. Facebook, Twitter, Instagram, LinkedIn) of fundamental importance for the success of the project. Through the communication of the progress and the results of, at least on a biweekly basis (with the goal being on a weekly basis), we aim at sharing its advancements and at steadily increasing the number of our followers, thus enhancing the impact of the project in the scientific world and business sector of health-care enterprises.

The extrovert character of our activity in the social networks is deemed as crucial, especially if we take into account the large (geographical and content) diversity of the universities, SMEs and institutions which are the shareholders of *SMART BEAR* the optimal combination of these characteristics shall be the guarantee for its prosperity. Specifically, the dissemination actions that have taken place aim to grow the number of interested parties and demonstrate to SMEs, in particular, how they can also link with the platform and use it to develop

and commercialise their own products. To disseminate the results of *SMART BEAR* project, we have created Facebook, Instagram, LinkedIn and Twitter accounts from where important public information will be propagated:

2.2.3.1 Facebook account

Facebook is the most popular social network in the world, with more than two billion users. As a result, you can find just about anyone on Facebook, provided they have access to the Internet. The key data points we found for the best times to post on Facebook are on Wednesday at 11 a.m., and 1 p.m. and the most consistent engagement is on Weekdays from 9 a.m.–3 p.m. as it is shown below. The Facebook account of the project is https://www.facebook.com/SMARTBEAREU. Data analytics from Facebook are shown in the following figures:

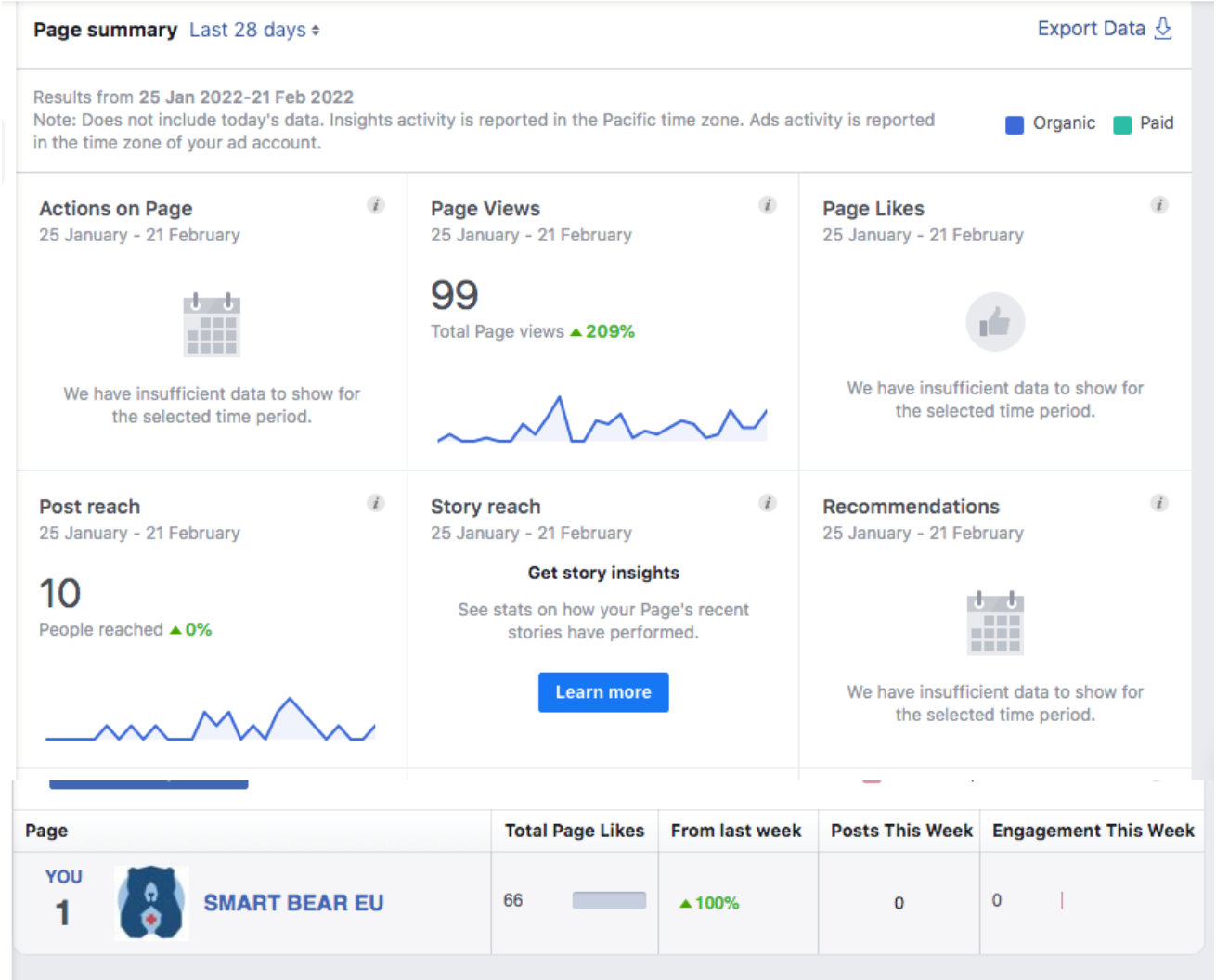


Figure 10 Overall page statistics

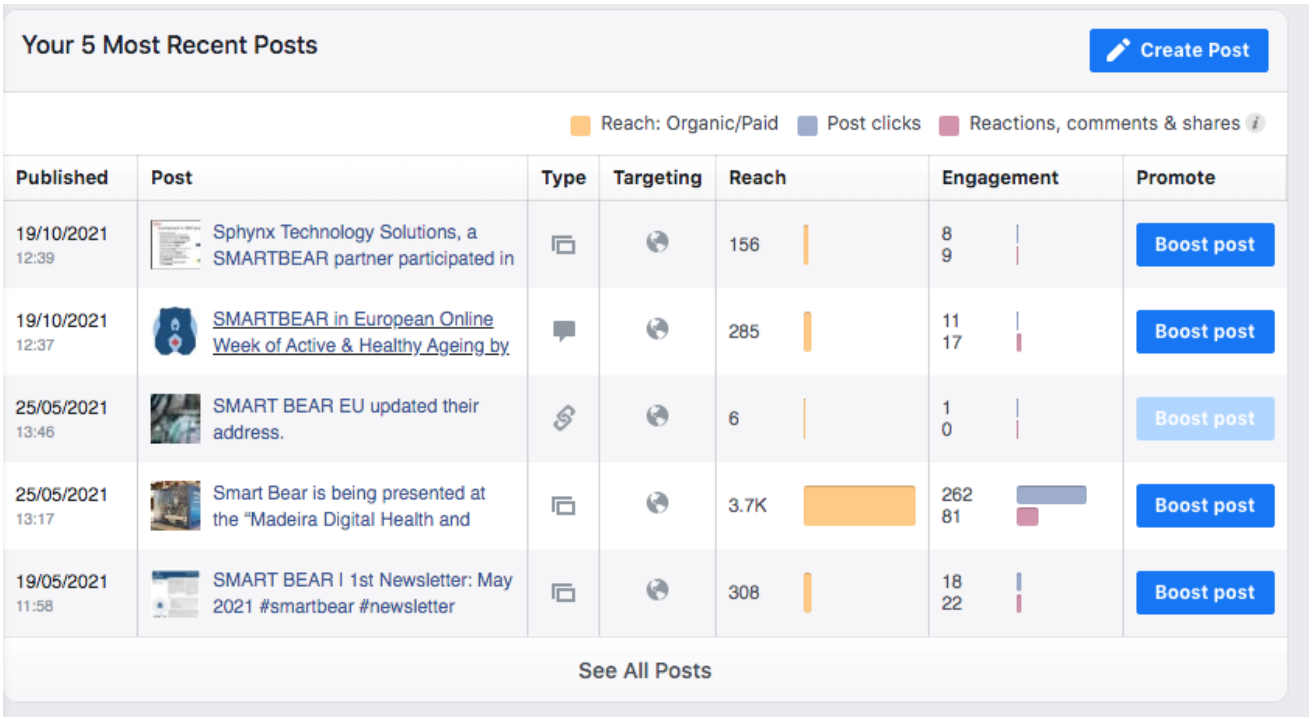


Figure 11 Post statistics

Figure 12 Post reach

Figure 13 Total reach

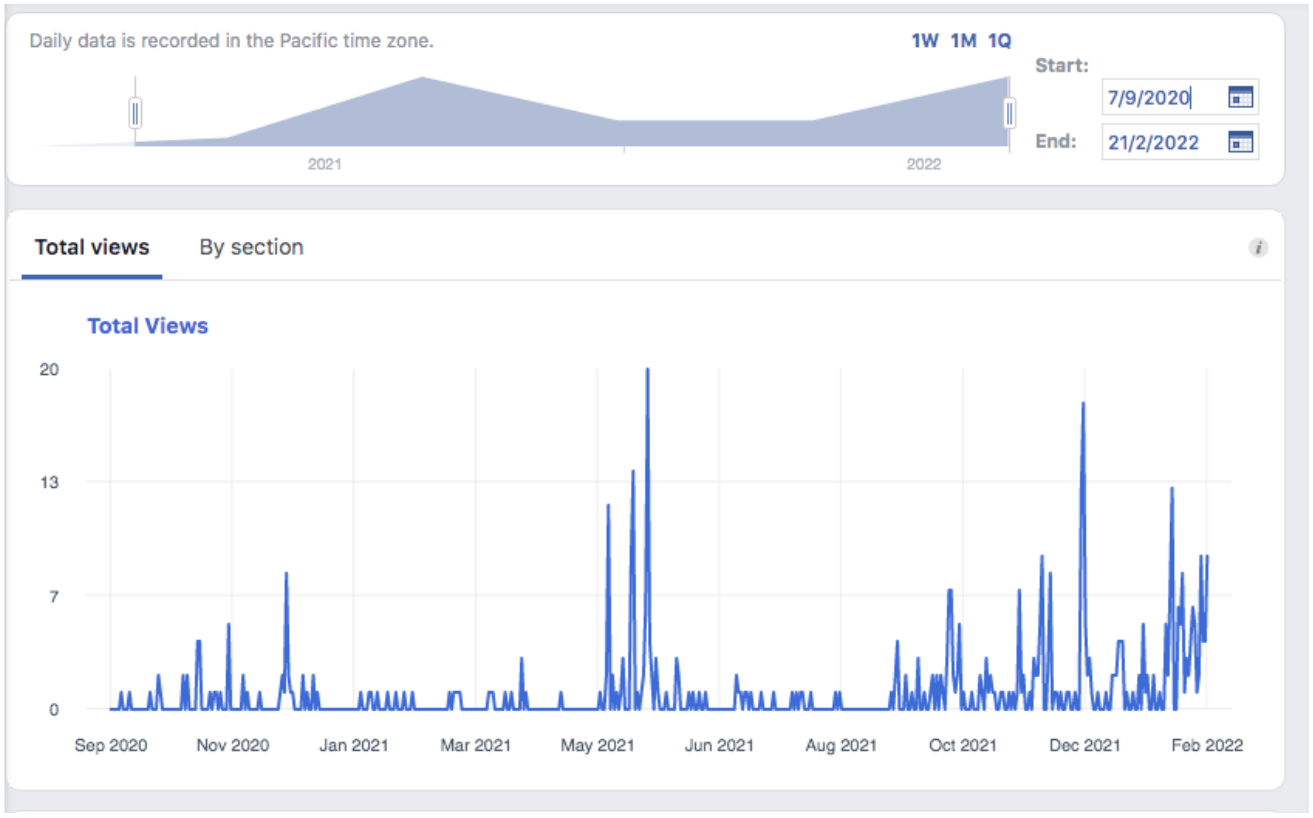


Figure 14 Total Views

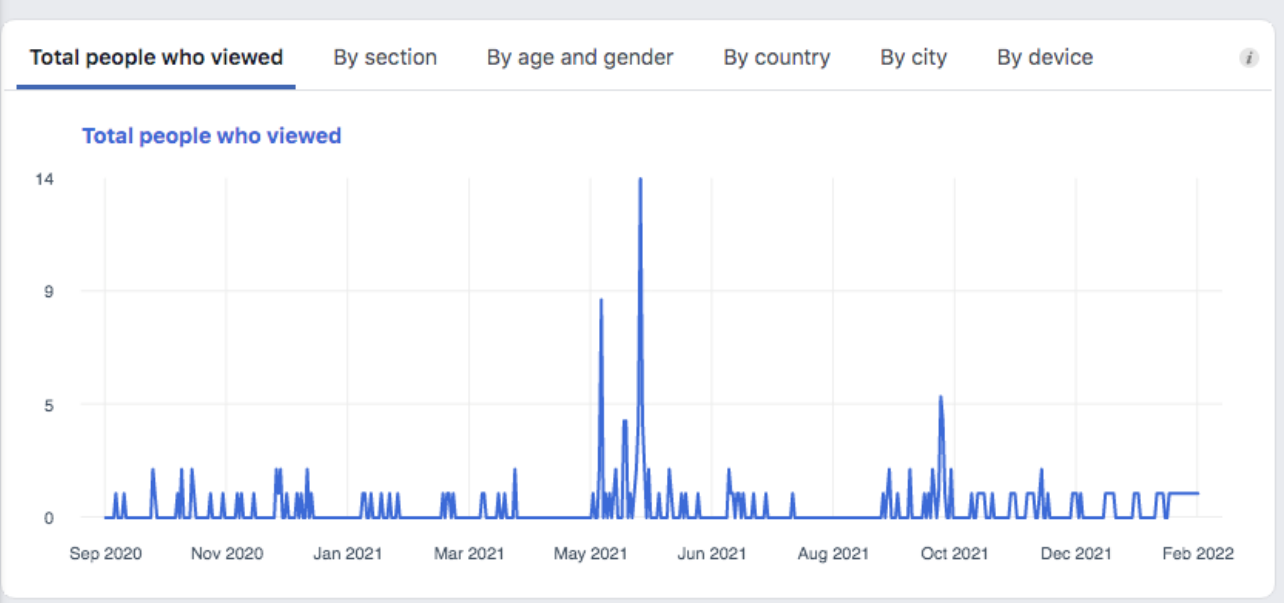


Figure 15 Total people who viewed

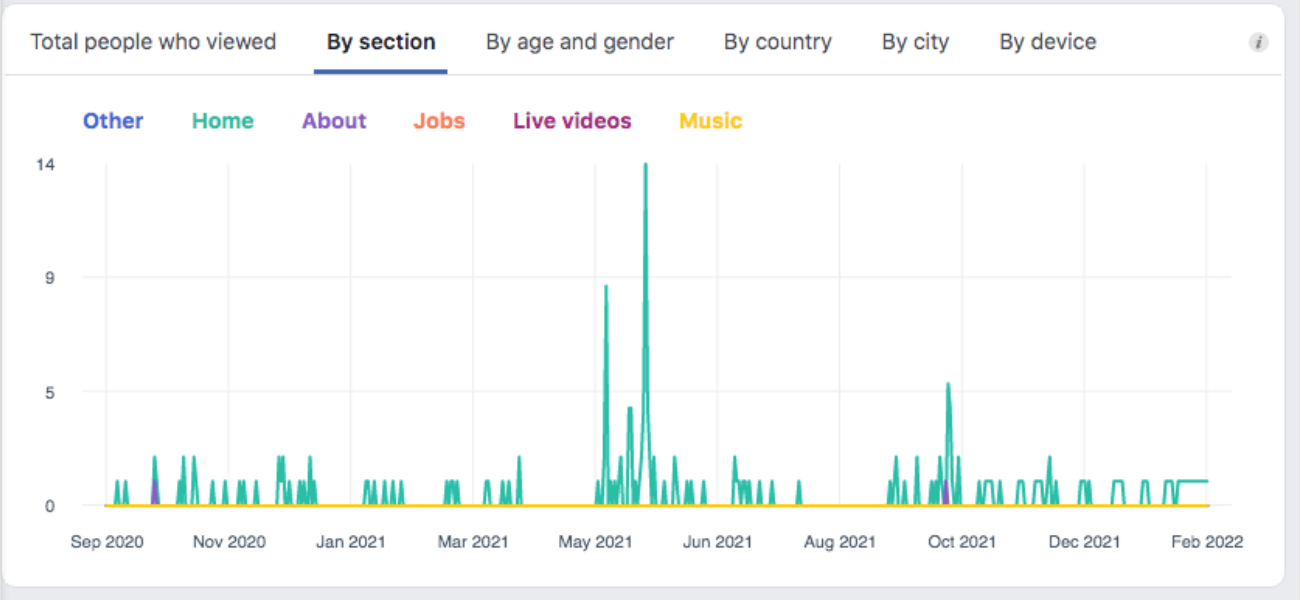


Figure 16 Views by section

2.2.3.2 Instagram account

Facebook is leading the pack of social networking sites in the world with a huge margin in front of YouTube. Then there is another gap of similar size to **Instagram** on the third place. Subsequently, Instagram is one of theyoungest social networks out there, with a majority of users under 25. Instagram has a younger audience as a target, so even though there is a page, it is not yet active.

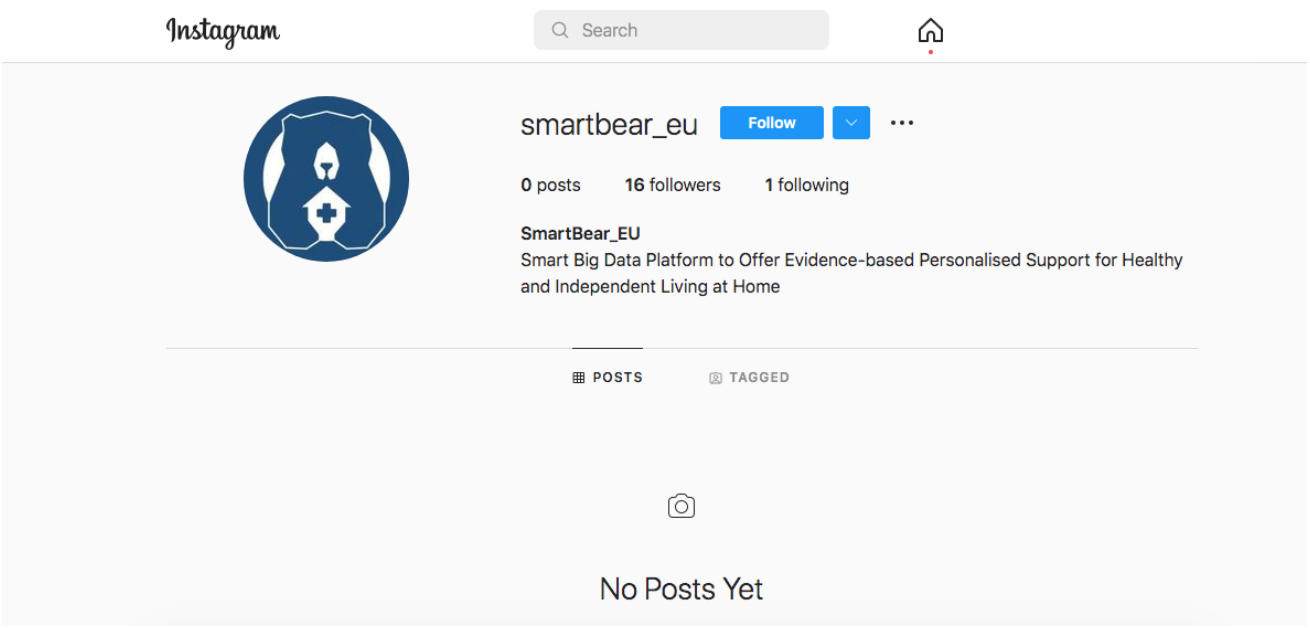


Figure 17 Instagram page

2.2.3.3 Twitter account

Twitter gives its users a steady stream of information and new content from all over the Internet. It has millions of engaged users every month, and practically every brand in the world has an account to update its customers. Twitter reported 336 million active monthly users in its last quarterly report. In the framework of SMART BEAR communication, the account https://twitter.com/SmartBear_EU (@SMARTBEAR_EU) has been created

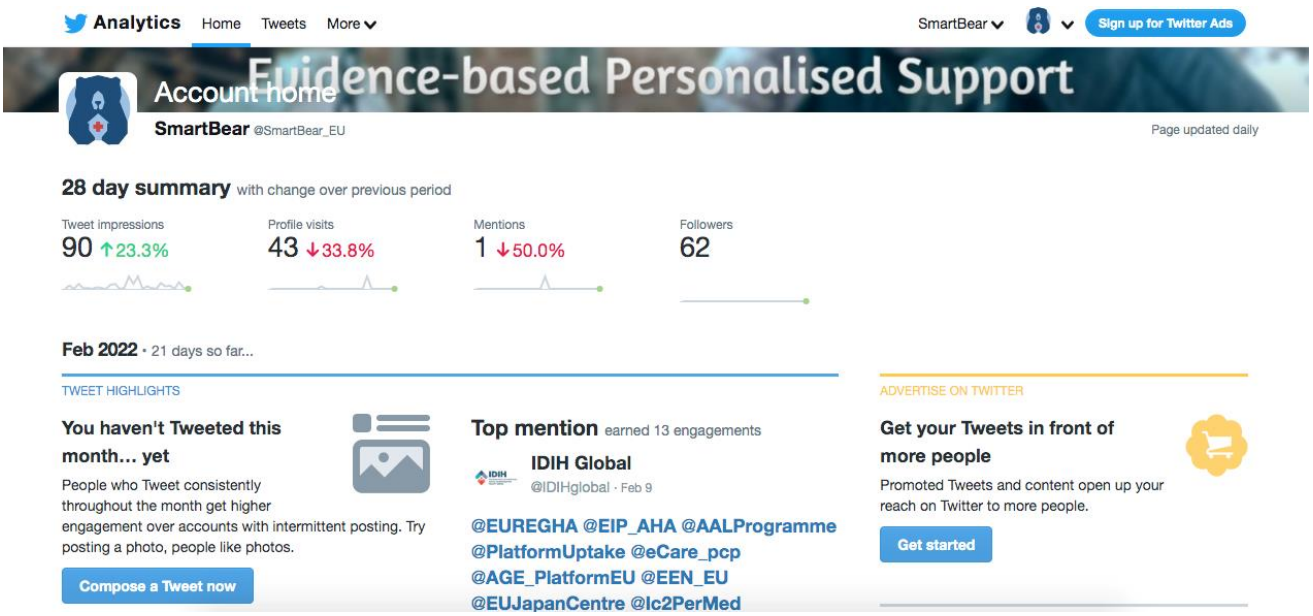


Figure 18 Summary of account

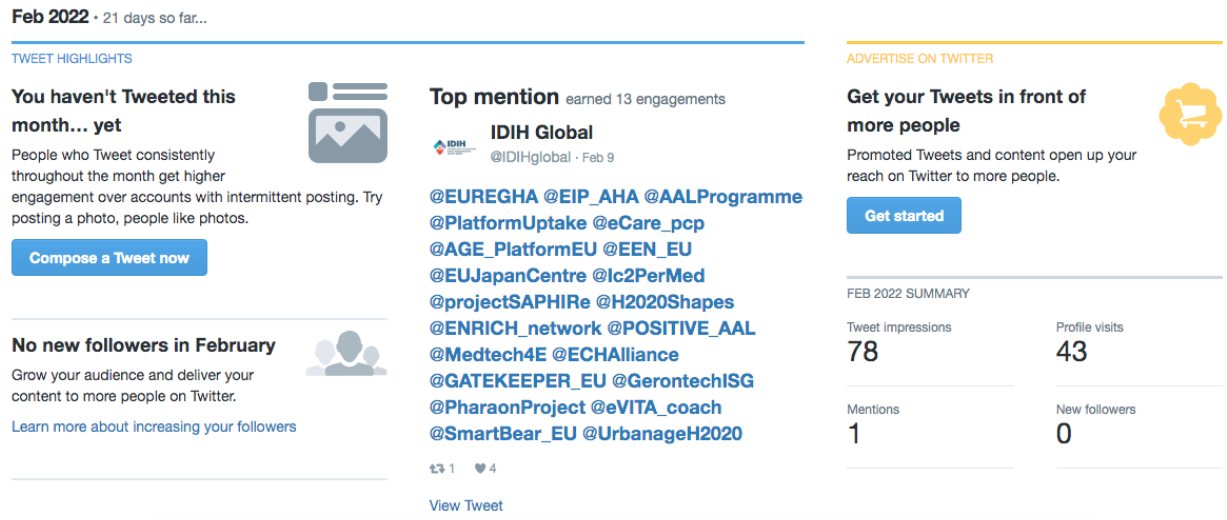


Figure 19 Summary of February

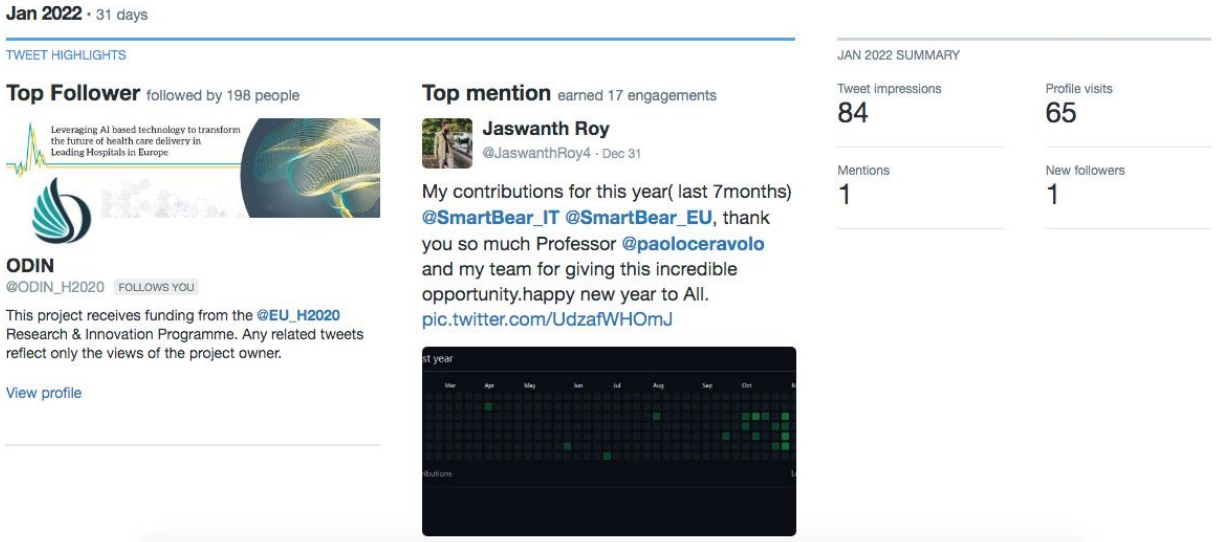


Figure 20 Summary of January

2.2.3.4 LinkedIn account

Finally, in terms of professionalism, no social network can beat LinkedIn. It's a thriving community of workers and business owners who share and connect on a professional level, making it much more formal than other social media platforms. The SMART BEAR LinkedIn account is accessible on https://www.linkedin.com/in/SMARTBEAR-b538ba196 .

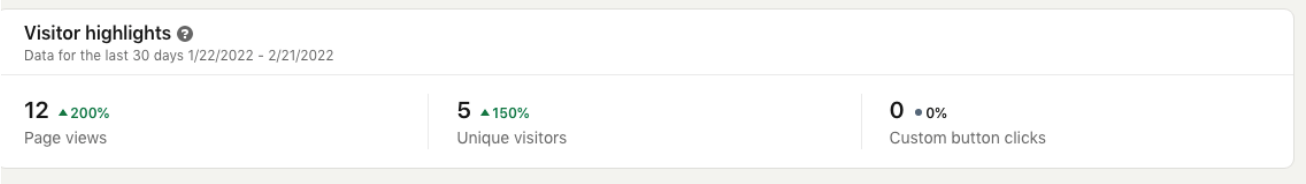


Figure 21 Visitor highlights

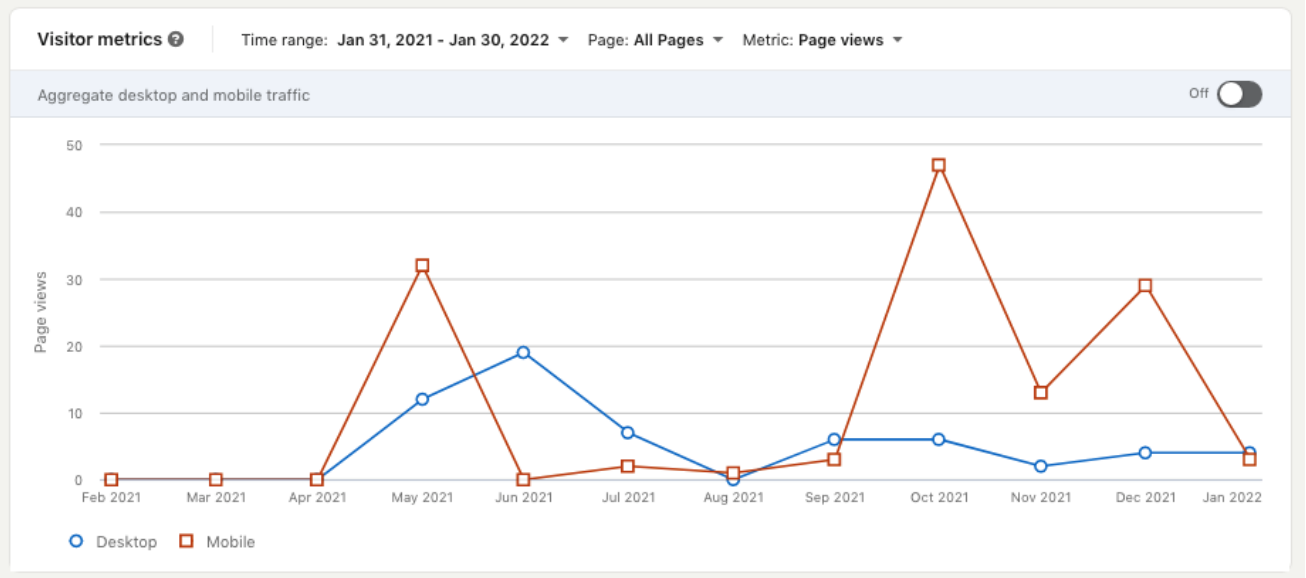


Figure 22 Visitor metrics

Figure 23 Update metrics

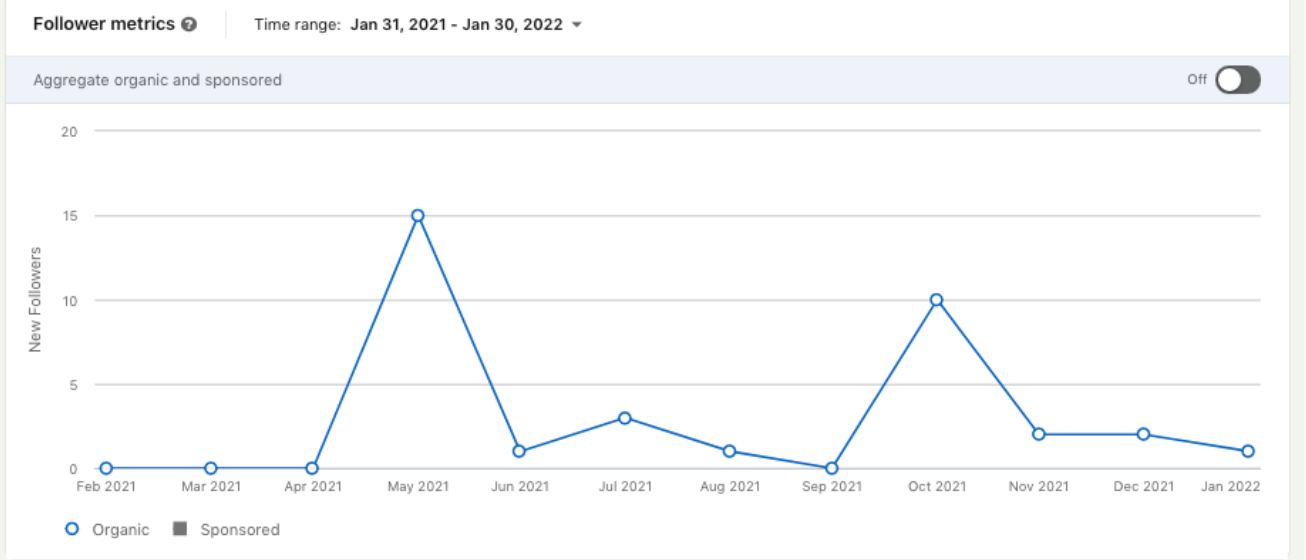


Figure 24 Follower metrics

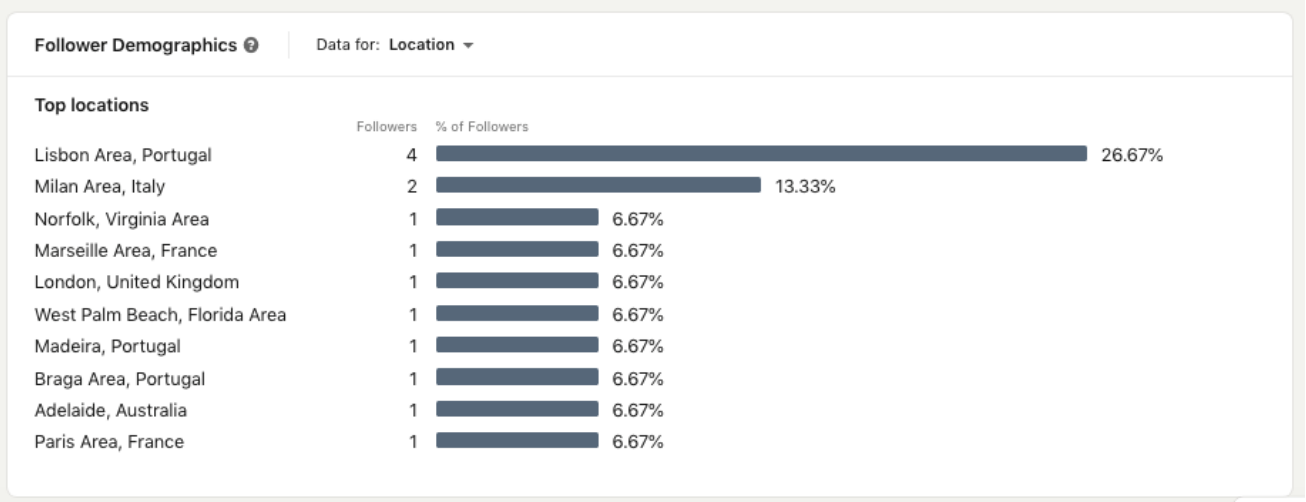


Figure 25 Ffollower demographics

2.2.3.5 Newsletters

Regular information will be provided in the SMART-BEAR electronic newsletter:

- reporting the news of project,
- information about the next project events and how to participate,
- presence on events,
- publication in journals,
- research advancement and results.

The first issue will present the full project, its aims and its WPs. This Newsletter will mainly be disseminated to:

- EU and Associated members states,
- the general research society,
- the general public,
- the policymakers.

It will be available for download on the project website. A first dissemination list will be created from the project partners and their respective contacts having shown an interest in the project. This list will be enlargedduring the project duration with, amongst others, people coming to workshops or met during events/conferences/exhibitions where the project will be presented.

The newsletter will be circulated twice a year for the duration of the project. Two newsletters have been uploaded on the SMART-BEAR website.

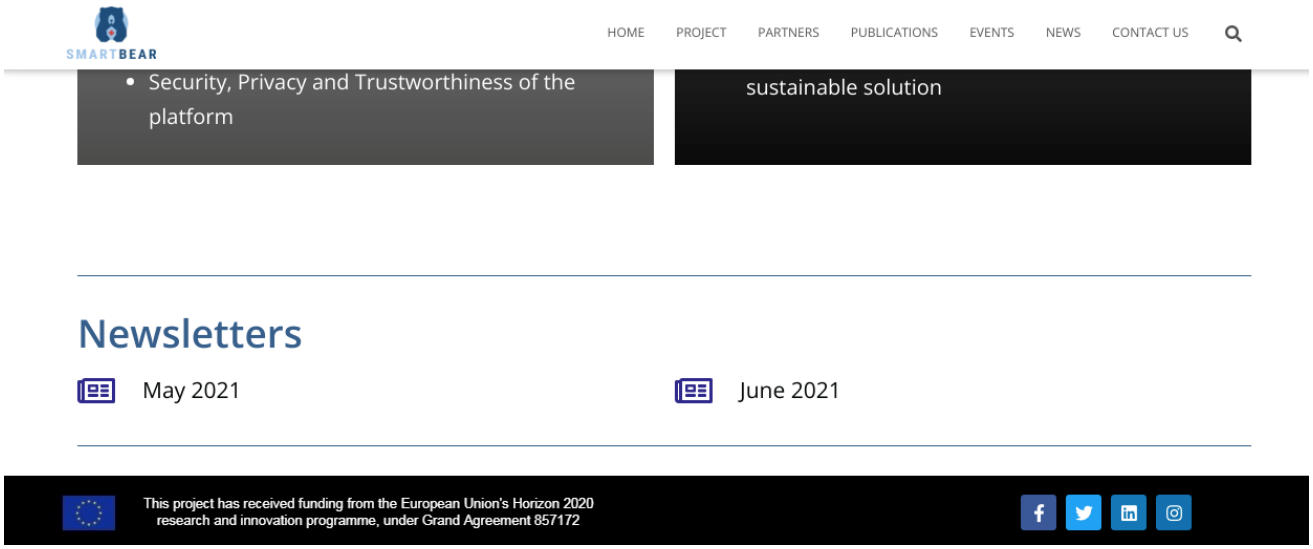


Figure 26 Newsletters

Regular news appear on the website.

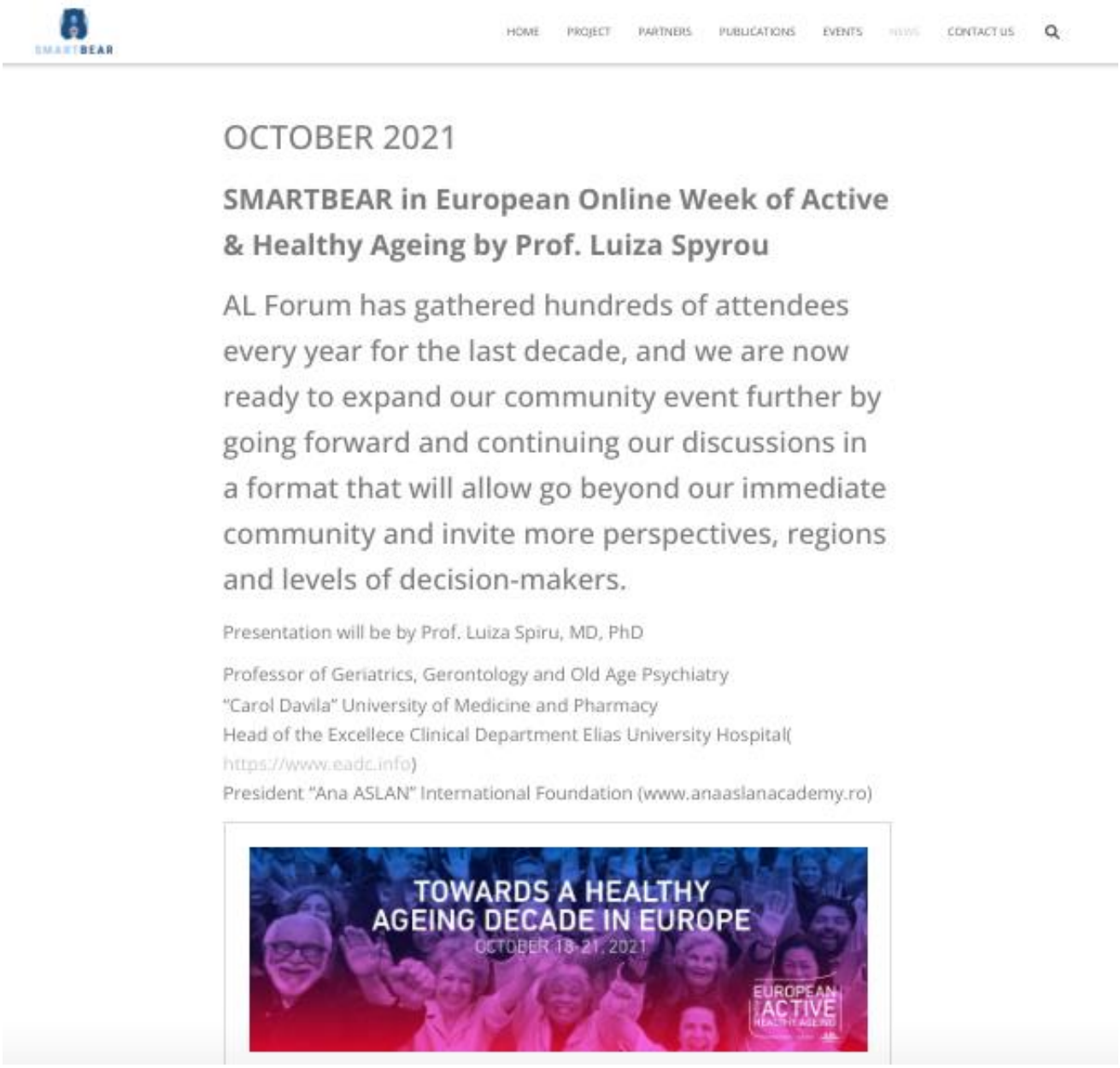


Figure 27 example for October 2021

HOME PROJECT PARTNERS PUBLICATIONS EVENTS NEWS CONTACT US

OCTOBER 2021

Sphynx Technology Solutions, a SMARTBEAR partner participated in the "Career Day: Meet the companies" virtual event, organised by the Graduate Student's Association of Computer Science Department of the University of Crete.

Michalis Smyrlis, who participated on behalf of Sphynx, had the chance to disseminate SmartBear early outcomes to more than 90 participants of both the academic and industry fields.

OCTOBER 2021

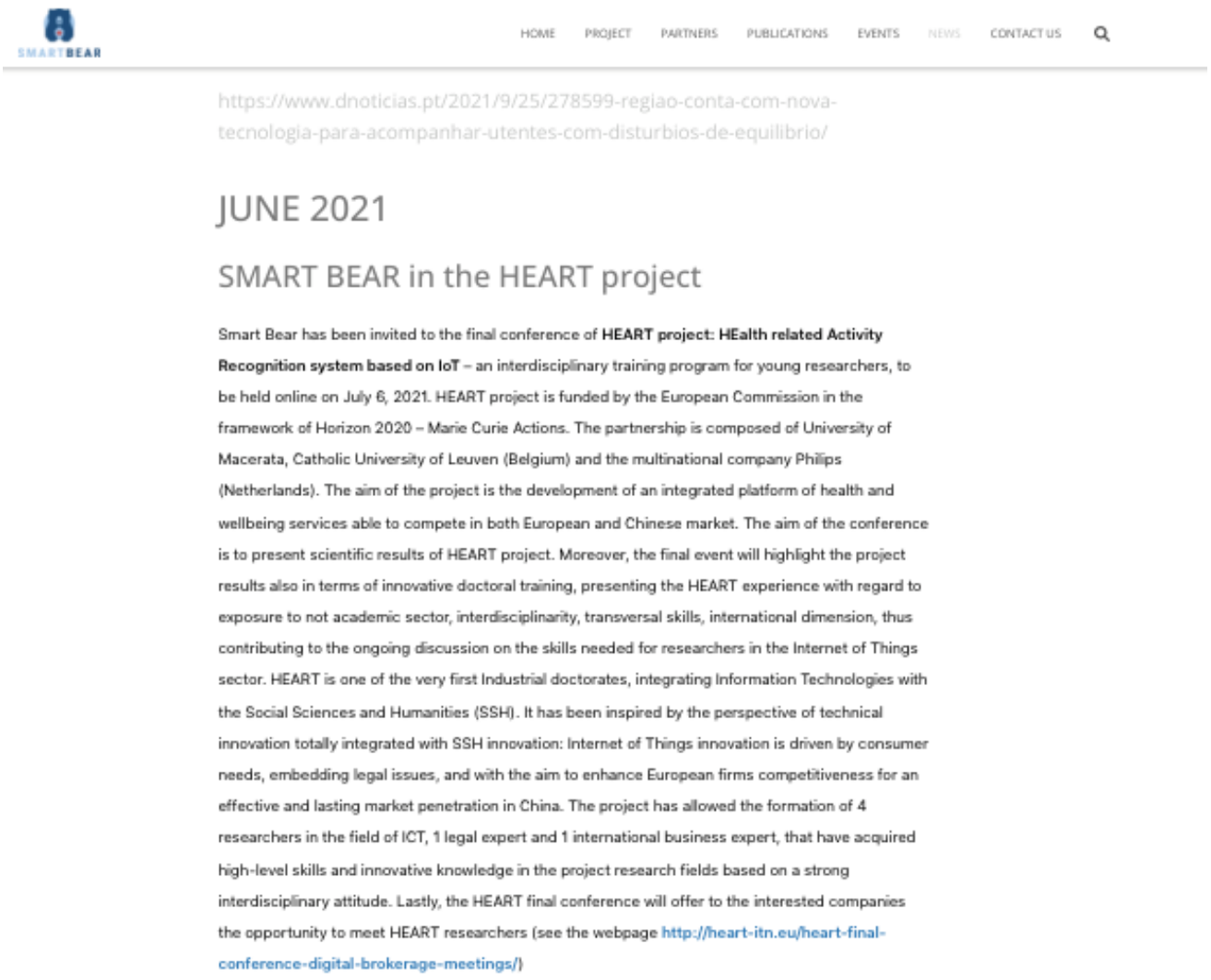
SMART BEAR in Portuguese news

Through the research and innovation project funded by the European Community program Horizon 2020 – SMART BEAR, the pilot of pilots in Madeira will make available to the population the technology HOLOBALANCE, which consists of specific equipment to promote a virtual personalized and motivational training to patients and users with balance disorders

https://www.dnoticias.pt/2021/9/25/278599-regiao-conta-com-nova-tecnologia-para-acompanhar-utentes-com-disturbios-de-equilibrio/

JUNE 2021

Figure 28 Further news



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https://www.dnoticias.pt/2021/9/25/278599-regiao-conta-com-nova-tecnologia-para-acompanhar-utentes-com-disturbios-de-equilibrio/

JUNE 2021

SMART BEAR in the HEART project

Smart Bear has been invited to the final conference of **HEART project: HEalth related Activity Recognition system based on IoT** – an interdisciplinary training program for young researchers, to be held online on July 6, 2021. HEART project is funded by the European Commission in the framework of Horizon 2020 – Marie Curie Actions. The partnership is composed of University of Macerata, Catholic University of Leuven (Belgium) and the multinational company Philips (Netherlands). The aim of the project is the development of an integrated platform of health and wellbeing services able to compete in both European and Chinese market. The aim of the conference is to present scientific results of HEART project. Moreover, the final event will highlight the project results also in terms of innovative doctoral training, presenting the HEART experience with regard to exposure to not academic sector, interdisciplinarity, transversal skills, international dimension, thus contributing to the ongoing discussion on the skills needed for researchers in the Internet of Things sector. HEART is one of the very first Industrial doctorates, integrating Information Technologies with the Social Sciences and Humanities (SSH). It has been inspired by the perspective of technical innovation totally integrated with SSH innovation: Internet of Things innovation is driven by consumer needs, embedding legal issues, and with the aim to enhance European firms competitiveness for an effective and lasting market penetration in China. The project has allowed the formation of 4 researchers in the field of ICT, 1 legal expert and 1 international business expert, that have acquired high-level skills and innovative knowledge in the project research fields based on a strong interdisciplinary attitude. Lastly, the HEART final conference will offer to the interested companies the opportunity to meet HEART researchers (see the webpage http://heart-itn.eu/heart-final-conference-digital-brokerage-meetings/)

Figure 29 News June 2021

2.3 Dissemination & Communication Key Performance Indicators

The following table shows the different communication and dissemination activities that will be carried out throughoutthe SMART BEAR project´s operation and the measurable indicators set for each activity.

Table: Dissemination & Communication KPIs

Communication and dissemination activities	Measurable indicators	Results
International Conferences and Events: *SMART BEAR* partners will participate in European and international conferences that are considered as significant channels for presenting the results and innovative aspects to the healthcare and scientific community and also for creating awareness of the *SMART BEAR* project to the community ofexperts.	11 papers submitted in conferences, 1 workshop organized by the consortium (present novel guidelines and the platform)	Several partners have publications and the results are presented in the individual dissemination and exploitation part of this document.

Exhibitions and Horizon 2020 events: The consortium, namely thescientific partners, will participate at Horizon 2020 events and exhibitions.	Participation in 1 exhibition and 1 Horizon 2020 event	
Publications in Scientific Journals: The submission and publication of *SMART BEAR* research work and consolidated results to scientific journals is a significant channel for reaching the scientific community.Selected journals to disseminate *SMART BEAR* concepts, tools and results include, but are not limited to, biomedical engineering, occupational medicine etc.	3 green open accesspublications	
Online dissemination through Internet: An advanced and up-to-date website will be released at month 3 of the project. In addition, electronicnewsletters reporting on *SMART BEAR* deliverables, events and results will be issued stakeholders in English and in the local languages of the consortium on the project's website allowing a wide community of potential.	1 website, 1 lay summary, 3 press releases and 3 promotional campaigns	The website is up to date with all press releases
Biomedical Communities and Social Research Networks: Research Networks (i.e. Twitter, LinkedIn, BiomedTown, ResearchGate, BiomedExperts). The dissemination manager will be responsible for the*SMART BEAR* building into the BiomedTown where all the public information about the *SMART BEAR* ongoing activity will be published. Also, Twitter will be used to publish news, *SMART BEAR* achievements, etc. and stay connected to the worldwide scientific community. An account and a project group will be created to LinkedIn, ResearchGate and BiomedExperts.	5 accounts on social networks, over 50 followers on Twitter and over 50 connections on other networks	4 accounts, 3 of which with more than 50 followers
SMART BEAR Presentation Material: *SMART BEAR* flyer, brochure andposter will be developed to serve as an essential tool for the dissemination at external events targeting academic and research institutes, industrial partners and clinical experts. They will present theproject results in an appealing and structured manner and will be updated and published at prefixed time intervals to provide the latest achievements of *SMART BEAR*.	3 posters and 3 brochures that will be utilized in workshops and conferences	

Traditional communication channels: The consortium will make use of the traditional channels including non-specialized magazines, newspapers and television (TV) to reach the general public and presentthe objectives, innovative aspects and benefits of the *SMART BEAR* project without emphasizing technical details.	2 articles to national non-specialized magazines per participating country	
Collaboration with other gender projects: *SMART BEAR* plans to networkwith other research groups and concentration activities with other Smart and Healthy Living at Home projects, in the same (DT-TDS-01- 2019) as well as in other calls.	Establish synergies with at least two EC projects	
Collaboration with policymakers: SMART BEAR platform and socio- economic analysis will be presented to the relevant health policymakers to discuss potential update of the SMART BEAR outcomes.	At least one meeting with health policymakers, in 1 of the 5 pilot site countries	
Video to reach the general public and present the objectives, innovativeaspects and benefits of the SMART BEAR project without emphasizing technical details	This video should be hosted in the SMART BEAR website and in YouTube	

3 Exploitation

The following section provides an overall methodology and fundamental generic knowledge to support the exploitation of research results generated by *SMART BEAR*. It does not intend to be exhaustive: instead, there is a stronger focus on the particular exploitation paths, which are a priori more relevant for *SMART BEAR*.

The document provides a first list of exploitable assets, their ownership and their implementation status. Assets leaders and contributors are preliminary listed, together with the IPR management methodology that is going to be applied in SMART-BEAR. In fact, exploitation work will go on along all the project duration and will be refined in further deliverables, such as D13.5 - Final Communication, Dissemination, Impact Creation & Standardisation Report (M60).

Research and innovation have been placed at the centre of the Europe 2020 strategy to promote smart, sustainable and inclusive growth. While one can debate what constitutes a healthy relation of industry and basic research, there is no doubt that a knowledge-based society prospers with the innovativeness of its engineers and the skills of its scientists. In the Horizon 2020 funding program, EC puts a focus on closely linking basic research and application, and applied research with industry, SMEs and start-ups. The outputs of EU projects, being by nature strongly research-based, are usually not ready for commercial exploitation without further work; that's why it is important to plan in advance the steps needed for making future exploitation easier.

The exploitation strategy defines application segments of the innovation, economic size of the target markets and their geographic coverage. It identifies potential users and stakeholders and sets objectives for addressing and involving them in the project. It compares their needs to the kind of problem the proposed solution solves and outlines why this solution is better than existing ones in terms of benefits to users and society at large. It talks about the knowledge (IPR) the project will generate compared to state of the art or what is commercially available today. Finally, at the end of the project, it shall be clear which further actions shall be taken both in terms of scientific and commercial follow up. Options range from further internal research, collaborative research, internal product development, internal service creation, licensing, assignment, joint venture, to creating a spin-off, or supporting standardization activities.

3.1 Individual Partner Exploitation plans

3.1.1 CNR

3.1.1.1 Organizational Background

CNR-ICAR, Institute for high-performance computing and networking, is an Institute of the National Research Council, which belongs to the Department of Engineering, ICT and Technologies for Energy and Transport. CNR-ICAR is present on the national territory with three offices in Rende, Napoli and Palermo. CNR-ICAR offers innovative solutions in terms of research, technology transfer and high education in the area of intelligent systems with complex functionality (cognitive systems and robotics, knowledge representation, extraction and reasoning, human-computer interface, optimisation) and high-performance computing (cloud computing, parallel and distributed environments and advanced technologies for the internet). Significant applications are developed in the areas of e-health, energy, security, bioinformatics, cultural heritage, smart cities.

It was founded in June 2002 by the union of the Institute for Systems and Computer Science of Cosenza, the Research Center for Parallel Computing and Supercomputers of Naples and the Study Center on the Computer Networks of Palermo. Today its research activity is focused on four thematic areas: cognitive systems, distributed systems and internet of things, knowledge and data and bioinformatics.

Although geographically distributed, today CNR-ICAR, thanks to an internal reorganisation process, is a single

large institute, where each site has developed and developed its own scientific identity. Rende has as its objective the research and application of computer technology to improve the quality of life of urban areas (Urban computing); Naples produces research and develops technologies in the field of electronic health (E-health), Palermo is mainly engaged in developing ICT technologies for the maritime sector (Maritime). The theme of cultural heritage is transversal and involves the entire Institute.

The operative instrument with which the Institute carries out its research activity is represented by nine laboratories: Advanced Analytical on Complex Data; Translational Bioinformatics; Computational Intelligence; Cognitive Robotics and Social Sensing; Computational Sciences and Data; Cognitive Systems; Smart Data and Models; Smart Pervasive and Distributed Systems; Engineering Complex and Smart Systems.

CNR-ICAR is an institute in continuous numerical and qualitative growth. Today it has about 135 staff units with different kinds of contracts. Thanks to its growing reputation in the national and international scientific community and the efforts made in recent years in the internationalisation process of its activities, many professors and researchers coming from universities and research centres all over the world, require the status of the associate researcher. In the same way, CNR-ICAR promotes and encourages both the collaborations of individual researchers with other international research institutions and collaborations in more structured forms, involving the entire Institute, through memoranda of understanding on specific research topics.

CNR-ICAR is engaged, together with companies, institutions and other research institutions in prestigious national and international projects and annually produces numerous scientific publications published in the most important scientific journals. Its activity is disseminated through participation in the most prestigious international conferences.

3.1.1.2 Foreseen exploitable results

The main interest of CNR-ICAR in the *SMART BEAR* research activities is in the area of big data analytics techniques and infrastructures, also considering the strict privacy requirements to comply for use in the eHealth sector. Moreover, CNR-ICAR is interested in human-interaction aspects of the design of eHealth applications for the elderly.

3.1.1.3 Exploitation Strategies

CNR-ICAR will exploit the results of the *SMART BEAR* project in its active research activities and future projects focusing on the area of advanced ICT solutions for healthcare and will support its partners in the transition from research to exploitation. The results of the project will also be exploited in the large public-private consortia focused on eHealth solutions, such as eHealthNet, Continua Health Alliance, HL7 International and European Connected Health Alliance, in which CNR-ICAR is an active participant.

3.1.1.4 Interim results

CNR-ICAR continues its work on project management and under this role actively contributes to the visualization efforts of SMART BEAR. Moreover, selected participants of the CNR team co-authored most of the publications submitted and/or already published by the consortium.

3.1.2 ATOS

3.1.2.1 Organizational Background

ATOS is an important player in the sector of healthcare services. Investments in healthcare services are already a signal of identity of ATOS, with a special brand called ATOS Healthcare operating mainly in UK (and shortly as a worldwide brand), with services ranging from change management, procurement, hosting and software development, through to disability assessments and occupational health. ATOS Healthcare offers consulting and technology in the areas of business intelligence, lean transformation, Health IT, Patient safety and data quality. This is complemented by a wide spectrum of solutions in primary care or disability assessment, to

name some examples (visit www.atoshealthcare.com for further information).

3.1.2.2 Foreseen exploitable results

ATOS has already started to obtain benefits directly associated with its participation in the *SMART BEAR* project in two different ways:

- ATOS is improving its image and relationship with partners and this means a potential increase in its participation in other projects as well as new business opportunities. ATOS has a very strong business development for health orientated to consultancy and the participation in *SMART BEAR* allow our professionals to enlarge their offer to the final customers. This intangible part is, however, a direct economical factor derived from the work in the project and the success of our company on it.
- The other direct exploitable results are consequences of the tangible work in the project. They are Consultancy services and exploitation of the software results. Consultancy is related to the consultancy services as integrators and the know-how acquired in the integration process of *SMART BEAR*. We will explore our software results in the following ways: a) Integrating parts of project as components in new services and ad-hoc developments to fulfil specific clients' necessities b) By maintaining the *SMART BEAR* platform for monitoring patients and citizens in very different situations.

3.1.2.3 Exploitation Strategies

The main aim is to integrate a platform which will be used by a health service to manages large numbers of patients with different requirements. ATOS is an IT company, not a healthcare provider. It is not our business to compete with hospitals or healthcare providers nor to treat patients, rather it is our business to equip healthcare providers with the tools and the systems they use in the treatment of patients. For that reason, ATOS is interested in providing resources, expertise and solutions, third party software and consultants to host, manage, integrate and maintain the IT solutions for our clients.

Under this model, it makes sense for ATOS to have a major role in integrating a platform for mass use by the healthcare sector through which multiple solutions can be used. Combining solutions for specific diseases, through common interfaces, databases, IT administration and so on makes it feasible for a healthcare provider, or National Health Service, to make a singular investment in patient focused ICT solutions and places ATOS with a compelling value proposition which plays to our strengths. Multiple solutions, both those proprietary to ATOS and third parties, will be incorporated into the *SMART BEAR* platform as per the needs of the specific healthcare provider.

ATOS foresees to exploit SMART BEAR in two ways:

The integration of eHealth services and technologies into SMART BEAR platform: ATOS has identified that certain knowledge gained in *SMART BEAR* could be applied to existing ATOS solutions to enhancethem. The skill and knowledge can easily be transferred to other projects and prototypes in which ATOS is working on. In addition, certain aspects of *SMART BEAR* design can be included in new serviceswith different target groups. This business model is primarily intended for healthcare institutions which are interested in providing at-home treatment of patients, but can be extended to customers using other systems, in which case it is the knowledge and expertise of *SMART BEAR* partners that would be commercialized.

- Use of the know-how generated by the project. ATOS will provide to our customers with the following services:
  - Technical Consultancy services. ATOS will offer consultancy services for the customization, integration, training and support of the SMART BEAR platform as well, system's maintenance (up-dates, up-grades), etc.
  - Knowledge Consultancy services. With the expertise and knowledge acquired, ARI will also offer to the Business Units of ATOS in Spain, the Business Development Units of ATOS in Europe, and our existing and new customers the possibility of using the know-how acquired in integrating SMART BEAR platform.

3.1.2.4 Interim results

ATOS is actively contributing to SMARTBEAR's technical group while is active in promoting synergies with other projects in the same scientific field.

3.1.3 PHILIPS

3.1.3.1 Organizational background

Royal Philips is a leading health technology company focused on improving people's health and enabling better outcomes across the health continuum from healthy living and prevention, to diagnosis, treatment and home care. Philips leverages advanced technology and deep clinical and consumer insights to deliver integrated solutions. Headquartered in the Netherlands, the company is a leader in diagnostic imaging, image-guided therapy, patient monitoring and health informatics, as well as in consumer health and home care. Philips generated 2018 sales of EUR 18.1 billion and employs approximately 77,000 employees with sales and services in more than 100 countries.

HealthTech Global resource constraints on health systems are driving a shift to value-based healthcare to reduce cost, increase access and improve outcomes. At the same time, ageing populations across the globe and the rise of chronic conditions are driving a shift of care to lower-cost settings and the home. In parallel, more and more people are looking for new ways to proactively monitor and manage their health. And the digitalization of healthcare is shifting value from devices to software and services. These challenges can only be met through new, more integrated forms of care delivery across the health continuum, with a shift away from today's focus on acute care and late-stage interventions.

In an increasingly connected world, the convergence of Philips' consumer technologies that facilitate healthy living, medical technologies that help clinicians to deliver better diagnosis and treatment, and cloud-based technologies that enable data sharing and analysis, will be a key enabler of more effective, lower-cost integrated health solutions. This fits very well with our core strengths in professional healthcare and in consumer health and well-being.

Philips has defined five priority areas: personal health, definitive diagnosis, minimally invasive guided therapy, population health management, and connected care delivery. More and more, we are teaming up with hospitals and health systems to understand their needs, provide integrated solutions, and engage in multi-year cooperation to drive improvements in terms of patient outcomes, quality of care delivery and cost productivity.

Going forward, Philips will further drive the benefits of scale in our current businesses while delivering additional growth from continuing investments in innovation.

3.1.3.2 SMART-BEAR Foreseen Exploitable Results

Philips is interested in a wide range of SMART-BEAR solutions and activities. Firstly, our main effort will focus on developing solutions for data integration and harmonization, for data quality assessment and improvement, and for analytics, decision-making and personalized interventions. The project is as well an opportunity to gather deep insights into the clinical requirements and the patients' needs in the chosen domain. The project's objectives to develop digital care services focused on the specific needs of old adults, developing as well enabling IoT connectivity solutions, is of particular interest.

Finally, the SMART-BEAR end-to-end integration and the planned large-scale pilots with end-users will offer a unique opportunity to validate the technology and the developed services, to refine our understanding of thereal needs of the users (clinicians and patients), and to accurately measure the added value of the SMART-BEAR solutions.

3.1.3.3 Exploitation Strategies

Philips has set a strategic priority to deliver intelligent AI-driven solutions in healthcare, supporting our customers to deliver high quality and value-based care. Philips will exploit the results of the project in multiple ways. Firstly, we will as well leverage our technological results in distributed AI algorithm development, data harmonization and clinical decision support applications for our existing businesses in population health and chronic disease management, where the innovation can create significant additional value. The SMART-BEAR project is as well an opportunity to collaborate, learn, showcase our technology solutions, create partnerships, and reach new customers through demonstrations in key events. Finally, if the consortium activities will lead to the creation of a new entity (start-up) we will be open to license our relevant assets created in the project at a fair fee in the new entity, or we will explore participation in such an entity when aligned with our business strategy.

3.1.3.4 Interim results

Philips is actively contributing to SMART BEAR's technical group while is active in promoting synergies with other projects in the same scientific field and submitted a paper to ICT4AWE 2022 that has been accepted as of 24-02-2022:
Vadim Peretokin, Ioannis Basdekis, Ioannis Kouris, Jonatan Maggesi, Mario Sicuranza, Qiqi Su, Alberto Acebes, Anca Bucur, Vinod Jaswanth Roy Mukkala, Konstantin Pozdniakov, Christos Kloukinas, Dimitrios D. Koutsouris, Elefteria Iliadou, Ioannis Leontsinis, George Spanoudakis (2022). Overview of SMART-BEAR technical infrastructure.

3.1.4 IBM

3.1.4.1 Organizational Background

No matter where discovery takes place, IBM researchers push the boundaries of science, technology and business to make the world work better. IBM holds a leadership position when it comes to the creation, development and manufacture of the industry's most advanced information technologies, including computersystems, software, networking systems, storage devices and microelectronics. IBM participates in and contributes to the work of standards consortia, alliances, and formal national and international standards organizations. Where appropriate, IBM adopts consensus technologies in order to maintain openness, interoperability, and application portability. IBM Israel Science and Technology Limited, better known as IBM Research – Haifa (HRL), was first established in 1972. Since then, the lab has conducted decades of research vital to IBM's success. The lab is one of 9 research laboratories located outside of the United States, and has close working relationships with IBM Israel and its twin research laboratory in Zurich. In Haifa, 75 per cent of the technical staff have MSc or PhD degrees in computer science, electrical engineering, mathematics, or related fields. Employees are actively involved in teaching at Israeli higher education institutions and in supervising post-graduate theses. R&D projects are being executed at IBM Research – Haifa today in areas such as cloud computing, Big Data analytics, cognitive computing, IoT and mobile platforms, healthcare informatics, security, quality and verification, object storage, and more. The lab has three departments: The Cognitive Analytics and Solutions department develops advanced cognitive computing analytics techniques, explores the human aspects of cognitive computing and develops innovative solutions for various industries. The department specializes in handling data of all types, ranging from traditional structured data to semi- structured data, such as logs, text data, social networks, audio, images and video. In particular, the department develops novel analytic solutions to extract insight from this data and to augment human cognition in a variety of domains including healthcare, life science, telco, commerce, and enterprise knowledge management. The Computing as a Service department targets the transformation of IT through cloud computing, while leveraging skills in quality, security, storage, systems, and software-defined environments. A key focus direction for the department is the emerging field of cloud computing and the areas of virtualization, networking, systems management, and storage. In support of this direction, we leverage Open-Source projects such as OpenStack,Open DayLight and KVM. The department pioneered and lead several EU Cloud projects including Reservoir (Cloud Federation), VISION Cloud (Advanced Object Stores),

and FI-WARE (Advanced OpenStack based Clouds). In the area of technologies and tools for software quality and code optimization, the team pioneered and led related EU projects, including FITTEST, CloudWave and HIPEAC network of excellence. Another strategic direction of the department is the area of quality and security. The department applies various techniques in software analysis, constraint satisfaction, formal methods, machine learning, and knowledge representation to create a wide set of security and quality related solutions. In the domain of hardware verification, we develop advanced tools and technologies spanning the entire spectrum of dynamic and static functional verification, including solutions for high-end designs focusing on the verification of microprocessors, multi- processor designs, and large systems. Lastly, we have significant activity in analogue and mixed-signal designs, targeting technologies such as E-Band communication and THz Imaging. The Mobile and Industry Solutions department focuses on thought leadership in product, solutions delivery, and strategy in the areas of mobile platforms and tools. Our activities include rapid application development tools, wearable computing, cloud middleware (availability and scale), IoT technologies, location services, operational decision management and event processing, spatiotemporal visual analytics, system engineering methods and tools, operations research (e.g., water management) across industries such as aerospace and defence, and healthcare.

IBM Research – Haifa (HRL) has led and participated in numerous milestone FP7 and H2020 projects, including the RESERVOIR project, which addressed the challenges of cloud-scale service deployment, the VISION Cloud (Virtualised Storage Services Foundation for the Future Internet), addressing an optimised Cloud infrastructure for storage intensive services, ENSURE, which addressed long term digital storage on the cloud, and CloudWave, on Agile Service Engineering for the Cloud. IBM is currently leading RestAssured, which deals with Cloud security.

HRL is a centre of competence in cloud computing and analytics, supporting IBM worldwide in this area. HRL works closely with other IBM-acquired security companies, such as Trusteer and Guardian and will bring its rich experience in applied research, project management and technical leadership to the project.

3.1.4.2 Foreseen exploitable results

The IBM Haifa Research Lab intends to adapt the *SMART BEAR* collaborative security framework to more cloud use cases where secure collaboration is required, e.g. micro services-based cloud offerings and cloud infrastructures for verticals such as health, automotive, education, etc. Project team will aim to commercially benefit IBM clients and partners across Europe and beyond by enhancing the IBM vision of strong bottom-up cloud security. In particular, IBM owned Cloud hosting company SoftLayer and cloud offerings such as Blueboxand IBM Cloud have the potential to benefit from the *SMART BEAR* framework. In addition, IBM will benefit from *SMART BEAR* by extending and specializing the CogNETive technology and service for the security use case.

3.1.4.3 Exploitation Strategies

IBM will target the dissemination of project results through publications in international cloud and security related academic and industrial conferences, and participation in industry events both outside and inside IBM. IBM Haifa Research Lab team will present regular internal updates on project development to corporate executives, IBM cloud solution owners and product groups, seeking for valuable feedback and engagements. IBM will strive to disseminate the project outcomes through interaction with open-source communities, improving project visibility and awareness of the project results.

3.1.4.4 Interim results

IBM Research disseminated project results in cloud security research projects in IBM. Results were presented on regular internal updates on project development to corporate executives, IBM cloud solution owners, and product groups. IBM will strive to disseminate the project outcomes through interaction with open-source communities, improving project visibility and awareness of the project results.

3.1.5 ARIA

3.1.5.1 Organizational Background

ARIA is an in-house company of Regione Lombardia, Lombardy region local government and is in charge for all IT activities required by Lombardy Region. Even though ARIA is responsible for the soundness and effectivenessof whole Regional Information System, Health-related IT is the company's core business. ARIA has designed, developed and is currently running the regional Health IT network, the "SISS". The SISS is used by:

- roughly 9.9M citizens (99% of total population),
- 150k Health and Social Care Operators
- 2.6k Chemist's shops
- 35 Public Hospitals
- 15 Local Health Units
- Over 2.5k private healthcare service providers

The outstanding experience of ARIA in the healthcare IT domain is representing an added value for exploiting some of the *SMART BEAR* results versus the healthcare information system.

Lombardia Informatica manages the citizens' EHR (Electronic Health Record), a portal where citizens can access all their ECDs (Electronic Clinical Documents) including all discharge letters and lab examination results that have been published by authorised health care operators. Within this repository, citizens themselves may upload documents which they want to have in their EHR, making them available to authorised health care operators if they decide so. Upload to the EHR is not allowed to people minor of age.

3.1.5.2 Foreseen exploitable results

Beside knowledge generation, the main outcomes for ARIA will be:

- Exploration of opportunities for interfacing external apps with the eHealth Regional Network (considering all aspects including regulations, privacy and technical issues as well)
- Testing ways to enrich the citizen personal folder inside the Regional eHealth Network with datarelevant to him and his caregivers.

3.1.5.3 Exploitation Strategies

ARIA is a Lombardy Region In House Company and the first and most important exploitation is that Lombardy Region may adopt Project's results which become part of the cloud based Lombardy Region system.

To foster exploitation, stakeholders' engagement is of utmost importance. ARIA officers, are in direct contact with officers in the Regional system and in several other institutions. Personal contacts happen on a regular basis and are an important channel for communicating project goals and results. Internal memorandums are also used to disseminate the project internally and are distributed using internal mailing lists as well as the Extranet. Moreover, specific meetings are organised at the appropriate moment with specific subjects (managers and executives) inside the Regional System.

Given the nature of ARIA and the fact that it has a captive market – Lombardy Region and public bodies – it isvery unlikely that there will be commercial exploitation. In case of exploitation, it will probably be for internal usage.

3.1.5.4 Interim results

ARIA, along with the other partners from Italy, contributes the maxima towards locally visualizing the project activities and results.

3.1.6 ROP

3.1.6.1 Organizational Background

The responsibilities of the Department of Public Health (DPH) are mainly the preservation, improvement of health and well-being of the population whether that is local, global, (non)-mobile through multiple collaborations and practices which aim to protect and promote the health and well-being of the individual so he is made competent to have control over his own health and improve it in a contemporary work environment. Other responsibilities include adjusting to changes, the control and protection of occupations and (the provision of) health services with the sole and clear purpose the (non)-patients quality of life and also the needs of vulnerable group populations.

Furthermore, there is constant development of preventive, protective and promotional health

programs.The branch divisions of the DPH are the following:

- The division of occupations and health services.
- The division of Public health.
- The Division of Prevention and Promotion of

Health.Programs which are being carried out by the DPH

are:

- Protection against Mosquitoes.
- Precautionary measures against Malaria.
- Awareness and protection against animal related diseases (Rhinal Fever).
- Protection against West Nile Virus.
- Health Observation which observes public and environmental health (Morbidity evaluation/ Preventive programs aiming the general population/Training programs for health-care practitioners).
- Hygienic controls for detection of potential hazards in drinking water and

seawater.Preventive Programs which are also being carried out are:

- Vaccinations for all age groups.
- Study of air pollution.
- "No smoking" campaign which provides information to primary and secondary students on the harmfuleffects of smoking to our health.
- Allergies of the upper Respiratory system – ENT.
- "Health for all" which provides health care and is accessible to vulnerable populations.

3.1.6.2 Foreseen exploitable results

SMART BEAR project can bring significant benefits on individuals and the community, contributing significantly to improving the accessibility and quality of health services provided to citizens in need. In addition, it contributes to the development of an anthropocentric-oriented national health system focusing on the effectiveness, efficiency and sustainability of the health sector by disseminating good practice and making best use of available resources, materials and human resources.

E-health is expected to increase the efficiency and effectiveness of the services provided by health professionals, thereby helping to streamline and reduce costs. The implementation of e-Health has an impact not only on the financial sector but also on the quality of services, as traditional forms of care do not fulfil thepatient's expectations.

3.1.6.3 Exploitation Strategies

Promoting e-health solutions will make it possible to provide better care to more patients by freeing up institutional resources (hospitals, clinics, health centres, regional clinics) and reducing medical expenditure. New technologies will provide a variety of opportunities, adjusting the types of care to suit the individual needs and expectations of each patient. Geographical distances will be eliminated and the range of health services available will be widen, providing equal access even to residents living in urban areas. At the same time, the quality of care will be upgraded, delivering fast and reliable results.

Finally, our cooperation with the Greek Ministry of Health and other public health organizations will enhance the objective of the program.

3.1.6.4 Interim results

- **Press Publications:**
  1. 'RoP participates in the SMARTBEAR Project for Active and Healthy Aging'
     Publisher: Region of Peloponnese Website, Program for the elderly in Tripoli and Argos
     Release Date: 31/12/2019
     Location: Tripoli, Greece

  2. 'RoP participates in the SMARTBEAR Project for Active and Healthy Aging'
     Publisher: Arcadiaportal.gr, Program for the elderly in Tripoli and Argos Release Date: 1/1/2020
     Location: Tripoli, Greece

  3. 'Senior Support program in the Region of Peloponnese'
     Publisher: PeloponnisosNews, Program for supporting the elderly in Peloponnisos
     Release Date: 1/1/2020
     Location: Corinth, Greece

  4. 'Program for 300 elderly people in Argos and Tripoli'
     Publisher: ERT NEWS, Program for the elderly in Tripoli and Argos
     Release Date: 2/1/2020
     Location: Tripoli, Greece

  5. 'Program for 300 elderly people in Argos and Tripoli'
     Publisher: Argolika News, Program for the elderly in Tripoli and Argos
     Release Date: 2/1/2022
     Location: Argos, Greece

The following publications are relevant with the beneficiaries meeting between NKUA and RoP, in the 8th of February, 2022.

  6. 'Meeting of the Governor of Peloponnese P. Nika with represents of the Medicine Faculty of NKUA, on the grounds of Horizon Smart Bear Project'
     Publisher: Region of Peloponnese Website, https://www.ppel.gov.gr/sinantisi-tou-periferiarchi-peloponnisou-p-nika-me-antiprosopia-tis-iatrikis-scholis-tou-ekpa-sto-plesio-tou-programmatos-horizon-smartbear/
     Release Date: 8/2/2022
     Location: Tripoli, Greece

  7. 'The Region of Peloponnese promotes the Smart Bear Project. Its Definition'
     Publisher: Arena News of Peloponnese, https://arenanews.gr/2022/02/09/%CE%B7-%CF%80%CE%B5%CF%81%CE%B9%CF%86%CE%AD%CF%81%CE%B5%CE%B9%CE%B1-

%CF%80%CE%B5%CE%BB%CE%BF%CF%80%CE%BF%CE%BD%CE%BD%CE%AE%CF%83%CE%BF%CF%85-%CF%80%CF%81%CE%BF%CF%89%CE%B8%CE%B5%CE%AF-%CF%84%CE%BF/

Release Date: 9/2/2022
Location: Argos, Greece

8. 'Program for Smart Medical Devices relevant with the elderly people'
   Publisher: Gargalianoi Online, https://www.gargalianoionline.gr/%CF%80%CF%81%CF%8C%CE%B3%CF%81%CE%B1%CE%BC%CE%BC%CE%B1-%CE%B3%CE%B9%CE%B1-%CE%AD%CE%BE%CF%85%CF%80%CE%BD%CE%B5%CF%82-%CE%B9%CE%B1%CF%84%CF%81%CE%B9%CE%BA%CE%AD%CF%82-%CF%83%CF%85%CF%83%CE%BA%CE%B5/
   Release Date: 9/2/2022
   Location: Gargalianoi, Greece

9. 'Collecting program of medical data regarding to the elderly people'
   Publisher: Arcadiaportal, https://www.arcadiaportal.gr/news/programma-syllogis-iatrikon-dedomenon-gia-tin-triti-ilikia-tis-perifereias-peloponnisoy
   Release Date: 12/2/2022
   Location: Tripoli, Greece

10. 'The Region of Peloponnese actualizes a Horizon Program'
    Publisher: BestTV, https://www.youtube.com/watch?v=HVpzaA7jVz0
    Release Date: 14/2/2022
    Location: Kalamata, Greece

11. 'Business Meeting related with a large research program Horizon'
    Publisher: PeloponnisosNews, https://www.peloponnisosnews.gr/2022/02/08/synantisi-ergasias-enos-megaloy-ereynitikoy-programmatos-horizon-video/
    Release Date: 8/2/2022
    Location: Corinth, Greece
12. 'What is the impact of the Smart Bear Project on the elderly people in the Region of Peloponnese'
    Publisher: Dimotiki Radiofonia Tripolis, https://www.drt915.gr/ti-simeni-to-programma-smartbear-gia-ton-ilikiomeno-plithismo-tis-periferias-peloponnisou/
    Release Date: 9/2/2022
    Location: Tripoli, Greece

13. 'The Region of Peloponnese participates in project related with the elderly people'
    Publisher: ERT News, https://www.ertnews.gr/perifereiakoi-stathmoi/tripoli/se-programma-gia-tin-triti-ilikia-i-perifereia-tis-peloponnisoy/
    Release Date: 9/2/2022
    Location: Tripoli, Greece

- **Conferences**
  1. 46th Panhellenic Medical Conference
     Title of the Presentation: Big Data Collection and Analysis for the Support for the Seniors with Health Issues
     Link: https://www.mednet.gr/
     Presentation's Partners: NKUA, RoP, MPF, CNR, STS
     Audience: Health-care Professionals, Hospital Managers, Health Policy Managers, Academic Members, Patient Advocacy Group

Event Dates: From 19/6/2020 To 20/6/2020
Location: Athens, Greece

- **Printed Promotional Material**

1. Flyers include the following:

- The DL flyers that are targeting the general population, along with the payment invoice of the public water supplier, in both participating cities. The expected goal is the program brochure to arrive to specific potential participants directly, targeted, and intact.
- The General DL information leaflets are presenting the program. Due to the Covid-19 pandemic the brochure will be distributed:
    a. to the general public, through an information campaign (depending on the Covid-19 conditions)
    b. through the Elderly Care Units, in the Municipalities of Tripoli & Argos, to Medical & Dental Associations, Pharmacies, as well as, hospitals
- The 4-fold brochure, with a more detailed presentation of the Project. To be more explicit, this brochure includes information that have to do with the research, the devices, the procedure, the goals, the joint countries, the associated partners and the provided communication participant's service.
- The Rollup Banner, which can enhance the efficiency of the effort that have to do with attracting new participants.

2. Online Promotional Material

- The Website of the Region of Peloponnese, in the following subsection " European Programs". Furthermore, a more exclusive presentation of the Project, as well as, all the later updates on its latest activities, the presentation of the promotional material, the later news and the announcements, the devices' guidelines and instructions and the contact information are all included on the following site: **https://www.ppel.gov.gr/evropaika-programmata/smartbear/**

3. Future Dissemination Activities

- As regard as the future dissemination activities there is extensive number of them, that have already been discussed and possibly get adopted. The most noticeable of them are the following:
    - A more intergraded distribution of leaflets to pharmacies, hospitals and doctors' offices
    - A large number of spots, that could be promoted across various types of media, such as the radio and the television
    - By advancing reliable relations with the local media, by demonstrating the whole aspects of the Project through interviews and presentations
    - A suggestion of smaller scale, but equally, efficient is to promote the Project on the Social Networks
    - A further upgraded advertisement, could be achieved by renting the rental space of numerous websites.
- On the whole, all the above are already serving and will serve our purpose, which is to demonstrate the capabilities of the Smart Bear Project regarding to Active and Healthy Aging of the Elderly People. However, every single one of them is agreed with the rules that are imposed by the Local Health Authorities, and all of them predict and sustain the demanded social distancing, due to Covid-19 Pandemic.

3.1.7 MPF

3.1.7.1 Organizational Background

The Municipality of Palaio Faliro (MPF) is densely populated urban centre with nearly 110.000 inhabitants and has a vivid tourism and recreational industry sector, since it has a well-developed seafront. Since 2010, a new legislative framework (KALLIKRATIS) sets out the boundaries for health and social services at regional and municipality level. Public health, prevention, health promotion, health education and social services are gradually planned, provided, financed and monitored by Municipalities in Greece although full roll-out of services is delayed due to fiscal problems. At the moment, the municipality operates 3 Open Centers for The Elderly, one Municipal Health Center, one community centre and one Alzheimer's disease Support centre. These structures will be the main pool from where recruitment of participants in the project will be recruited.MPF policies in digital public healthcare provision are in alignment with the recent digital transformation strategy 2020 – 2025 endorsed by the Greek Government and especially with the activities and large scale projects to be implemented in the health sector and more specifically with the expansion of the national telemedicine network (ΕΔΙΤ) and support of independent living with NCD's.

MPF is also aiming at organisational changes in order to integrate care older people with NCD's, to cut down costs and improve continuity of care in community settings.

MPF since the beginning of 2013, took the strategic decision to support the introduction of innovative technologies (m-health and p–health) into everyday healthcare and social care delivery. In November 2011 a pilot project commenced where early diagnosis services and health monitoring indicators in the community are provided through telecare to all willing citizens in the municipality. The telehealth model is also used to educate patients and healthcare professionals in health promotion and health prevention activities. MPF has successfully piloted in the previous 7 years two similar to *SMART BEAR* EU funded projects, SMARTCARE (ICT – PSP FP7 Grant) and Like stin ygeia (ESF financing) and SMART BEAR is seen as a proof of concept, next step in creating innovative, personalized care services for older citizens with NCD's and comorbidities and that is why the internal validation of the results is important for sustainability beyond the end of the project itself.

3.1.7.2 Foreseen exploitable results

Careful and organized steps need to be undertaken by the consortium, in order for MPF to proceed with the final exploitation plan for the Smart Bear solution and associated services deployment. In particular, issues related to the ownership of SmartCare Project results, transfer of results to 3rd parties (following the guidelines of the DMP) need to be addressed. MPF is considering internally exploitable results of the project (MPF is a public body and cannot commercially exploit results).

In the coming months and from September 2022 until November 2022, MPF intends to execute internally, a market description analysis and perform an online survey using google forms or similar, with potential exploitation partners on market readiness.

The main questions to be answered during the above-mentioned activities, are:

- How we can overcome the obstacles/barriers discussed during the market readiness research regarding the local sustainability of the Smart Bear solution? The aim of the checklist is to learn from first-hand testimonies about the enablers and barriers to the adoption and implementation of digital solutions, such as SmartBear, for personalised digital, self - care services.

  The checklists will cover the following 4 areas:
  - Domain 1: Legal framework, strategy and governance

- Domain 2: Financing and investment
- Domain 3: Organisational and professional boundaries
- Domain 4: Innovation management and procurement

- Who can adopt the solution in each local context? How much money can be dedicated to ensure the continued use of the Smart Bear solution (availability of funds or willingness to pay)?

- Which business model is preferred for the use/uptake of the Smart Bear solution in the local context?

- D2C (Direct to costumers) e.g Subscription: regular payment by users for the service. Fees can only vary related to the outcomes or Bundling model: one-time payment for the service (app) and additional benefits/services, for example digital training

- B2B2C (Business-to-business-to-customers): License: the health care providers (the Municipal Open Centers for the Elderly or another legal entity of the Municipality) pay a license for the product and offer it for free or paying a fee to the final users. The license can be one time or subscription licensing.

- What is needed in terms of standardization and costs and benefits in order for the SmartBear solution to be marketable/to be adopted in the local context?

In addition, IPR issues and legal issues need to be solved at consortium and local context level the following period.

MPF initial, exploitation plan is as follows:

PARTNER: MPF						
Exploitable Result	**Market potential/ opportunities**	**Target sector/ clients**	**Main competitors**	**Added Value of your innovation**	**Potential market barriers**	**Exploitation strategy envisaged**
The Smart Bear App for Citizens, hosting, technical support and training services	Licencing to a local care provider to offer the service and the support (help desk) (through tender process)	Older people with multiple chronic conditions	None	Pending on the Market Analysis in Autumn 2022	Pending on the Market Analysis in Autumn 2022	Pending on the Market Analysis in Autumn 2022

3.1.7.3 Exploitation Strategies

Beyond the municipality's boundaries, the results of the Smart Bear project and in particular from the cross – pilot evaluation (health service delivery cost, self-management of patients, resource use utilization, satisfaction with disruptive e-health services etc), will create a knowledge basis to serve as a starting point for developing new models of care organization and possibly, financing and reimbursement modes of patient- centred care, in collaboration with the Greek Ministry of Health and EOPYY (the largest health insurance fund in Greece).

To foster exploitation, stakeholders' engagement is of utmost importance. MPF leadership, will be in direct contact policy makers in the regional system and National Health System. Personal contacts happen on a regular basis and are an important channel for communicating project goals and results.

3.1.7.4 Interim results

- 10.000 A5 brochures have been printed, which are now been distributed to the citizens.
- 2 banners created, one of which is exposed at town hall.
- A TV Spot, lasting 90 seconds for broadcasting.
- A Radio Spot, lasting 35 seconds for broadcasting.
- Models of the posters ready to print. They will be placed in special advertising spaces.
- The Press Office of the Municipality has already contacted health - themed tv and radio shows where the Mayor of Palaio Faliro Mr. Ioannis Fostiropoulos will present Smart Bear in the coming 3 months.
- Electronic signs of the city are available to present communication messages and advertising pre-recruitment events in the city.
- A group of 35 student 35 volunteers is recruited and trained in pre-recruitment activities with the elderly.
- A website in Greek (www.smart-bear.gr) has been created.
- Local Facebook account (Smart Bear-Palaio Faliro) has been set.
- Printed t-shirts for our volunteers / researchers with the Smart Bear logo.

Figure 30 Printed t-shirts

3.1.8 CSC

3.1.8.1 Organizational Background

Comunità Sociale Cremasca is a special consortium company, established in 2006 by the 48 Municipalities of the Crema district, in order to support the planning and management of social and health and social services in the Crema area.

Due to its intrinsic characteristics and the mission entrusted to it, CSC represents today an important reference point in the Crema area, as it ensures:

- local calls for tender for outsourcing activities and accreditation of institutions/companies to which citizens may apply directly (elderly home care, educational assistance for the disabled, etc.);
- support to municipalities on using and reporting public financial resources;
- district social services direct management (as child protection and disadvantaged people job placement);
- district social services coordination (as disabled institutions management, elderly institutions management, social transport, health helpline);
- activation of projects involving local/national public and private social welfare institutions, fundraisingactivities.

The institution plays a role in the integration between the social-health services in the elderly area constantly evaluating, implementing and monitoring the actions in-home care support, such as helpline service for home care that will be integrated with the project monitoring infrastructure. The CSC personnel, in collaboration with other local network organizations, will support the *SMART BEAR* activities.

3.1.8.2 Foreseen exploitable results

SMART BEAR will allow to improve the social-health care of older people through well-defined projects based on actual data. Constant monitoring will allow the system to offer guarantees in medical and social care to patients. The re-designing of healthcare follow-up will also have social implications and will offer inputs for thedefinition of new social and health policies.

The continuous survey of the data, allowing the control of the socio-sanitary progress of the patient, will reduce the risk of irregular events and discomforts linked to social life.

3.1.8.3 Exploitation Strategies

The project will demonstrate the importance of communication between patients and clinicians and betweensocial and health data, to implement true integration policies as indicated in the WHO guidelines. The projectwill highlight the current socio-health difficulties of the elderly in facing everyday life, on which to build individualized life projects.

CSC will be able to study innovative models for managing elderly services, possibly improving effectiveness and reducing costs of hospitalization and residential care.

The large-scale patient-centred approach will allow the definition of strong prevention strategies and social-health policies at national level and beyond

3.1.8.4 Interim results

CSC along with the other partners from Italy contributes the maxima towards locally visualizing the project.

3.1.9 FCSR

3.1.9.1 Organizational Background

Fondazione Centro San Raffaele (FCSR) is a non-profit entity whose mission is the enhancement of basic, translational and clinical research in the fields of biomedical sciences and health management. Specific aims of FCSR are to expand the knowledge on the biology of diseases, to improve diagnostic techniques, to develop innovative therapeutic protocols and to advance health services. FCSR has developed, through a master agreement, an intensive and productive cooperation with San Raffaele Hospital (OSR), one of the leading private scientific institutes in Italy: they are affiliated entities.

OSR is a private institution, recognized by the Italian Ministry of Health as a Research Hospital (IRCCS). It comprises both clinical and research activities conducted by a highly specialized and qualified hospital with 1,357 beds and a research institute with around 1,600 basic, clinical and translational scientists. The premises also host the Vita-Salute San Raffaele University, with the faculties of medicine, psychology and philosophy, which provides specialized postgraduate courses, residency programs in various medical specialities and international PhD programs. OSR performs cutting-edge science and aims at advancing the knowledge about human diseases and novel therapies through translational research. OSR can count on 11 Clinical Department, 4 Research Divisions, 4 Research Institutes, 3 Research Centres and 3 Research Areas (http://www.hsr.it/research/). In particular, OSR excellence research fields are: oncology, neuroscience, metabolic and cardiovascular sciences, regenerative medicine, stem cells and gene therapy, immunology transplantation and infectious diseases, genetics and cell biology, genomics, bioinformatics and imaging technologies, advanced technology for Health and Wellbeing.

OSR is also part of a bigger health private group, the largest in Italy and one of the largest in Europe: San Donato Group (GSD). The Group consists of 18 hospitals of which 3 are IRCCS with 5,169 beds and an amount of 3.9 million patients per year.

Since 1997, FCSR added among its significant assets a specific unit oriented to Information Technology applications in health domain. Such unit, called ***Center for Advanced Technology in Health and Wellbeing***, is specialized in the delivery of services internally to the hospital infrastructure (e.g. person identification systems, process re-engineering, prevention, continuity of care) as well as oriented to innovative domains and disciplines (e.g. educational games, physical activity monitoring). Currently, the unit focuses on the release ofservices to the citizens and on the management of personalized and constantly updated information.

FCSR has been actively involved in both coordination and participation to European funded Horizon 2020 projects:

- ISEE (https://cordis.europa.eu/project/id/720571)

- SILVERSTREAM (https://silverstream.automotive.oth-aw.de/)
- PAL (http://www.pal4u.eu/)
- SHIELD (https://www.project-shield.eu/)
- DITAS (https://www.ditas-project.eu/)

3.1.9.2 Foreseen exploitable results

SMART BEAR will provide an intelligent and personalised digital solution for sustaining and extending healthy and independent living by implementing an affordable, accountably secure and privacy-preserving innovativeplatform.

This will offer to FCSR, and Center for Advanced Technology in Health and Wellbeing particularly, a great opportunity for designing and testing an innovative smart e-health solution specifically designed for the future older population on a large scale. Indeed, the unit strives to explore and push the boundaries of smart hospital, smart city and smart life concepts through the ideation and implementation of smart services. The research carried out within SMART BEAR project could help users through technologies to better manage their health and support them in making healthier lifestyle choices especially in reference to the most basic everyday needs: eating, drinking, taking medication and staying physically and mentally fit. Moreover, miniaturized and wearable technologies able to collect individuals' biological data as well as personal devices such as smartphones, tablets and smartwatches are increasingly more common and therefore they are part of the SMART BEAR platform. Hence, the interactions with such technologies combined with preventative medicine could allow users to become active contributors of their state of health and wellbeing by instilling consciousness and motivation towards a healthy and active life. Furthermore, through personalized profiles, as well as strategies for the pursuit of balanced physical activity and/or rehabilitation exercises, the SMART BEAR platform could represent a very meaningful and valuable service.

Lastly, the design process of such new generation devices according to users' needs and an ethical model able to ensure users' trust by protecting their privacy in order to tangibly sustain the users could be guaranteed bythe collaborative and inter-disciplinary approach of *SMART BEAR* partners.

3.1.9.3 Exploitation Strategies

Results obtained during the *SMART BEAR* project will constitute a solid basis for continuing the process of design, development and integration of the connected technological solutions specifically designed for elderly population started between the definition of use cases and the daily life monitoring of the European elderly.

Project methodology and results will continue to be proposed following firstly an internal line of dissemination to the different clinical and technological units of FCSR. Inside the OSR there is the DIMER, a dedicated centre where three types of rehabilitation are performed: cardiological, neurological and motor. Evaluating the SMART BEAR platform in elderly patients belonging to this centre would allow the monitoring of a series of parameters even when the patient returns home once the rehabilitation process has been completed, providing them personalized advice regarding the new lifestyle, after the hospital stay.

Secondly, addressing an external one direct to other hospitals belonging to the network to which FCSR and OSR are afferent and relative end-user associations. Thanks to the experience gained during *SMART BEAR* lifetime the Center for Advanced Technology in Health and Wellbeing will work at evolving the assets developed also towards other fields of application of the healthcare domain where the mixture between the medical world and the "human" side (relational, educational, behavioural) is a key determinant to pursue thebetterment of the old individual's condition and his/her quality of life.

3.1.9.4 Interim results

"**IoT Platform for Ageing Society: the SMART BEAR Project**"
Cristiano A., De Silvestri S., Musteata S., Sanna A., Trojaniello D., Bellandi V., Ceravolo P., Cesari

M. *eTELEMED 2021: The Thirteenth International Conference on eHealth, Telemedicine, and Social Medicine (IARIA, 2021), pp. 45-49, ISBN: 978-1-61208-872-3*
[Article and oral presentation FCSR-UMIL]

"**Older Adults' and Clinicians' Perspectives on a Smart Health Platform for the Aging Population: Design and Evaluation Study**"
Trojaniello D., Cristiano A., De Silvestri S., Musteata S., Sanna A., Bellandi V., Ceravolo P., Cesari M., Azzolino D. [FCSR-UMIL]
(Publication under revision to JMIR mHealth and uHealth)

3.1.10 CATEL

3.1.10.1 Organizational Background

The scope of Catel's intervention (connected health resource and skills centre) ranges from telemedicine and e-health up to the large areas of medical data, artificial intelligence, connected objects, ... For a digital world that is not an end in itself but at the service of quality and relevance of cares, medical deserts, prevention and efficiency of our medical organizations! After many years devoted to promoting e-health, launching experimentations and supporting project leaders, Catel is helping organizations and territories to develop digital uses for the widest possible audience, both professionals and patients, and thus improve their daily health and well-being. Catel is a Think Tank specialized in e-health that puts its know-how and experience at the service of this transformation thanks to its expertise, training and study trips as well as its events.

Catel's priority actions are:

- Support the organizational and economic innovations of French territories and sectors supported by Regional Hospital Groups (GHT), local authorities, associations, ...;
- Set up collectives, focus groups to co-produce reference documents (maps, quality chart of best practice, etc.) and thus carry out lobbying actions to the public interest;
- Meet specific expertise needs (medical, technical, legal, economic, change management, evaluations) with institutions, companies and other digital health players;
- Act as operator, coordinator of e-health cooperation programs particularly with French-speaking countries.

The diversity and quality of CATEL's added values are made possible thanks to a strategy of loyal and renewed partnerships, which, in order to be efficient, allows the easy gathering of skills and legitimacy.

3.1.10.2 Foreseen exploitable results

Catel's aim is to make the best possible use of the results from the *SMART BEAR* project in line with its 20 year old motto: "let digital technology be used by the greatest number of healthcare professionals and patients foran improved health and a better well-being.»

In this context, Catel will be interested in the results obtained for improving in particular the elderly users' quality of life and health status as well as those of the carers involved. The implementation of innovative and accessible solutions validated and accepted by users, while respecting the conditions of security and confidentiality, will also be of major interest.

Furthermore, Catel will leverage on the methodologies deployed and validated to reinforce its solutions for a successful deployment of e-health on a large scale. To do so, Catel will rely both on the experience of interventions on the spot and the knowledge resulting from R&D works implemented. An interesting line of intervention has been identified on schemes of organization favouring a dynamic cooperation between stakeholders and dissemination of uses.

3.1.10.3 Exploitation Strategies

We believe that identifying and promoting e-health best practices can ease the long-term dissemination of these uses. And this can be done in a few steps: first, identifying best practices done by players, second categorizing these best practices and finally self-evaluating them by the players themselves. This will be followed by an analysis of the results and lessons learned in order to correct what needs to be corrected.

We carried out a model for France that brought together 40 best practices grouped into 8 main categories (medical, technical, economic, legal, etc.). And these categories of best practices will guide us during the *SMART BEAR* project.

levels of activities are planned:

- Level 1: Formalizing the medical and social needs of senior users and health professionals targeted
- Level 2: Qualifying technical, organizational and existing partnership solutions as well as innovative solutions
- Level 3: Analysis of economic aspects (investments / returns on investment, operation / development of business models), legal and regulatory compliance according to the 3 identified patient paths
- Level 4: Definition of sustainability conditions, evaluation, change management and communication

CATEL will promote and broadcast *SMART BEAR* 's results during several events such as: SANTEXPO - Paris Healthcare Week, CATEL Visio best practices in e-health, Catel Paris e-Health Strategies and e-Health Congresses around the world as well as press articles of which *SMART BEAR* will be the object.

3.1.10.4 Interim results

CATEL pursues synergies with other National projects (France) as well as cultivates the links with the other pilot sites for better promoting the project's activities at local level.

3.1.11 QUIRON

3.1.11.1 Organizational Background

Quirónsalud is Spain's leading provider of health services. Although a young brand—merge between idcsalud and Quirón took place in 2013—we have over 60 years of experience caring for people's health and well-being. Quironsalud represents a network that comprises over 130 hospitals, institutes and other medical facilities, located in 13 regions of Spain. We also have international presence in Dubai, Lisbon, Lima and Medellín. Moreover, in 2016, four of the main occupational risk prevention companies joined Quironsalud, that provides us with more than 300 occupational health and safety specialized centres. This makes Quirónsalud the lead company providing health services in Spain and, following its merger with Helios, owned by Fresenius in 2017, we have become the Europe's number-one health-care provider.

Quirónsalud offers patient comprehensive health care that encompasses all medical specialities. We have a highly regarded professional **team over 40.000 professionals**, the latest technology, flourishing research and education programs, and a management model based on a solid commitment to quality. Expert care and a vision of medicine based on personalization, warmth, and connection with the patient—because we believe inperson-to-person health.

At Quirónsalud, we know that research and education are crucial to our commitment to continuous improvement. Only by generating and disseminating new knowledge can we better respond to our patients' needs. We have more than 1,200 research projects underway throughout Spain. At many of our centres, we carry out important scientific work that is opening up pioneering lines of research. We collaborate with 27 universities to provide training for future doctors and nurses. Our network currently includes 7 university hospitals as well as the only private research institute in Spain accredited by the Ministry of Science and Technology. We train approximately 400 health professionals each year.

3.1.11.2 Foreseen exploitable results

Quirónsalud has an internal IT department which develops and integrates IoT solutions related to the Patients Portal tool. And, furthermore, we have a high number of episodes in our hospitals of people older than 65: during the 2018 we had 282,930 episodes in our hospitals with people over 65 years old. An episode of healthcare means an act done with one patient, i.e., the patient comes to the urgency room, we provide care and we diagnose heart failure.

Therefore, exploitation opportunities for Quirónsalud could include:

- Transferring results and know-how into further EU projects.
- Transferring results and know-how into national or industrial research projects.
- Developing new services based on the prototypes, methods and tools.
- Exploiting the results and know-how into new services offered by Quirónsalud to our patients andprofessionals through our already developed internal platform CASIOPEA.
- Improving our patient´s healthcare follow-up and therefore avoid the adverse events and increase thequality of the services we offer them.

Another foreseeable result is to attract through SMART- BEAR dissemination a wider audience of new collaborators for the continuation of research effort and, through this, establishing Quirónsalud as a high-value partner in the respective fields. The collaborations created through successful projects might outlive the projects and migrate to a standard research core.

3.1.11.3 Exploitation Strategies

SMART BEAR project will provide Quirónsalud with new solutions to scale up to our own Patients Portal tool and to integrate within our technological platform CASIOPEA, offering new services and an added value to our patients and professionals.

Furthermore, Quirónsalud aims to develop a Living Lab in the framework of *SMART BEAR* project, to be certified by the European Network of Living Labs, ENoLL (https://enoll.org/) for user-centred co-creation, rapid prototyping and validation of products and advanced services like CASIOPEA, integrating research and innovation processes in real-life communities and settings. Our objective will be to scale the Living Lab up to other regions and even develop a specialization of the Living Labs into Hubs (CV, mental disorders, obesity, etc.). *SMART BEAR* project and the Living Lab will therefore be a great opportunity to generate and collect new data to identify new needs from end-users and professionals, and test and validate the usability and reliability of this data for our physicians and main stakeholders, as well as the ethical implications of it. As a Living Lab, Quirónsalud will aim to take part of the Accelerator program of the EIT Health.

Finally, Quirónsalud will look to new R&D projects, initiatives and possibly new alliances among the consortia partners to exploit the project's results and Quirónsalud's know-how.

3.1.12 ANA

3.1.12.1 Organizational Background

Ana Aslan International Foundation (ANA - www.anaaslanacademy.ro) is a non-profit Research, Education and high-profile medical services organization, with special expertise in Aging and Brain Aging.

Its mission is to integrate scientific progress into the medical and social practice of elderly care. This is achieved through promoting the holistic, integrated and personalized approach of ageing, brain ageing and related pathologies. Furthermore, the ANA has expanded its expertise in the field of applied ICT technologies for frail and dependent elderly, so that it not only helps prevent the ageing-related pathologies but promotes an active and healthy ageing.

Between 2010-2013 more than 3,500 Specialists & Nurses graduated the Brain Aging Project – the largest

educational program (national coverage) aimed at promoting a modern, integrated multidisciplinary and "doctor-nurse team" approach towards the correct evaluation and early interventions in the neurodegenerative diseases (a 5 mill Euro Operational Program financed project coordinated by ANA).

In the past 10 years, ANA has accumulated extensive research, management and innovative experience as Medical Partner and Pilot Site in EU Funded Project within FP6-IST-STREP (K4CARE and SHARE-it) and AAL-Active and Assisted Living frame (MobileSage, CONFIDENCE, Mobile.Old, CarerSupport, StayActive, MyMate, SeniorTV, TSBank, PETAL, IOANNA, Ella4Life, VirtuAAL SCP, POSITIVE, frAAgiLe). ANA has also been involved in important and prestigious networking, sharing best practices and patient's support projects (Ageing Well, LivWell and E-No-Falls).

3.1.12.2 Foreseen exploitable results

The large amount of data that will be generated in the *SMART BEAR* project (from the big number of elderly end-users involved) provide important opportunities in several directions:

- validation (or invalidation) of current healthcare / clinical practice models,
- further research opportunities for PhD's on the explored areas,
- educational material for larger groups/categories of medical doctors and
- also, for elderly patients and their caregivers,
- sound assessment of the elderly's acceptance of technological solutions in the real-life setting.

3.1.12.3 Exploitation Strategies

SMART BEAR offers ANA a unique opportunity:

- for extending to a much larger scale the experience already acquired in previous projects using technologies to the benefit of elderly patients and their caregivers,
- to contribute to the creation of new guidelines and algorithms that improve their healthcare status, decrease the burden on their caregivers and also improve the communication between patients and clinicians.
- Furthermore, the outcomes of *SMART BEAR* project can be exploited by ANA in order to provide the basis for building better prevention strategies and public health policies in the future in Romania.
- Another direction will be represented by the integrated medical education on the benefits of using technological solutions towards the network of GP's and specialists already attending courses provided by ANA.
- Also, the project will provide a sound basis for various further research topics in the area of Gerontechnology for the PhD's and postdoc researchers from ANA and other Romanian entities interested in this research area.

3.1.13 FORTH

3.1.13.1 Organizational Background

Established in 1983, FORTH is the largest Greek State R&D Centre. FORTH hosts eight major Research Institutes. FORTH, besides its pioneering contributions in the sector of Information and Telecommunications Technologies in Greece, cooperates, in the context of European and international collaborative R&D programmes, with universities, research centres and other organisations at national and international level, thus contributing to the exchange of scientific ideas and the creation and transfer of new technologies. FORTH brings in expertise related to IoT security, environment monitoring and user personalization. The strong involvement in both research- and industry-focused projects, as well as the pertinent services provided by FORTH provide thorough and up-to-date knowledge on current and emerging privacy and security issues faced

by ICT systems including the Healthcare domain. In *SMART BEAR* is mainly involved in WP5 with the cyber-security aspect of the *SMART BEAR* platform both in the design (security by design) and run time (Cyber Security controls).

3.1.13.2 Foreseen exploitable results

FORTH as a research and academic institution aims to perform high-quality research, to promote education and training, and to contribute to the development of the Information Society, at a regional, national, and European level. FORTH will incorporate *SMART BEAR* results and tools, within their advanced educational activities. Both PhD students and researchers will have the opportunity to work collaboratively with external stakeholders as well as to interact with state of the are cybersecurity solutions and tools. Moreover, the data that will be gathered throughout the project's duration, after sanitization and anonymization, will be available to the research staff of FORTH for further exploitation. Furthermore, FORTH intends to publish the research achievements and innovations obtained within the project, to the scientific community through peer-reviewed publications in high quality journals and international conferences during the lifetime of the *SMART BEAR*. Thus, FORTH will ensure that the project will be aligned with PPP (Public-Private Partnership) activities like the Strategic Research and Innovation Agenda (SRIA), ensuring the viability of the *SMART BEAR* solution. Finally, the knowledge, the technologies and the network gained through *SMART BEAR* will be exploited in the future strategy of FORTH for applying to consequent EU-funded projects calls.

3.1.13.3 Exploitation Strategies

FORTH has adopted an evolving strategy towards promoting the commercial exploitation of R&D results by providing services, licensing specific products to industrial partners, contracting with industrial partners to jointly develop new products, and participating in start-up spin-off companies and joint ventures. The established mechanisms of FORTH will exploit the results of the *SMART BEAR* project. Those include the PRAXI network [5] and the Science and Technology Park of Crete [6] (STEP-C). PRAXI Network is an established technology transfer organization with long-standing experience in assisting SMEs and research organizations throughout Greece. Through PRAXI Network benefits and technologies produced by the project can be exploited by SMEs. The other initiative of FORTH, STEP-C, offers, in addition to incubating facilities and services to start-up companies with new and emerging technologies, specialized professional services that are difficult to find under one roof. Such services and facilities are geared in assisting and guiding companies in various aspects such as transfer of technological advancements into the manufacturing of innovative products and services and unleashing their potential through innovation.

3.1.14 NKUA

3.1.14.1 Organizational Background

The National and Kapodistrian University of Athens (https://en.uoa.gr/) was founded in 1837. It is the largest public institution of higher education in Greece. It is a legal entity of public law with 43 Departments and 183 Postgraduate programs of all disciplines, 158 Laboratories, 69 Clinics (included in 4 University Hospitals), 6 Central Libraries. With a student body of about 125000 undergraduate and postgraduate students, over 2000 members of academic staff and approximately 1300 administrative and secretarial staff and specialized personnel, the University of Athens is one of the largest universities in Europe.

The 1st University Department of Otolaryngology (AORL, https://entuoa.gr/) was established in 1939 at the Hippokrateio Hospital in Athens, and is the largest Otolaryngology Department in the country. It provides clinical services for all major subspecialties including Otology & Neurotologic surgery, Audiology, Head & Neck Oncology, Lateral Skull Base Surgery, Rhinology and Laryngology. It is also one of the Cochlear Implant Centers in Athens. In particular, the Audio-Vestibular Laboratory is one of the most prestigious in the country and is focused in the assessment of hearing and balance using the latest technology in audiological and vestibular research, including posturography, videonystagmography, psychoacoustic tuning curves,

electrophysiologicaltesting of hearing, otoacoustic emissions for assessment of the cochlear function and vestibular evoked myogenic potentials for the assessment of the balance organ. Multidisciplinary approach is provided, includingvestibular rehabilitation. More than 1,000 patients are examined annually.

The AORL department has one of the most competitive postgraduate surgical training programs, with 15 surgical Residents. It is responsible for the undergraduate training program of Medical and Dental Students of the National & Kapodistrian University of Athens (http://eclass.uoa.gr/courses/MED332/).

The AORL department is actively involved in clinical and basic science research and has published over 130 scientific papers in international peer-reviewed journals over the last 5 years. Moreover, it is actively involved in two FP7 and four Horizon 2020 research programs:

- REGAIN (EU funded Horizon 2020 project): http://www.regainyourhearing.eu/
- UNITI (EU funded Horizon 2020 project): https://www.unity-project.eu/
- HOLOBALANCE (EU funded Horizon 2020 project): https://holobalance.eu
- EVOTION (EU funded Horizon 2020 project: http://h2020evotion.eu
- SIFEM (EU funded FP7 project): http://www.sifemproject.eu/
- EMBalance (EU funded FP7 project): http://www.embalance.eu/
- TINNET (EU funded COST action): http://tinnet.tinnitusresearch.net

3.1.14.2 Foreseen exploitable results

From a clinical point of view, *SMART BEAR* will provide an excellent opportunity for identifying possible correlations among varied factors. Factors that have already been studied in clinical studies of varied scale, such as medication and blood pressure, change of medication and deterioration of mental disorders, physiotherapy or serious games and balance / CVD / weight, Auditory Training or serious games and hearing or cognitive disorders, time of the year and incidence of specific medical conditions, prediction of weather (weather forecast) / actual weather and changes in behaviour / mood and social life, dietary habits and CVDs, frailty, mental or cognitive changes will be all studied among others in a large scale project providing supplementary valuable evidence.

SMART BEAR will also target a common issue for HA users, the need to revisit Audiologist for fine tuning. *SMART BEAR* Hearing Aids (Has) and platform will serve as a large scale implication ground for remote fine tuning, a principal feature of state of the art Tele-Audiology. The impact of remote fine tuning on user's compliance and overall HA benefit and experience is enormous. In a higher level, knowledge and experience on the matter will help establishing the strategies and algorithms under which this new feature can be applied in users' everyday routine.

Another issue targeted by *SMART BEAR* is the unnecessary visits to health care providers. For example, in the case of hypertension, insight on whether a patient is covered by current medication and physiological measurements are evidently within normal limits can reduce the number of unnecessary follow-up visits eg. instead of seeing a patient every 3 months, see him only in 6 months and if an irregular event occurs. This re- designing of healthcare follow-up schedule will not only create the best and most individualized healthcare to *SMART BEAR* users but will serve as basis on creating new medical guidelines and health policies.

Creating an online medical diary that users can use every day for describing (with the help of scroll-down predefined by clinical experts' answers) specific matters of their everyday life and health challenges is an innovative way of creating patient security and privacy respecting individualized – personalized patient profiles. Further analysis of these data could also lead to the discovery of correlations with other physiological, social or environmental parameters and events.

Finally, the collection of dietary data and the creation of individualized healthy menu suggestions, along with its correlation to other epidemiological, environmental or physiological factors like sex, social status, living

alone / with carer, weight, blood pressure, time of the year, physical activity etc will create an important impact on everyday routine and the overall well-being of the elderly. Additionally, long – term evidence-based health solutions could be created and provided first to *SMART BEAR* users and then to general population.

3.1.14.3 Exploitation Strategies

SMART BEAR project and analysis of the collected data will give insight on the use of connected technological solutions and how they can improve both self-management of everyday health challenges and communication between patients and clinician / carer. Creating new guidelines and algorithms that decrease unnecessary visits to health care providers and related structures, identifying gaps in the current way elderly's health matters are addressed and enhancing the impact of each of the used technologies by integrating them into one unique health solution will be time and cost saving for both users and health systems. Moreover, pioneer hearing aidmanufacturers will be involved so that innovative hearing aid features such as remote fine tuning are integrated in *SMART BEAR* project. The implication of this innovative tele-audiology feature on a large-scale population study such as *SMART BEAR* will provide invaluable knowledge and experience on the matter. Integrating state of the art physiotherapy and serious gaming strategies in one personalized management solution according to user's profile will help improving users' compliance to it and enhance thus its effect. Besides the benefits in individual level, the knowledge gained through this large-scale patient-centred approach could serve as the basis for building better prevention strategies and public health policies in the future.

Through our contribution to *SMART BEAR* design, deployment and analysis, NKUA aims to achieve important information and tools for the management of the targeted medical entities and to communicate *SMART BEAR*useful results and knowledge to the academic and scientific community (conferences, publications). Goal is the creation and publication of useful evidence-based material which will be applicable to the everyday clinical practice, future research and public health policies.

3.1.14.4 Interim results

Publications

1. Overview of the EURESEARCHPROJ technical infrastructure. Bucur A., Basdekis I., Kouris I., Maggesi J., Sicuranza M., Su Q., Acebes A., Iliadou E., Pozdniakov K., Kloukinas C., Jaswanth V., Roy M., Koutsouris D., Leontsinis I., Gallo L., De Pietro G., Spanoudakis G. (submitted to ICT4AWE 2022)
2. Healthier and Independent Living of the Elderly: Interoperability in a Cross-Project Pilot. Agostinho C., Pimenta A., Marques M., Tsiouris K., Kalatzis F., Nikitas C., Iliadou E., Occhipinti M. Kouris I., Koutsouris D., Basdekis I., Koloutsou K., Gallo L., de Pietro G., Jardim-Goncalves R. (submitted to IESA2022)
3. Engineering Continuous Monitoring of Intrinsic Capacity for Elderly People,
Bellandi V., Basdekis I., Ceravolo P., Cesari M., Damiani E., Iliadou E., Marzan M, Maghool S., 2021 IEEE International Conference on Digital Health (ICDH), 2021, pp. 166-171, doi: 10.1109/ICDH52753.2021.00030.

Oral presentations - Workshops

1. EU Large Scale Projects – Health Cluster: "Pilot of Pilots initiatives"; Sustaining the most vulnerable users in pilot activities.
05.2021 Digital and Assistive Technologies for Ageing Webinar series by World Health Organization (WHO)
2. Smart Bear: Example of A Large Scale Health Research Project In Covid-19 Era.
11.2020 Oral Presentation in The Context of SMARTAGRIHUBS – Covid-19 Webinar
3. CATEL Visio 2020 - Seniors et Santé numérique au coeur des territoires.
CATEL - NKUA
4. Big Data Collection and Analysis Project for the Support of Seniors with Health Problems Partner, 46th Panhellenic Medical Conference, 19-20/06/2020
NKUA, ROP, MPF, CNR, STS
5. 20th Panhellenic ENT Conference, 24-27.10.2019
NKUA, UOI, STS, ICCS

Website

1. Hearing, Balance and Voice Group of the 1st ENT University Department (NKUA) dedicated website: Research Activities – SMART BEAR: https://www.neurotologyathens.com/en/research/eu-projects/smart-bear.

3.1.15 UOI

3.1.15.1 Organizational Background

The University of Ioannina (www.uoi.gr/en) was founded in 1964 in Ioannina, Epirus, in the northwestern part of Greece. Today the University has 17 departments with over 500 faculty members, 13,500 undergraduate students and more than 3,000 graduate students (MSc and PhD). The University of Ioannina has established aquality management system that is in conformance with the International Management System Standard ISO9001:2000, as well as the Greek Management Efficiency Standard, with a scope of "Project Management of Research and Development of Technological and Other Related Programs and Activities".

3.1.15.1.1.1 The work in the *SMART BEAR* project will be undertaken by the Unit of Medical Technology & Intelligent Information Systems (MedLab). MedLab is a highly innovative and self-contained researchunit strongly activated in the fields of Biomedical Engineering and development of Intelligent Information systems. It has an internationally acknowledged excellence in conducting high quality scientific research and developing innovative Information Technology (IT) applications, products andservices. Most of the Unit activities are based on international collaborations in the framework of European and nationally funded projects (FP5, FP6, FP7, Horizon 2020). MedLab's research activitiescover a variety of subjects and they are classified into the following domains: Biomedical Research, Automated Diagnosis – Processing of Biomedical Signals/Images, Development of Wearable Devices,Decision Support Systems, Bioinformatics, Multi-scale Predictive modelling, Data mining, and Big Data.

3.1.15.2 Foreseen exploitable results

UOI is responsible for developing the *SMART BEAR*'s Smart Home/IoT infrastructure and federation of e-Health devices. UOI will encompass all activities required to seamlessly integrate off-the-shelf smart consumer and medical devices, as well as the smart city and relevant sources into the *SMART BEAR* @Home ecosystem, interfacing them with the *SMART BEAR* Hub that will be deployed for that purpose and which will be used, along with innovative applications, to relay the aggregated data to the *SMART BEAR* infrastructures. The *SMART BEAR* @ Home ecosystem will be tailored to be unobtrusive and trouble-free to the extent possible, with secure out of the box configuration, and with minimal effort required to add additional devices. The device integration will be done so as to ensure the platform is interoperable with existing smart home platforms (in particular the Open Connectivity Foundation home platform and/or FI-WARE), smart city infrastructures; actually by taking into account the state-of-the-art relative standards and protocols.

3.1.15.3 Exploitation Strategies

As UOI is a beneficiary from the academic sector, primarily focuses to exploit the *SMART BEAR* project results into a number of graduate and postgraduate (MSc courses taught by researchers involved in the project. Further exploitation will be attained by publishing the project's result to scientific journals and participating in scientific conferences. To ensure the proper execution of the necessary steps to optimize the exploitation of the project's results, UOI will be in close collaboration with all partners.

UOI participates into many ongoing H2020 EU projects (e.x. HOLOBALANCE), which share similar technological advancements to different parts of the *SMART BEAR* project. UOI has also been successfully involved to a number of other relevant EU Commission projects (H2020, CT/FP7). This long standing experience will facilitate

the engagement of stakeholders involved with relevant horizontal piloting activities within pertinent EC initiatives, as well as create liaisons and synergies with other projects with complementarities to *SMART BEAR*.

Finally, in collaboration with the Science and Technology Park of Epirus Region, the new knowledge and technical know-how produced during the *SMART BEAR* project will be disseminated in both private and public sectors.

3.1.15.4 Interim results

Workshops:
HOLOBALANCE Workshop: "Telerehabilitation: proposed platforms, and the roadmap of technology enabled solutions to the market", 18/06/2021, Online event, https://holobalance.eu/workshop-on-telerehabilitation/
Publications:
Agostinho C., Pimenta A., Marques M., Tsiouris K.M., Kalatzis F., Nikitas Ch., Iliadou E., Occhipinti M., Kouris I., Koutsouris D., Basdekis I., Koloutsou K., Gallo L., de Pietro G., Jardim-Goncalves R., "Healthier and Independent Living of the Elderly: Interoperability in a Cross-Project Pilot", Health and health-related data: the foundation for eHealth Workshop, International Conference on Interoperability for Enterprise Systems and Applications I-ESA 2022, Submitted.

3.1.16 UMIL

3.1.16.1 Organizational Background

Founded in 1924, the University of Milan (UMIL) is a research-intensive university, offering high-quality teaching at all levels in a broad spectrum of fields. Over the years, it has succeeded in maintaining a skilful blend of tradition and innovation, adjusting to the requirements of a fast-growing society without putting aside its distinctive traits.

The university's interdisciplinary vocation and connections between a wide range of fields result in a highly stimulating and rich offer of undergraduate, graduate, doctoral and specialization courses with Italian being the main language of teaching. There is also a wide offering of degree programs available in English.

As one of the top international institutions in terms of scientific productivity, the University of Milan's wide range of educational and research competencies and its relationships with the business world also make it animportant resource for its socio-economic context. The University of Milan is the top Italian university in most international rankings and is the only Italian university among the 21 prestigious institutions that belong to theLeague of European Research Universities (LERU).

As a public institution concerned with the development and progress of knowledge, the University has always been committed to research projects that influence the quality of life of citizens. Research at the University of Milan is mostly conducted in the departments and the many specialised structures, favouring the creation andgrowth of networks of collaboration locally, nationally and internationally.

The scientific activity involves the whole academic community from professors, researchers, doctoral students, fellowship-holders and fellows to undergraduates, in an ideal quest for new ideas.

The UMIL unit includes Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico (IRCCS Policlinico) and Istituti Clinici Scientifici (ICS) Maugeri IRCCS Milano, also known as Maugeri, as its third parties. IRCCS Policlinico is a reference centre within National and International networks of Research and treatment. The hospital is also home to the Nord Italia Transplant program (NITp), that coordinates transplants for an area with over 20 million citizens and that, from 1972 to date, has made possible over 32 thousand organ transplants, with success rates at one year from transplant that exceed 90%. Together with Haematology, Neurology represents IRCCS Policlinico's number one department in terms of Impact Factor andthe intensity of clinical and pre-clinical research activity. Among the leading research topics in this area are Alzheimer

disease and degenerative and neuromuscular diseases, including congenital and acquired syndromes. ICS Maugeri operates in the field of the Rehabilitation medicine of related treatments, and its main mission is to offer to people suffering from post-acute and chronic illnesses the best possible Quality of Life and the largest independence. Maugeri has become an internationally renowned specialized centre for taking care and managing patients suffering from disabilities in consequence of multiple pathologies, and the neurological diseases in first place.

3.1.16.2 Foreseen exploitable results

The *SMART BEAR* platform will be tested and validated through five large scale pilots, spanning five different countries and 5.000 individuals: France, Greece, Italy, Spain, and Romania. This will offer to UMIL a great opportunity for testing innovative smart e-health solutions on a large scale, studying the convergence of clinical and engineering requirements.

UMIL will learn from this project on about up to date smart solutions for evolving to improve the health and well-being of older populations and to propose evidence-based recommendations for health care professionals. This will impact both on the quality of the research outcomes achieved both in the medical andcomputer science areas and on the opportunities of professionalization offered in the teaching programs promoted by UMIL.

The results of the project are also positive in terms of the public engagements achievements UMIL will be able to address as the diffusion of smart health and well-being services is today a key factor for ageing societies that want to move closer to the achievement of universal health coverage keepingunder control the costs of their welfare services.

3.1.16.3 Exploitation Strategies

The experimental data obtained by *SMART BEAR* allow UMIL to test its methodologies in a large experimental setting, including performance and stability tests, acceptance tests, and perceived quality tests.

These results will also support the definition of recommendations and guidelines to be used in training activities addressed to master or Ph.D. students of multiple disciplines, and to industry.

3.1.16.4 Interim results

1. Creation of Italian social media accounts.

- Facebook (http://www.facebook.com/smartbearIT)
- Twitter (https://twitter.com/smartbear_it)
- Instagram (https://www.instagram.com/smartbear_it)

2. Creation of the Italian SMART BEAR website. Link here: https://smartbear-it.di.unimi.it/

3. Dedicated page on the University of Milan website. Link here: https://lastatalenews.unimi.it/healthy-ageing-statale-capofila-italiana-progetto-smart-bear

4. Presentation at 4th Conference on INDUSTRY DIGITAL EVOLUTION (IDE), Lecce, Italy, September 16th-17th 2021. Link here: https://idenetwork.it/

5. List of scientific publications:

- Bellandi, V., Ceravolo, P., Cristiano, A., Damiani, E., Sanna, A., Trojaniello, D. (2020), A design methodology for matching smart health requirements. Concurrency and Computation Practice and

Experience, 2020, 33. https://doi.org/10.1002/cpe.6062

- Bellandi, V., Ceravolo, P., & Ehsanpour, M. (2020). A Case Study in Smart Healthcare Platform Design. In proc. of 2020 IEEE World Congress on Services (SERVICES), 7-12. Doi: 10.1109/SERVICES48979.2020.00015
- Bellandi, V., Basdekis, I., Ceravolo, P., Cesari, M., Damiani, E., Iliadou, E., Marzan, M., Maghool, S. Engineering Continuous Monitoring of Intrinsic Capacity for Elderly People. In proc. of 2021 IEEE International Conference on Digital Health,166-171. https://doi.org/10.1109/ICDH52753.2021.00030
- Cristiano A., De Silvestri S., Musteata S., Sanna A., Trojaniello D., Bellandi V., Ceravolo P., Cesari M. IoT Platform for Ageing Society: the SMART BEAR Project. In Proc. of eTELEMED 2021: The Thirteenth International Conference on eHealth, Telemedicine, and Social Medicine (IARIA, 2021), 45-49. ISBN: 978-1-61208-872-3. [Article and oral presentation FCSR-UMIL]. Available online: https://air.unimi.it/bitstream/2434/923486/2/etelemed_2021_2_60_40087.pdf
- Cristiano A ., Musteata S., De Silvestri S., Bellandi V., Ceravolo P., Cesari M., Azzolino D., Sanna A, Trojaniello D Older Adults' and Clinicians' Perspectives on a Smart Health Platform for the Aging Population: Design and Evaluation Study JMIR Aging 2022;5(1):e29623. [FCSR-UMIL] Doi: 10.2196/29623
- Bucur A., Basdekis I., Kouris I., Maggesi J., Sicuranza M., Su Q., Acebes A., Iliadou E., Pozdniakov K., Kloukinas C., Jaswanth V., Roy M., Koutsouris D., Leontsinis I., Gallo L., De Pietro G., Spanoudakis G., "Overview of the SMART BEAR technical infrastructure". Presented atICT4AWE 2022: 8th International Conference on Information and Communication Technologies for Ageing Well and e-Health, online streaming, Apr 23rd-25th, 2022.
- Agostinho C., Pimenta A., Marques M., Tsiouris K., Kalatzis F., Nikitas C., Iliadou E., Occhipinti M. Kouris I., Koutsouris D., Basdekis I., Koloutsou K., Gallo L., de Pietro G., Jardim-Goncalves R. Presented at Health and health-related data: the foundation for eHealth Workshop, International Conference on Interoperability for Enterprise Systems and Applications I-ESA 2022. Valencia, Spain, March 23rd-25th 2022.
- Bellandi V., Ceravolo P., Frati F., Occhipinti M., Kloukinas K., Pozdniakov K., Gallo, L., Kouris I., Iliadou E., Kikidis D., Nikitas C., Basdekis I., Agostinho C., Acebes Martin A., Perez-Perez M. M., A Big Data Infrastructure in Support of Healthy and Independent Living: a Real Case Application. Submitted, in press.
- Bellandi, V., Ceravolo, P., Damiani, E. *et al.* A methodology to engineering continuous monitoring of intrinsic capacity for elderly people. *Complex Intell. Syst.* (2022). https://doi.org/10.1007/s40747-022-00775-w.

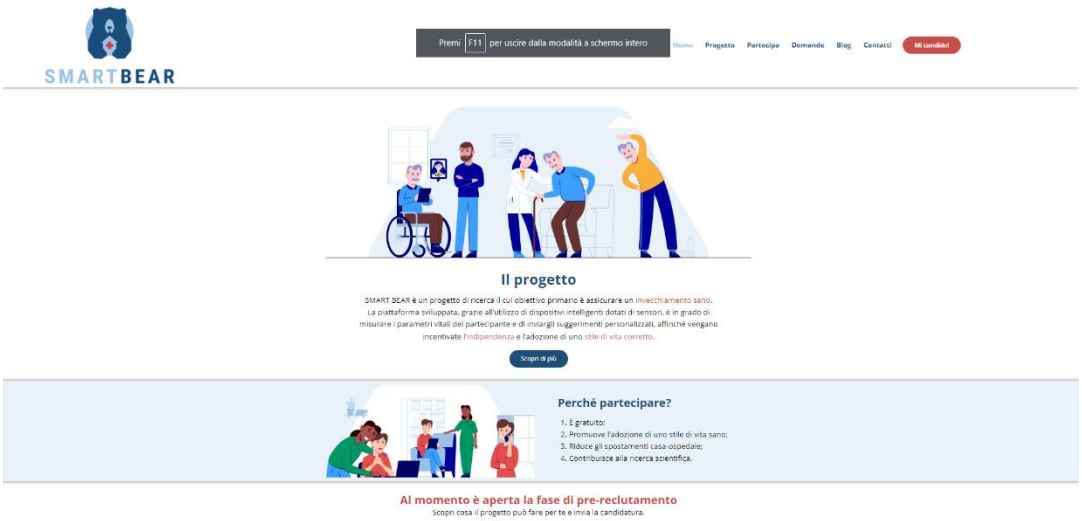


Figure 31. The Home page of the Italian SMART BEAR website

Figure 32. The Italian Facebook page of SMART BEAR

Figure 33. The Italian Instagram profile of SMART BEAR

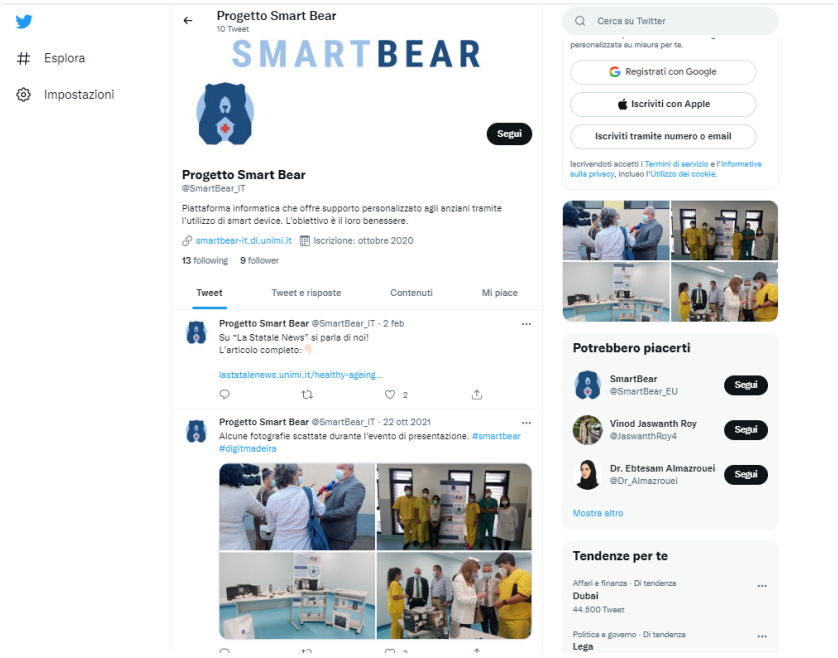


Figure 34. The Italian Twitter page of SMART BEAR

In particular, the activities of the project will be connected to teaching activities at the UMIL master on Data science and economics and at the Ph.D. School in Computer Science at the Postgraduate School of Geriatric Medicine.
The results of the project will be exploited to foster the events and publications at the scientific and industrial levels and to contribute to WHO groups on Geriatric Medicine and to develop reports about benchmarks of IoT devices in the e-Health contest.

3.1.17 UPV/EHU

3.1.17.1 Organizational Background

The University of the Basque Country (UPV/EHU) is an integrating institution willing to produce knowledge, experience and research in order to forward them to the general public. We believe in education as a means to arouse our students´ awareness of the world and develop precious skills both for career and life. The University seeks to promote international cooperation to carry out projects that not only help the population but also provide knowledge to its participants.

As an example of the international and cooperative nature of the University, we have *"EUSKAMPUS":* This private-public inter-institutional initiative was wet up with the legal standing of a foundation as it is the one that best adapts to achieving the goals of the Campus of International Excellence Euskampus project. Thus, Euskampus Fundazioa aspires to become a key element to drive Basque R&D&I and its internationalisation, with a clear vocation of social responsibility and integration with its territory. The mission of Euskampus Fundazioa is therefore to design, coordinate and executive measures that, with the collaboration of all its partners, consolidate and accelerate this internationalisation and modernisation process of the University of the Basque Country - Euskal Herriko Unibertsitatea by means of the implementation of the Euskampus project.

Moreover, we seek to extend our international influence working on a 'brain-gain' basis and establishing cross-border campuses. With a view to reinforce our services and boost technological platforms, our General Research Services Unit (SGIker) commands the acquisition and handling of all research-structures.

3.1.17.2 Foreseen exploitable results

UPV will analyse the European and national legislation and jurisprudence to be able to respond to legal and ethical problems that may appear during the project. The security, privacy and confidentiality of the *SMART BEAR* platform will be explored, investigating the implementation of privacy and security controls that protect all connections and accessories of the platform. These integrated mechanisms will have a design based on privacy and security. So that, the *SMART BEAR* platform, as it seeks to be a security and privacy model at all times, requires a continuous legal evaluation of the security and privacy measures of the platform through dynamic evidence.

In short, during the 4th pilot, we are going to:

- Identify the needs of the *SMART BEAR* project
- Analyse the European and national legislation and jurisprudence
- Make a legal analysis of health data
- Create the informed consent form
- Create personal data pseudonymisation process
- Cooperate with other partners
- Create a thesis of protection of personal data in health

3.1.17.3 Exploitation Strategies

Resources have been allocated to contract through public contest a researcher (Personal Investigador Contratado, PIC), Idoia Landa, which will be addressing ethical and legal issues on the *SMART BEAR* project

in her doctoral thesis. The three-year contract will provide her with transferable skills on frail and vulnerable population health data protection. The thesis aims to provide different protocols and control rules for health data circulation within Europe in the light of the new Regolament and local rules. Furthermore, a Summer Course on frailty and data protection will be organized and which has already been accepted in the 2020 UPV/EHU Summer Course. This Summer Course will address main technical as well as legal challenges posed by the *SMART BEAR* project. Invited participants will be members of Pilot and other *SMART BEAR* project researchers, as well as Spanish data protection authorities. Furthermore, in month 48 of the project, a Doctoral Thesis will be produced on IoT for home treatment data protection issues. Results will be published in Spanish and English both at domestic as well as international specialized Reviews.

3.1.18 CITY

3.1.18.1 Organizational Background

City, University of London was founded in 1894 and is based in the City of London, hosting more than 17,000 students and more than 2,000 staff, from more than 150 countries. CITY is in the top 5% of world universities (Times Higher Education World University Rankings 2012). More than 80% of the research activity of CITY in the fields of Computer Science and Informatics was assessed as being of internationally excellent or world-leading level by the last national research assessment (REF 2014) in the UK. CITY participates in *SMART BEAR*, through the Research Centre of Adaptive Computing Systems (CeNACS). CeNACS was formed in 2014 bringing together the Software Engineering Group (2000-2013) of the Department of Computer Science, the Information Security Group of the Department of Electrical and Computer Engineering, and newly recruited faculty. The Centre has around 35 members (2 full professors, 2 associate professors, and 2 assistant professors; 5 research fellows/assistants and 26 PhD students) and conducts research on adaptive cyber systems covering all layers in the implementation of such systems and with a special focus on the preservation of security and quality properties in system adaptation. Key areas of competence of CITY, which relate to the objectives and work-programme of *SMART BEAR*, include cyber systems monitoring and adaptation, cyber-certification, security service-level agreements, cyber-insurance, security-by-design, static and runtime system verification techniques and mechanisms, machine-learning, knowledge extraction, and big-data analytics.

3.1.18.2 Foreseen exploitable results

CITY's main interests in the *SMART BEAR* project is around the technological knowledge and advances with respect to designing and operating eHealth systems (e.g., requirements, designs), security & privacy (e.g., techniques and mechanisms for supporting GDPR in a cost-effective manner), and big-data analysis techniques and improved infrastructure designs for optimizing those while increasing support for the strict security & privacy requirements that exist in this sector.

3.1.18.3 Exploitation Strategies

CITY is interested in exploiting the results of the project in its taught postgraduate (MSc) courses on cybersecurity, big data science, health informatics, and software engineering, where students will be able to see advanced case studies and solutions for a domain as important as healthcare, as well through its doctoral (PhD/MPhil) program. CITY is also interested in consulting services to SMEs and other companies that would want to enter the market, as well as in exploring other ways of monetizing the results of the project (e.g., forming start-ups around specific project outcomes).

3.1.18.4 Interim results

CITY had the following publications:

- Grguric, A., Khan, O., Ortega-Gil, A., Markakis, E. K., Pozdniakov, K., Kloukinas, C. ORCID: 0000-0003-0424-7425, Medrano-Gil, A. M., Gaeta, E., Fico, G. and Koloutsou,K. (2021). Reference

architectures, platforms, and pilots for european smart and healthy living - analysis and comparison. Electronics, 10(14), 1616. doi: 10.3390/electronics10141616

- Vadim Peretokin, Ioannis Basdekis, Ioannis Kouris, Jonatan Maggesi, Mario Sicuranza, Qiqi Su, Alberto Acebes, Anca Bucur, Vinod Jaswanth Roy Mukkala, Konstantin Pozdniakov, Christos Kloukinas, Dimitrios D. Koutsouris, Elefteria Iliadou, Ioannis Leontsinis, George Spanoudakis (2022). Overview of SMART-BEAR technical infrastructure.
- Valerio Bellandi, Paolo Ceravolo, Fulvio Frati, Mattia Occhipinti, Christos Klounkas, Konstantin Podziakov, Luigi Gallo, Ioannis Kouris, Eleftheria Iliadou, Ioannis Basdekis, Carlos Agostinho (2022). *A Big Data Infrastructure in Support of Healthy and Independent Living: a real case application*

3.1.19 ICSS

3.1.19.1 Organizational Background

The Institute of Communications and Computer Systems (ICCS) is associated with the School of Electrical and Computer Engineering (SECE) of the National Technical University of Athens (NTUA) and is being supervised bythe Hellenic Ministry of Education. ICCS is a non-profit Academic Research Body established in 1989 by the Ministry of Education in order to carry out research and development activities in the fields of all the diverse aspects of telecommunications, computer systems and techniques and the application of ICT technologies in a variety of areas such as transceivers, radar and generally electromagnetic sensors, satellite and wireless communications, neural networks, software and hardware engineering, telematics and multimedia applications, transport applications, control systems, robotics, biomedical engineering and medical informatics, electric power, renewable energy sources, and distributed generation and management systems. The personnel of ICCS consist of a number of research scientists and more than 500 Associate scientists (including Ph.D. students). The research carried out in ICCS is substantially supported by SECE University Professors. There are 13 research units and 28 laboratories presently active in ICCS. ICCS is very active in European co-funded research activities and has been the project manager of many National and EU projects in various programs (e.g. EC, ISIS, RACE II, ESPRIT, IES, ACTS, INFOSEC, BRITE-EURAM, STRIDE, MIP-Informatics, Telematics Applications, IST, GROWTH, QoL, JOULE, ENERGIE, AAL, FP6,, FP&, Horizon 2020, RISE etc.) in all ofthe above-mentioned research areas.

The Biomedical Engineering Laboratory (BEL), which is established in the School of Electrical and Computer Engineering of NTUA, complete in 2020 thirty years of scientific activity. BEL had the presidency of E-Health Forum 2014, which was organized under the auspices of the Greek EU Presidency in cooperation with the European Commission, and was one of the founders of HL7 Hellas, as well as in its presidency for 10 years. BEL was a founding member of the Greek Biomedical Technology Company and a member of the International Federation of Medical and Biological Engineering (IFMBE). These activities cover a wide range of Basic and Applied Research in specialized Biomedical Engineering and Medical Informatics fields, focusing on the development of applicable end-products. The main research areas of BEL's expertise include: Medical Data Management Systems, Medical Informatics, Health Informatics, AI base Health solutions, data analytics and Health care, Big data in Healthcare, Telemedicine, Biorheology - Clinical Hemorheology, Neural Networks in Medicine Biosensors, Virtual Reality in Medicine and Healthcare, Radiation-Tissue Interaction, Ultrasound Technology as well as Biosignal and Medical Image Processing. BEL also has sound experience in using chaotic algorithms and Decision Support Systems based on Neural Networks, signal processing and data fusion algorithms, but also SOA Architecture, Web services and Interoperability Standards. Other R&D activity of thelab is in the areas of Health data security, Medical Image Processing, Bio-signal Processing, Home Care Systemsand Services and e-Health Applications and smart home for AAL.

3.1.19.2 Foreseen exploitable results

The *SMART BEAR* individual Exploitation approach, that will be adapted throughout the project lifecycle, will attempt an in-depth investigation of the full spectrum of exploitation opportunities – not just product development. Although exploitation evolves in parallel with the technical work, it should offer a different view of the project results, namely support to us to think about the results and identify exactly what we have to offer as well as find and reveal the value of the results for our scientific expertise. Exploitation is not the same as commercialisation and the exploitable results from European projects such as SMART- BEAR may arise in many forms. Such exploitation opportunities could include:

- Transferring results and know-how into further EU projects.
- Transferring results and know-how into national or industrial research projects.
- Developing new services based on the prototypes, methods and tools.
- Exploit the knowledge acquired throughout the project's lifetime in order to support the educational process at both graduate and post-graduate level through transfer of knowledge activities as well as exposing students to international scientific events where *SMART BEAR* is presented.
- Exploit the knowledge and the new technologies and products that are to emerge from *SMART BEAR* in order to possibly establish spin-off companies and be part of centres of excellence and participate as sponsors in incubator opportunities as start-up companies lack many resources, experience and networks and incubators provide services which helps them get through initial hurdles in starting up a business.

Another foreseeable result is to attract through SMART- BEAR exposure a wider audience of new collaborators for continuation of research effort and through this, establish BEL-NTUA as a high value partner in the respective fields. The collaborations formed through successful projects might outlive the projects and migrate to a standard research core.

3.1.19.3 Exploitation Strategies

ICCS intends to exploit the research effort allocated to SMART- BEAR as a means of creating additional teaching material for both graduate and post-graduate courses offered within the school of electrical and computer engineering and specifically the Biomedical Engineering Laboratory.

As an acclaimed academic and research institution ICCS considers its PhD candidates as its major assets in terms of fresh ideas and passion in research. Large number of publications and new PhD candidates with material to elaborate upon create a tradition in the respective field where ICCS can also thrive.

3.1.19.4 Interim results

ICCS is the social media manager of the project.

3.1.20 STS

3.1.20.1 Organizational Background

Sphynx Technology Solutions AG is based at Zug, Switzerland and has also offices in Cyprus. The company offers products and solutions, and consulting services, in the areas of cyber intelligence, analytics, incident response, assurance and certification. Sphynx has developed a security and privacy assurance platform to enable customised and continuous assessment of the security and privacy of your enterprise and comprehensive riskmanagement based on automated vulnerability analysis, threat analysis, penetration testing, continuous monitoring and hybrid assessment models. Its platform incorporates also intrusion detection, fraud management, and incident response. Sphynx offers customised services for enterprise security assurance. These enable its clients to set up security assessments, based on industrial and international standards (e.g., cloud, network, smart metering standards). The assessments are based and leverage on outcomes of the built-in analytic capabilities of the Sphynx's security and privacy assurance platforms. The Sphynx security and

privacy assurance platform enables the configuration of security assessment, reporting and certification to the needs of different stakeholders ranging from senior management to external auditors and regulators. The consulting services offered by the company support its customers in setting up and security and privacy assurance program covering the specific needs for their enterprise, establish the connectivity required with their enterprise systems in order to obtain the evidence required for the different types of assessment, configure the reporting of the platform to customer needs, and train the personnel of its customers in overseeing the assurance program using the SPHYN's platform.

3.1.20.2 Foreseen exploitable results

SPHYNX is particularly interested in the two types of solutions that *SMART BEAR* will develop and/or integrate. The first includes the solutions that will be developed and/or integrated to support IoT connectivity in the domain of smart digital care services for the elderly. The second is the data analytics and decision marking solutions that will be developed and/or integrated to offer personalised interventions for the participants of the pilots of the project. The particular perspective of its interest in these two types of solutions is the development of assessment models and related event emission and control mechanisms that will be necessary for ensuring the end to end security of the solutions.

3.1.20.3 Exploitation Strategies

SPHYNX will use the outcomes of *SMART BEAR* for strengthening its service and product portfolio. Its plan is to augment the capabilities of its security assurance and certification platform in ways that allow it to support the delivery of precise and trustworthy digital healthcare services realised through wearables and medical devices, smart home environments and backend cloud infrastructures. From a technical perspective, the strategy of SPHYNX for achieving this is to develop assurance models for continuous and hybrid assessment ofthe security and privacy of digital healthcare services, and appropriate event emission capabilities for the components (e.g., wearables, medical devices, smart home components) that realise such services which could communicate to its security assurance and certification platform the information required for executing the necessary security and privacy monitoring/testing checks. From a business perspective, SPHYNX's strategy is to promote its security assurance and certification platform to different stakeholders in the digital healthcare services provision chain, including for example healthcare service providers, public regulators and insurers, and offer consultancy and customisation services required for using it as a comprehensive framework for establishing and executing continuous security and privacy assurance programmes.

3.1.21 SV

3.1.21.1 Organizational Background

Created in 2003 by Dr. M.Rebiai, STREAMVISION S.A.S is a key enabler in the emerging market of digital video broadcast and rich media applications in proposing to audiovisual, educational and hospitality markets very performing and evolving interactive offers and products. STREAMVISION is also specialized in the design and implementation of quick medical diagnosis systems enabling the capture of body information and medical analysis via non-invasive sensors. Combining the mastering of the complete signal processing chain with the evolving needs of the silver economy, STREAMVISION has developed a quick medical diagnosis support armchair, called Check@flash, enabling the quick capture of body information and medical analysis via non-invasive sensors. Check@flash armchair's triple aim is first to provide a performing and quick answer to medical regional deserts by bridging the gap between the remote location and the nearest medical centre, second to reassure or avoid the possible health problems of a dynamic and always more autonomous population and third to provide a convenient medical data capturing tool of elderly people in nursing homes for an easier medical follow-up. Placing the e-health armchair in nursing homes or in emergency department will allow medical helpers to spend less but more qualitative time on patient. The complete chain of care and medical follow-up will also be optimized. It also gives freedom thanks the remote accessibility of medical data from the patient to the doctor. The STREAMVISION Company was awarded in July 2014 by the Worldwide Innovation

Challenge for its e-health armchair, by European Commission in March 2015 of SME Instrument phase 1 and with 3 Seals of Excellence for phase 2. More info on www.streamvision.com.

3.1.21.2 Foreseen exploitable results

SMART BEAR Project is dealing with patients, clinicians, health connected objects and data processing systems. This is similar to what STREAMVISION is doing with its e-health armchair prototype. It impacts the same targeted audience and covers the same fields. Moreover, the issues that could face *SMART BEAR* Project will also be faced by STREAMVISION when operating its e-health armchair product and deploying it throughout Europe. The *SMART BEAR* project is a wonderful testing ground for STREAMVISION, who will thus be fully prepared to launch its e-health armchair avoiding the traps that e-health objects use by patients and health professionals could encounter when deployed. STREAMVISION will learn from this project on how patients perceived connected tools and how practicians are ready to integrate this new medical approach in their traditional way of acting. STREAMVISION expects to identify the best ways of handling health connected objects with the various audiences so as to re-use these practices for its own health products. Beyond the best practices learnings, STREAMVISION will enrich its contacts with lots of future prospects, with the national health authority and organisms, with many key partners dealing in the same health field. This will give the company a very good visibility and reference that STREAMVISION intend to leverage.

3.1.21.3 Exploitation Strategies

SMART BEAR 's experimentation and data analysis will allow STREAMVISION to better understand the use of connected objects for the patient, the doctor and the family. This analysis will highlight the acceptability or not of the health connected objects by the patient, the reliability and the practicality for the physician and the ethical side of the project. On the social level, *SMART BEAR* will enable STREAMVISION to measure the adaptation and the rationale of connected tools with health disorders and well-being requirements. The correlation between these different elements will allow STREAMVISION to identify possible recommendationsfor the use of these connected objects with a population similar to the one STREAMVISION faces with his e- chair. The company's e-health strategy developed will leverage *SMART BEAR* 's results and analysis allowing STREAMVISION to bring credit and references in its own e-health dissemination and deliverables. These results will also be beneficial for STREAMVISION to make it more visible in the medical and health trade community.

3.1.21.4 Interim results

StreamVision's website has a dedicated page in both English and French to Smart Bear Project in the e-health section: https://www.streamvision.com/fr/e-sante/projet-europeen-smart-bear

3.1.22 ITSS

3.1.22.1 Organizational Background

IT Support Solutions is a company founded in 2013 in Romania with the objective to provide integrated IT services (server administration, IT consulting, WEB administration) to companies that have chosen to outsource their IT department. We provide support for companies that are located all over the world with our remote support solutions. We implemented professional back-up solutions so critical business data is safe all the time. ITSS provides support for implementing new technologies for more than 5 years:

- Wireless communications between relay tower and fixed locations;
- VPN configurations between locations or mobile users (encrypted tunnels, certificate authentification);
- Servers security services;
- Web security implementations and back-up;

- Custom web applications;

3.1.22.2 Foreseen exploitable results

The SMART-BEAR individual Exploitation approach, that will be adapted throughout the project lifecycle, will attempt an in-depth investigation of the full spectrum of exploitation opportunities – not just product development.

We are considering the following strategies:

- Transferring results and know-how into further EU projects.
- Developing services based on methods and tools.
- Exploit the knowledge and the new technologies and products that are to emerge from SMART-BEAR in order to possibly develop web applications of e-health.

Another foreseeable result is to attract through SMART- BEAR an increase in the company awareness.

3.1.22.3 Exploitation Strategies

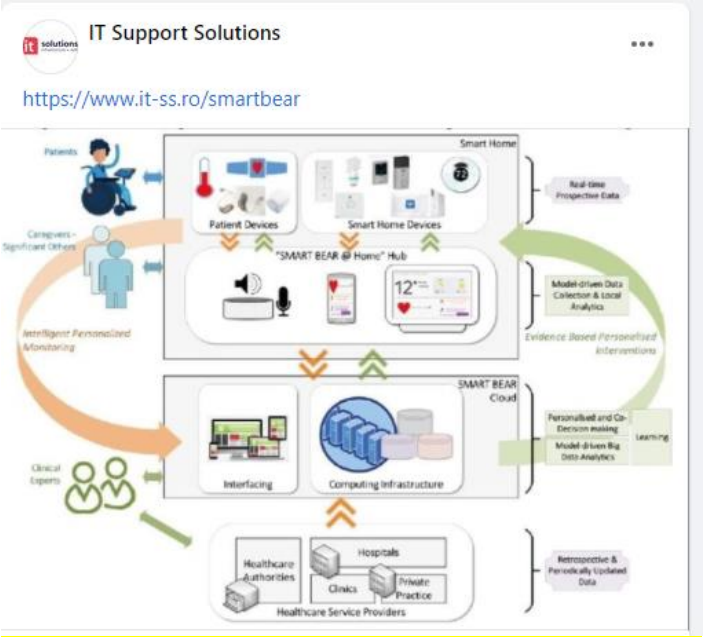
The results of the project will be exploited to serve as basis for the future online applications in the e-health area.

3.1.22.4 Interim results

The results of the project will be exploited to serve as basis for the future online applications in the e-health area.

1. Creation of a Smart Bear section on our website to publish relevant information during the project and rise awareness on the project:
   https://www.it-ss.ro/smartbear

2. Social media posts about the project and our involvement:



3. News regarding the project: https://www.it-ss.ro/partener-smart-bear

3.1.23 INNOVATEC

3.1.23.1 Organizational Background

Innovatec Sensing & Communication S.L. is an engineering SME focused on Research and Development of ICT-related devices, systems, and services. Innovatec was founded in 2006 by a group of engineers coming from an extensive R&D background, including activities at National and International levels for many years.

Since then, the company has established itself as a major player internationally in its provision of top value technologies, working either for private companies or for the public sector. It has successfully expanded its activities to a wide range of sectors: industrial control & automation, medical devices, advanced textiles, wearable monitoring, environmental monitoring, visual interfaces, and ambient assisted living, among others.

These activities involve custom hardware and software/firmware development, from a role as a consultancy or project manager, up to providing built-in complete systems and devices, as well as undertaking any project from conception to completion. Innovatec is a member of the International Bluetooth SIG. Innovatec has participated in FP7 (REPLAY, SolarDesign), AAL (MyMate), SME Instrument (t-Clinic) and Eurostars projects (HAIOPS, iLight), being currently the coordinator of two of them. Innovatec has also participated in other international projects (Eureka, Iberoeka, ISIP India). At a Spanish national level, Innovatec has been a partner in projects such as Prometeo, Preventic, On-Time, Hesperia, Sagaz, and many more related to emergencies. Innovatec staff also participates in other FP7 and H2020 projects, assisting in their conception, preparation, coordination, or management, such as SmartSet, ElderGames, Eiffels, etc. Before Innovatec was established, most of its current managers and senior researchers had already experience on FP6 and FP7 projects, even atproject coordinator level. Innovatec was awarded a prize by the Spanish Ministry of Innovation for its project Scutum,a collaborative project with India to develop a product to reduce the Malaria infection. This system was tested by the Vicente Ferrer NGO. Innovatec Sensing & Communication S.L. is ISO13485 and ISO9001 certified. This demonstrates how Innovatec strives to reach the highest quality standards on a daily basis. Innovatec will act as the partner responsible for the technical part of the pilot in Spain monitoring and assistingon the use and outcomes of the project devices.

4.7.1.2 Foreseen exploitable results

InnovaTec has extensive experience in the development and implementation of e-health solutions, having collaborated with both hospitals and technology providers in pursuit of improving the quality of life of citizens.

Having said that, *SMART BEAR* would bring the possibility to strengthen the cooperation with a great number of key actors in the e-Health sector. That means, rubbing shoulders with some of the big hitters in the care industry in Europe while enabling the company to increase its visibility at a European level.

On the other hand, the involvement of Innovatec in the Spanish pilot enables to work with an important network of hospitals such as QuironSalud while delving into the implementation of a large scale pilot with such an important number of users. This will definitely mean a great networking opportunity for the future.

As mentioned above, InnovaTec develops its own range of e-health solutions. Participating in *SMART BEAR* can become a priceless experience on how to successfully bring this type of complex solutions into the market.E-health market is one of the most competitive and complex to access, having important entry barriers and numberless of legislation and certification procedures to fulfil, that's why *SMART BEAR* could take the lead and become an amazing example which Innovatec could learn from.

This pilot will provide Innovatec with an insight about the difficulties of implementing this type of tools in real conditions and to know first- hand the end-useŕ perception about this type of solutions as well as the problems users have to face. Introducing this type of innovations in traditional work routines or lifestyles will require ofsome dose of persuasion in front of both reluctant medical experts and end-users.

Last but not least, Innovatec expects to identify the best practice of handling integrated e-health devices with the different types of users so as to reuse the know-how acquired for its own health products.

3.1.23.2 Exploitation Strategies

This massive piloting will serve as an acid test for finding out the level of acceptability by the general public infront of the eHealth solutions provided by *SMART BEAR* as well as its level of usability and the reliability and the practicality for physicians and the ethical implications of the data collected within the project.

During the collaboration with hospitals from QuironSalud network implementing *SMART BEAR*, Innovatec willbe able to identify new needs both for users and hospitals and probably new technological opportunities beyond the project, giving the company the opportunity to develop new solutions that can meet these needs. After the project, it is expected that new R&D projects, initiatives and maybe new alliances among the consortia partners may arise.

From all this collaboration with Quirón and this project, Innovatec will be able to offer *SMART BEAR* to more hospitals and implement this solution, optimizing the process thanks to all the knowledge acquired within the project.

In addition, Maintenance and support services can be offered by Innovatec to Quiron during the exploitation of the results, once the project comes to an end.

3.1.24 ATC

3.1.24.1 Organizational Background

Founded in 1987, ATC is an Information Technology Company (SME) offering solutions and services targeting specific sectors incl. the Media, Banking and Retail Sectors, Utilities and Public Sector Organisations as well ashorizontal solutions focusing on Content Management, Enterprise Software, Web Applications, Human CapitalResource Management and eLearning, and Mobile Applications. The activities of the Company span among several countries in EU, Eastern Europe and CIS countries, as well as the Balkans.

Having acquired ISO 9001 certification since 2000, the company provides a broad spectrum of value-added products and services such as consulting, customer training, installation and maintenance, warranty and post-warranty services, SLA projects, project management, and professional support. ATC has also been certified with ISO 27001:2005 for our Information Security Management system applicable to Design, Development, Implementation and Support of ICT solutions and digital services, as well as for Technical, Business, Consulting and Project Management Services in the ICT domain

Central to the Company's strategy is the conduction of vivid Research and Development, focusing both in improving current Products and Solutions, as well as in exploring new technologies for future growth. All ATC own products and services are based on early prototypes and/or "proof of concept" obtained through R&D Projects, whether funded by the Company, the Greek State or the European Commission. The ATC Innovation Lab (http://ilab.atc.gr/) carries more than 25 years of expertise in Research and Development. The focus is oninnovation aspects, which are often overshadowed by research concerns, and on turning promising ideas intoconcrete and robust products, in a cost and time-efficient manner. Having incubated most of the current commercially oriented ATC business units we are committed to continue along this successful path: Discover or conceptualize Innovation first, then turn it into working systems through intense and continuous involvement in cutting-edge research projects. The focus is primarily given in areas that can offer the next bigadvance to ATC's commercial offerings, but also in discovering new domains and create the next company targets.

3.1.24.2 Foreseen exploitable results

ATC will focus on the development of the *SMART BEAR* mobile application, an endeavour which will give the company significant insights into the smart IoT as well as digital healthcare ecosystems. Moreover, the user-cantered approach followed in the project will allow the company to gain important insights on user acceptance and usability aspects from a large number of participants. These will allow the company to exploit the knowledge to enter the above mentioned new markets and improve its product portfolio as a whole.

3.1.24.3 Exploitation Strategies

ATC will benefit from the results by consolidating key knowledge in mobile development, smart IoT as well asdigital healthcare ecosystems, thus improving and differentiating its commercial offering by adding novel functionalities. ATC intends to use and adapt the project results in its commercial projects, improving existing and new products. Beyond that, ATC will explore the opportunities to deploy commercial tools in the health sector, possibly in coordination with the consortium partners.

3.1.25 Bird & Bird

3.1.25.1 Organizational Background

Bird & Bird (2B) is an international legal practice with over 1,350 lawyers and legal practitioners worldwide. 2B specialises in combining leading-edge expertise across a full range of legal services including advice in specificsectors and legal practices, including on information technology and in the fields of security, privacy, and dataprotection.

2B has 30 offices in key business centres across Europe, the Middle East and Asia, and is strategically well placed to offer local expertise within a global context.

As an international firm 2B excels in providing global advice. The 2B lawyers deliver expertise based on its in-depth local knowledge, excellent understanding of the law and cross-border experience.

2B'expertise in the field of information technology is driven by its deep industrial knowledge of business processes and innovation. Universally recognised as market leaders in the information technology sectors, the Chambers Global legal directory currently ranks 2B as the leading technology law firm in Europe and Asia amongst an elite group of five globally. It is trusted advisor to many of the most valuable tech companies in the world.

3.1.25.2 Foreseen exploitable results

2B has a high number of clients involved with disruptive technologies, both on the provider side and on the customer side, including in relation to the life sciences and health sectors.

Several international leading companies have been assisted by the firm on issues relating to connected health, including on privacy-related issues, on judicial and extrajudicial matters, and more general with their aim of providing novel, yet legally compliant, products and services on the EU market.

In the context of its work within the *SMART BEAR* project, 2B will be able to keep abreast of the many legal and regulatory changes. It is also able to position itself (or strengthen itself) on the legal market as a market leader by researching the most innovative legal issues and providing legal advice in relation thereto, with a practical and business mind. Not only does this provide to 2B a competitive advantage and enables it to position itself towards its international clients, but it also gives it the ability to showcase its first-hand knowledge and expertise and to get involved in EU policy-making and further advise its international clients.

It follows from the foregoing that 2B expects its legal reasonings and advices based on and derived from the work performed in the *SMART BEAR* project to be exploitable Results

3.1.25.3 Exploitation Strategies

Business development opportunities are expected by leveraging on the results and the practical know-how gained during the project. This should hopefully allow enlarging 2B's current work in relation to its targets and reduce investments in relation to the research of novel legal issues. For instance, in relation to privacy in the connected health sector, the research performed on the application of new obligations (and in particular under the GDPR) could be re-used in other contexts and for an array of targets.

3.1.26 NOVA

3.1.26.1 Organizational Background

The UNINOVA Research Institute (www.uninova.pt) is a multidisciplinary, independent, and non-profit research institute employing around 180 persons, located in the metropolitan area of Lisbon. It was formed in 1986 by the Faculty of S&T of the University Nova de Lisboa (NOVA FCT - www.fct.unl.pt), a group of industrialassociations, a financial holding, and up to 30 companies. It is an active partner of Madan Parque (www.madanparque.pt), a business facilitator and accelerator, incubating Micro and SME's through several layers of support to entrepreneurial activity. The main aim of UNINOVA is to pursue excellence in scientific research, technical development, advanced training and education. By working closely with industry and universities, technological innovations are transferred into profitable business concepts and existing productsare further developed to match new industrial requirements. Due to its tight connection with the University and Madan Parque since UNINOVA foundation, it has hosted and supported the development of several PhD thesis, as well as the creation of several successful spin-offs. UNINOVA's areas of expertise can be summarizedas follows: microelectronics, materials & processes, telecommunications and reconfigurable and embedded systems; energy efficiency (including renewable energies, modern electric energy processing, intelligent buildings and Smart Grids), industrial and intelligent control and decision support systems; collaborative networks, interoperability (including strategies for interoperability and information integration using standards, standards' reuse and harmonization) and intelligent decision-based systems.

3.1.26.2 Foreseen exploitable results

UNINOVA is the main technical support for the implementation of Pilot of the Pilots, as such it has been involved in the preliminary testing and of many of the Smart Bear assets such as the IoT tools, the apps, or the dashboard. As the main responsible for the synergy with Smart4Health project, UNINOVA has been adapting some results of Smart4Health within the Smart Bear framework so that they can be interoperable and contribute to the pilot of the pilots. As such, one of the main exploitable results is the B-Health IoT Box, custom designed to the Physiotherapeutic core device unit (MedX machine) used in the synergies. It's a technical asset that despite being born in Smart4Health has evolved in SmartBear. It contains several layers and modules to enable data collection, includes a device and data manager capability, as well as a user interface to support the operation of the MedX machine. The B-Health IoT Box has been capacitated to export FHIR data and to mediate the workflow between Smart4Health and Smart Bear platforms.

In addition to the B-Health IoT box and some Smart Bear components where technical inputs might be required in the context of the pilot of the pilots, UNINOVA will exploit *SMART BEAR* intangible results such and methodologies, guidelines, best practices that are contributing to the creation of the initiative "Madeira Digital Health and Wellbeing". Academic and education material, research results will be integrated in the Doctoral and Master Science Programs in Electrical and Computer Engineering of the NOVA University (an UNINOVA associate). This allows having these advance research programs not only in the edge of the state of the art, but also with a strong component of technological knowledge related with the eHealth market and EU strategy.

3.1.26.3 Exploitation Strategies

Knowledge transfer to the industry and society in general is one of the main challenges that UNINOVA takes as a basis for its exploitation. *SMART BEAR* results, namely the ones related with the interoperability, sensor technology, balance disorder and home monitoring applications, will bring novel approaches and technology suitable to be exploited through consultancy/partnership in the areas of eHealth, health, wellbeing interoperability and industrial markets. Additionally, due to its membership at the university technology park (Madan Parque) and to its direct industrial partners' network, UNINOVA intends to exploit the project's results through these channels. The objective is to motivate some SME's to establish partnerships with UNINOVA fornewresearch projects and/or consultancy activities, hence benefiting from advanced developments in the area of *SMART BEAR* project. When the User Scenarios are more developed it will be possible to indicate in

an operational point of view, our exploitation strategy for the particular applications to be developed.

3.1.26.4 Interim results

PUBLICATIONS

A Big Data Infrastructure in Support of Healthy and Independent Living: a real case application. Bellandi V., Ceravolo P., Frati F., Occhipinti M., Kloukinas C., Podziakov K., Gallo L., Kouris I., Iliadou E., Basdekis I., Agostinho C. Handbook of Artificial Intelligencein Healthcare, *Intelligent Systems Reference Library (*submitted to Springer Verlag Germany 2022)

Healthier and Independent Living of the Elderly: Interoperability in a Cross-Project Pilot. Agostinho C., Pimenta A., Marques M., Tsiouris K., Kalatzis F., Nikitas C., Iliadou E., Occhipinti M. Kouris I., Koutsouris D., Basdekis I., Koloutsou K., Gallo L., de Pietro G.,Jardim-Goncalves R. (submitted to IESA2022)

MEETINGS/EVENTS/WORKSHOPS

DATE	TITLE/ORGANIZATION/ PARTICIPANTS	MATERIALS USED	AIM	OTHER INFORMATION
03/03/2020	Meeting to define synergies Organization: UNINOVA/SRS Participants: UNINOVA and localSmart4Health and SMART BEAR teams	SMART BEAR documents	Establish common activities	Face-to-face
12/08/2020	Synergies Smart4Health - Smart Bear: architecture and connectors- meeting Organization: UNINOVA Participants: Attila Wohlbrandt (HPI) Maria Marques; Vasco Gomes; Carlos Agostinho(UNINOVA) Pablo Guerrero (DL4) Gabriel Sieglerschmidt(HMX) Giuseppe de Pietro; LuigiGallo (CNR) Georgios Spanoudakis; Ioannis Baskedis (Shynx) Christos Kloukinas (CITY)	SMART BEAR presentation	Analyse technical collaboration	Remote
08/10/2020	Meeting to present SMART BEAR to Madeira Government Organization: UNINOVA/SRS Participants: Minister of Health and Civil Protection in Madeira/UNINOVA and SRS teams	SMART BEAR documents	Present SMART BEAR recent activities	Face-to-face

08/10/2020	Meeting to fine tune common work plan between synergies Organization: UNINOVA/SRS Participants: UNINOVA/ SRS and Smart4Health local teams	SMART BEAR documents	Common activities	Face-to-face
19/11/2020	Workshop- Co-Chairing of I-ESA 2020 Interoperability in the era of Artificial Intelligence Special Event: *Digitising European Industry & Health/* Organization: UNINOVA Participants: Carlos Agostinho (UNINOVA) Giuseppe de Pietro (CNR)	SMART BEAR presentation	Session on SMART BEAR - An Elderly-driven approach for Personalised Support,Healthy and Independent Living atHome	https://iesa2020.enit.fr/documents/Special_event.pdf
24/05/2021	MADEIRA DIGITAL HEALTH AND WELLBEING opening Organization: UNINOVA/SRS Participants: **Ricardo Gonçalves** Research Coordinator UNINOVA **Gernot MARX** Director of the Department for Operative Intensive Medicine and Intermediate Care, University Hospital RWTH Aachen Spokesman of the Innovation Centre for Digital Medicine Board Spokesman of the Telemedicine Centre Aachen **Tal SOFFER** Head of Virtual TAU- the centre for Digital Pedagogy Head of the unit for Technology and Society Foresight Tel-Aviv University **Miguel Albuquerque** President of the RegionalGovernment of Madeira **Pedro Ramos** Minister of Health and Civil Protection (SRS) **Eduardo Jesus** Minister of Tourism and Culture	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	SMART BEAR and synergies (Smart4Health and Holobalance) presentations within local and European authorities in the Madeira Digital Health and Wellbeinginitiative	https://www.digit-madeira.pt/

	Herberto Jesus Regional Health Director **Cátia Ferreira** Member of the board of directors of the Regional Health Service **Júlio Nóbrega** Clinical Director of the Regional Health Service/ICU Director of the Central Hospital of Madeira **Nurse José Manuel Ornelas** Nurse Director of the Regional Health Service **Nurse Abel Viveiros** ICU Nurse Director of the Central Hospital of Madeira **Sílvio Santos** Rector of the University of Madeira **Carlos Soares Lopes** CEO StartUp Madeira **+ other entities**			
24/05/2021	DIGITAL TRANSITION IN THE HEALTH AREA IN MADEIRA - FUTURE PERSPECTIVES IN EUROPE- meeting Organization: UNINOVA/SRS Participants: **Ricardo Gonçalves** Research Coordinator UNINOVA **Gernot MARX** Director of the Department for Operative Intensive Medicine and Intermediate Care, University Hospital RWTH Aachen Spokesman of the Innovation Centre for Digital Medicine Board Spokesman of the Telemedicine Centre Aachen **Tal SOFFER** Head of Virtual TAU - the centre for Digital Pedagogy Head of the unit for Technology and Society Foresight Tel-Aviv University **Pedro Calado** Vice-President of the Regional Government of Madeira **Pedro Ramos** Minister of Health and Civil Protection (SRS) **Herberto Jesus** Regional Health Director	SMART BEAR presentation, flyers	SMART BEAR and synergies (Smart4Health and Holobalance) presentations within local and European authorities in Madeira	

	Júlio Nóbrega Clinical Director of the Regional Health Service/ICU Director of the Central Hospital of Madeira **Nurse José Manuel Ornelas** Nurse Director of the Regional Health Service **Nurse Abel Viveiros** ICU Nurse Director of the Central Hospital of Madeira **+ Health professionals and other entities**			
26/05/2021	Demonstration and presentation of technologies, tutorials and citizen engagement in the DIGITAL HEALTH AND DIGITAL WELLBEING initiative in Madeira Organization: UNINOVA/SRS Participants: Local population/Citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	SMART BEAR and synergies (Smart4Health and Holobalance) presentations for the local population	
27/05/2021	Meeting with the Minister of Health and Civil Protection and with the IT Regional Director in the DIGITAL HEALTH AND WELLBEING initiative in Madeira Organization: UNINOVA/SRS Participants: Minister of Health and Civil Protection (SRS)/ IT Regional Director and UNINOVA/SRS teams	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	SMART BEAR and synergies (Smart4Health and Holobalance) presentations. Future digital solutions perspectives.	
27/05/2021	Meeting with the CEO and affiliates of StartUp Madeira in the DIGITAL HEALTH AND WELLBEING initiative in Madeira Organization: UNINOVA/SRS Participants: StartUp Madeira/Nearsoftsolutions/ Arditi/MADEIRA UNIVERSITY/UNINOVA/SRS	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	SMART BEAR and synergies (Smart4Health and Holobalance) presentations. Future partnerships and exploitation.	
28/05/2021	Meeting with Health professionals in the DIGITAL HEALTH AND WELLBEING initiative in Madeira Organization: UNINOVA/SRS Participants: Minister of Health and Civil Protection (SRS), health	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Clinicians, nurses and other health professionals had the opportunity to learn more about SMART BEAR and its digital health solutions	

	professionals from SESARAM and UNINOVA/SRS teams			
28/05/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS/UNINOVA Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
07/06/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: health professionals from SESARAM/local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
10/06/2021	VISIT OF A MEMBER OF THE EUROPEAN PARLIAMENT TO THE MADEIRA DIGITAL HEALTH AND WELLBEING ON THE COMMEMORATIONS OF PORTUGAL'S NATIONAL DAY **Claúdia Monteiro de Aguiar** Member of the European Parliament **Pedro Ramos** Minister of Health and Civil Protection (SRS) **Dolores Quintal** Clinician's internship Director in Madeira **Health professionals and other entities**	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Presentation of the SMART BEAR project and the health digitalisation plan in the Autonomous Region of Madeira. Future perspectives for new technological solutions in Europe.	
18/06/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
25/06/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	

02/07/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
09/07/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
16/07/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
23/07/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
30/07/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
13/08/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	https://www.facebook.com/RenascerNogueira/posts/1425421084497323
03/09/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	

10/09/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
17/09/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
24/09/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
15/10/2021	Event with the elderly from nursing homes, day care centres and institutions in Madeira Organization: SRS Participants: Local population/citizens	SMART BEAR presentation, flyers, posters, rollups and equipment and devices demonstration	Disclose SMART BEAR, and publicise the project to potential participants	
20/10/2021	Beginning of the recruitment activities in the Madeira Health Centres Organization: SRS Participants: Local population/citizens/ health professionals from SESARAM/Minister of Health and Civil Protection/health entities	SMART BEAR documents, flyers, posters/rollups equipment and devices demonstration	Present SMART BEAR	
11/11/2021	First devices and equipment delivered to SMART BEAR participants in Madeira Organization: SRS Participants: Local population/citizens/ health professionals from SESARAM/Minister of Health and Civil Protection/health entities	SMART BEAR documents, flyers, posters/rollups equipment and devices demonstration	Present SMART BEAR	

ORAL PRESENTATIONS

DATE	TITLE/PRESENTERS	MATERIALS USED	AIM	OTHER INFORMATION
19/11/2020	Presentation in the Co-Chairing of I-ESA 2020 Interoperability in the era of Artificial Intelligence Special Event: *Digitising European Industry & Health* Presenter: Giuseppe de Pietro (CNR); Carlos Agostinho (UNINOVA)	SMART BEAR presentation	Session on SMART BEAR - An Elderly-driven approach for Personalised Support, Healthy and Independent Living at Home	https://iesa2020.enit.fr/documents/Special_event.pdf
29/11/2020	Presentation to the Minister of Health and civil protection and General practitioners working in Madeira Presenter: Andreia Pimenta (SRS)	SMART BEAR presentation	Disclose SMART BEAR	Remotely
18/12/2020	Presentation to the nurses from Madeira Health Centres Presenter: Andreia Pimenta (SRS)	SMART BEAR presentation	Disclose SMART BEAR	Remotely
20/05/2021	Presentation to the Health Centre directors in Madeira and General practitioners Presenter: Andreia Pimenta (SRS)	SMART BEAR presentation	Disclose SMART BEAR in order to arouse interest to potential participants	Remotely
11/06/2021	Presentation in the Clinician's internship meeting in Madeira with the Clinician's internship director and General practitioners Presenter: Andreia Pimenta (SRS)	SMART BEAR presentation, flyers, equipment and devices demonstration	Present SMART BEAR in order to arouse interest to potential participants	Face-to-face
12/08/2021	Presentation to the Health Centre directors in Madeira and General practitioners Presenter: Andreia Pimenta (SRS)	SMART BEAR presentation, flyers, equipment and devices demonstration	Present SMART BEAR to clinicians in order to arouse interest to potential participants	Face-to-face
4/12/2021	Madeira digital Health and Wellbeing presentation in the "Health and Well-being technologies: What needs, opportunities, and challenges does the autonomous region of Madeira face in the digital	SMART BEAR presentation	Presentation of the SMART BEAR project and the health digitalisation plan in the Autonomous Region of Madeira. Future perspectives for new	https://www.facebook.com/interactivetechnologiesinstitute/posts/629770885102375

	economy era? held in Madeira University Presenter: Ricardo Gonçalves (UNINOVA)		technological solutions in Madeira.	
19/01/2022	Madeira digital Health and Wellbeing presentation held in the Madeira University Presenter: Maria Marques (UNINOVA)	SMART BEAR presentation	Disclose SMART BEAR	https://www.facebook.com/UMaGIRP/posts/3562864497164 88? cft [0]=AZVuIe4ojklGjBk65wzY73y yE7dbYSvag2Lkoc2yx CFM1vXkGt8hqEsQn f6dAomY_jJKTSIJe4 W634k-cd0htBSkY8Bvg0jf8R 5tnxjGVwS6k837GD5 HautVA_wULdYt9VK Uxp50u3ipZpAdU_IR X00t2n3cF7lKKXOMi KIEVqKmNg& tn__ =%2CO%2CP-R

FOCUS GROUPS

DATE	ORGANIZATION/ PARTICIPANTS	MATERIALS USED	AIM	OTHER INFORMATION
05/02/2020	Elderly from nursing homes/ UNINOVA and SRS	SMART BEAR documents, rollups and flyers	Disclose SMART BEAR	
03/03/2020	UNINOVA Smart4Health and SMART BEAR teams/ Clinicians from SRS	SMART BEAR documents, rollups	Present SMART BEAR	

NEWS AND PRESS RELEASE

28/04/2021

https://www.saudemais.tv/noticia/31537-instituto-de-desenvolvimento-de-novas- tecnologias-instala-sistema-de-telemedicina-na-madeira

23/05/2021

https://www.jm- madeira.pt/regiao/ver/129549/Miguel_Albuquerque_participa_amanha_no_Madeira_

Digital_Health_and_Wellbeing
https://funchalnoticias.net/2021/05/23/albuquerque-amanha-na-apresentacao-de- iniciativa-madeira-digital-health-and-wellbeing/
24/05/2021
https://observador.pt/2021/05/24/madeira-promove-demonstracao-publica-de- projetos-digitais-nas-areas-da-saude-e-do-bem-estar/
https://www.dnoticias.pt/2021/5/24/262579-madeira-promove-demonstracao- publica-de-projectos-digitais-na-area-da-saude/
https://healthnews.pt/2021/05/24/madeira-promove-demonstracao-publica-de- projetos-digitais-na-area-da-saude/
https://dihworld.eu/event/madeira-digital-health-and-wellbeing/ https://healthnews.pt/tag/madeira-digital-health-and-wellbeing/ https://www.dnoticias.pt/tag/geral/madeira-digital-health-and-wellbeing/ 25/05/2021
https://www.fct.unl.pt/noticias/2021/05/inauguracao-do-madeira-digital-health-and- wellbeing
https://traveltomorrow.com/madeira-to-promote-public-display-of-digital-health- projects/
https://www.eupoliticalreport.eu/madeira-digital-health-and-wellbeing/
02/06/2021
https://pesquisa.dnoticias.pt/elastic/results/?search=madeira+como+refer%C3%AAncia+da+tecnologia+aplicada+%C3%A0+sa%C3%BAde&services=1&custom_dates_range=01%2F06%2F2021+%E2%80%94+02%2F06%2F2021&start_date=2021-06-01&end_date=2021-06-02&page=5
10/06/2021
Eurodeputada destaca exemplo da Madeira na aplicação dos fundos europeus na Saúde —DNOTICIAS.PT
25/09/2021
https://www.dnoticias.pt/2021/9/25/278599-regiao-conta-com-nova-tecnologia- para-acompanhar-utentes-com-disturbios-de-equilibrio/
19/10/2021
https://funchalnoticias.net/2021/10/19/projecto-smartbear-principia-amanha-pedro- ramos-estara-presente/
https://www.jm- madeira.pt/regiao/ver/144992/Plataforma_SmartBear_arranca_amanha_no_centro_de_saude_da_Nazare
20/10/2021
https://www.noticiasaominuto.com/pais/1855600/cem-pessoas-na-madeira-em- experiencia-piloto-na-area-da-saude
https://www.dnoticias.pt/2021/10/20/281780-100-idosos-da-madeira-serao- auxiliados-por-projecto-de-investigacao-e-inovacao-europeu/
https://www.msn.com/pt-pt/noticias/ultimas/cem-pessoas-participam-na-madeira- em-experi%C3%AAncia-piloto-na-%C3%A1rea-da-sa%C3%BAde/ar-AAPKEze
https://headtopics.com/pt/projeto-smartbear-arranca-na-madeira-para-apoiar-estilo- de-vida-independente-e-saud-vel-na-comunidad-22211123
https://www.fct.unl.pt/en/news/2021/10/european-smart-bear-project-already- being-tested-madeira
https://www.fct.unl.pt/noticias/2021/10/projeto-europeu-smart-bear-ja-esta-em- testes-na-madeira
https://www.dnoticias.pt/2021/10/20/281693-tome-nota-da-agenda-desta-quarta- feira-20-de-outubro
https://sicnoticias.pt/saude-e-bem-estar/2021-10-20-Cem-pessoas-participam-na- Madeira-em-experiencia-piloto-na-area-da-saude- dde91e24?fbclid=IwAR2nq5FPtuPrZ9eOtu5BECOy_qrHYvUaysco41- vTITzuh_SRPDQslmR4yg
17/01/2022
https://www.uma.pt/en/noticias/conferencia-saude-digital-e-bem-estar-na-madeira/
TV
National public TV Channel RTPMadeira- News https://www.rtp.pt/play/p2294/e546666/noticias-do-atlantico (1'40'')
https://www.rtp.pt/play/p85/e546742/telejornal-madeira (1'00' and 4'48'')
https://www.rtp.pt/play/p85/e574456/telejornal-madeira (8'43'')
National public TV Channel RTP1- Program Portugal Live https://www.rtp.pt/play/p8156/e550521/portugal-em-direto (10'26'')

SOCIAL MEDIA

FACEBOOK

https://m.facebook.com/ProjetoSmartBear/
13/05/2021
https://www.facebook.com/UninovaResearch/posts/138585121621556
21/05/2021
https://www.facebook.com/UninovaResearch/posts/143596741120394
24/05/2021
https://www.facebook.com/permalink.php?story_fbid=4275967519100113&id=19138 7764224796
https://www.facebook.com/permalink.php?story_fbid=3960870613994231&id=28637 5404777122
https://www.facebook.com/DIH4CPS/posts/337272311152567
25/05/2021
O Presidente do Governo... - Governo Regional da Madeira | Facebook

https://www.facebook.com/ForumMadeira/posts/10158487837606491
31/05/2021
https://www.facebook.com/multilem/posts/4317412671602068
04/06/2021
https://www.facebook.com/UninovaResearch/posts/152478983565503
11/06/2021
https://www.facebook.com/UninovaResearch/posts/156638263149575
18/06/2021
https://www.facebook.com/polocomunitarioccf/posts/1180833305765282
14/07/2021
https://www.facebook.com/capacitar.asa.7/posts/528645898586314
17/07/2021
https://www.facebook.com/PoloComunitarioRibeiroReal/posts/1173684486461887
27/09/2021
https://www.facebook.com/UninovaResearch/posts/225820692897998
22/10/2021
https://www.facebook.com/permalink.php?story_fbid=4405737642840857&id=28637 5404777122
https://www.facebook.com/permalink.php?story_fbid=4405737642840857&id=28637 5404777122
https://www.facebook.com/smartbearIT/posts/347165583848721
12/11/2021
https://www.facebook.com/UninovaResearch/posts/254806163332784 WEBSITE
www.digit-madeira.pt

YOUTUBE VIDEO

https://youtu.be/pDkdbwHWIgw

DISSEMINATION MATERIAL

STAND MADEIRA DIGITAL HEALTH AND WELLBEING

MADEIRA
Digital Health
and Wellbeing
Smart4Health
MADEIRA
Digital Health
and Wellbeing
Smart4Health
ICOPE COVID

MADEIRA
Digital Health
and Wellbeing

FLYERS

POSTERS

ROLLUP

3.1.27 SRS

3.1.27.1 Organizational Background

Secretaria Regional da Saúde – SRS - (Regional Secretary of Health)'s mission is to define Madeira regional policy in the health sector and exercise the corresponding normative tasks, promote its implementation and evaluate the results. The Regional Government of Madeira (*Governo Regional da Madeira*) is constituted by the Presidency, the Vice-presidency and the regional secretaries (equivalent to ministries).

SRS has been involved in several health projects: National Health Survey with Physical Examination (INSEF), in cooperation with Instituto Ricardo Jorge; National Serological Survey (ISN), in cooperation with Instituto

Ricardo Jorge; Childhood Obesity Surveillance Initiative (COSI Portugal); Vector Monitoring Network (REVIVE), which aims to monitor the presence / absence of vector species in Portugal (particularly in Madeira region); Smart4Health EU project via the Madeira Regional Government, that encompasses the Regional Secretary of Health and the Regional Secretary of Tourism (that together with UNINOVA are partners of Smart4Health. These participations are of special relevance to the Regional Government towards the development of innovation in the area of Health in Madeira.

3.1.27.2 Foreseen exploitable results

SRS will exploit *SMART BEAR* project results in different perspectives: clinical, healthcare and health policy.

3.1.27.3 Exploitation Strategies

Bridging the health sector in Madeira with the most advanced health innovation, and in this way supporting the implementation in the field of innovation is one of the strategies that can be exploited by the results generated in the project.

SMART BEAR results, namely the ones related with the balance disorder condition, home monitoring applications, and technology innovation to support the patient will bring novel approaches to be exploited through partnerships in the areas of health and wellbeing. When the User Scenarios are more developed it will be possible to indicate in an operational point of view, our exploitation strategy for the particular applications to be developed.

3.1.27.4 Interim results

Actions realised together with NOVA (see section 3.1.26.4).

3.2 Joint Potential Exploitation Plans

The first step for the realization of a joint potential exploitation plan is to recognize the assets that can respond to a real need in the market. The SMART BEAR technological blocks constitute the starting assets list.

Most of such assets are the output of the partner's knowledge on the specific subject or the result of a previous experience, and Smartbear constitute a great opportunity to extend their potential.

All those assets are expected to grow in terms of Technology Readiness. Indeed, starting TRL (technology readiness level) and expected TRL at the end of the project are stated in the proposal.

Concerning all those assets, the Innovation Management Plan (*D1.1, Chapter 3*) includes the technology readiness as an important evaluation metric (*D1.1, Chapter 3.2 Framework for the assessment of innovation and evaluation metrics*) to assess «the capability of the project's development and/or management team to execute the necessary steps to transform a novel technology or research results into a marketable product and, finally, to prepare its commercialisation».

For this reason, *IM plan* introduces a periodical check on the TRL level for each project asset (*D1.1, Chapter 3.4.1 Innovation readiness*).

3.2.1 Exploitable Assets

The following table shows the **up-to-date** assets list, a brief description, the leader and the current implementation status.

This is an updated version of the table contained in the D1.1, Chapter 3.4.1 Innovation readiness, and lists the better (at the moment) candidates for an exploitation.

Leader	Asset	Description	Implementation status
UMIL	Model-based BDA-as a service	The platform represents an open and suitable model for standardization, which supports automation and commoditization of Big Data Analytics while enabling easily tailored to domain-specific customer requirements. The asset represents a technologic tool. To implement SMARTBEAR services, it has to be focused project purposes and to be combined with the clinical know-how (see Machine Learning Analyzer asset).	The infrastructure is ready. It has been used in PoP, reaching TRL 8.
UMIL	Machine learning analyser	The asset is composed by a technological tool and a layer of clinical know-how. It customizes the machine learning-based analyser for classification and clustering of clinical data aggregated through sensing devices in SMART BEAR. It represents a demonstration of a prototype in a real operating environment. To infer higher-level monitoring parameters and the state of the elderly from device/sensors raw data. The asset is strictly linked with the BDA technologic asset. Machine Learning Analyser leans on a layer of clinical skills and experiences provided by experts used to analyze study participants clinical assessment, and raw data coming from different devices during the project pilots, to set rules to be used for making decisions about personalized interventions	The infrastructure is ready. Machine Learning model have to be implemented and validated. TRL is 5.
UMIL	Dashboard	It is responsible for the interaction between the SMART BEAR Platform end-users and the services in the backend. The Dashboard is used by the clinicians to create and manage a patient, considering his/her devices and medications, conduct the first visit and the check-ups, perform analytics on data and create interventions to be delivered.	This functionality has been largely developed and internally used. It has been used on PoP. Further developments are still in progress. TRL jumped from 2 to 7.
PHILIPS & CNR	FHIR based data model and implementation guide	The nature of the data treated in the project, in accordance with the rules of the FHIR standard, led to the necessity of using a specific IG. The approach taken for the definition of the information model for the project is to define a dedicated SMART BEAR IG by profiling a set of identified FHIR	Currently, the published IG (implementation guide) consists of 94 profiles, 5 extensions, 37 value Sets, 2 Terminology Code Systems and 156 examples.

		resources and individuating the terminologies from international standard code systems as well as internal value sets. The tools chosen for modeling the FHIR information model are FHIR Shorthand, SUSHI and IG publisher, considering that they are the official tools provided by HL7.	The version of the current IG is: 3.2.1.
ICCS	Decision Support System	The asset is composed by a technological tool and a layer of clinical know-how. Decision Support System is making use of the personalized rules for each of the patients, set upon user enrolment and updated by the clinicians whenever required. It is used to automatically trigger notifications/interventions for the patients, based on the clinical rules set for each of the monitored conditions or combination of conditions. It is making use of the data stored in FHIR and non FHIR databases, to trigger the appropriate interventions. The asset is strictly linked with the technologic tool. To implement SMARTBEAR services, it has to be combined with the clinical skill asset (Analysis and intelligence models).	First version has been delivered for the PoP and is already working in production. Follow up versions will be delivered once the BDA will provide insights on the collected data. The updated versions will incorporate new/updated interventions.
ATC	Personalized interfaces and tools	Personalization in SMART BEAR will be achieved through the mobile application. SB APP supports the data acquisition layer of the Smart Bear architecture as it acts as a gateway for data flowing from the various devices, and delivering informational material, and notifications.	The current TRL is 5.
UOI	IoT tools	The IoT platform is composed of a set of devices that were going to be used for the purposes of SMART BEAR included: a Smartphone, a Smart watch, a Smart Blood pressure monitor, Smart scale, Smart Hearing aids, Smart Thermometer, Smart Oximeter and Smart home devices (+integration hub). The IOT platform provides a low-cost, single solution, technological and vendor agnostic with flexible and efficient interface for the users, the developers and any other external system.	Current status of the IoT platform (as exhibited in Portugal prePilot) is TRL 7.

STS	Security assurance platform	STS is an SME that provides customized and continuous security and privacy assessment solutions, covering the full range of socio-technical aspects of a modern enterprise, for internal risk management and/or external security audit and certification. STS will augment the capabilities of its security assurance platform deployed within SmartBear in ways that will enable it to support the delivery of cybersecurity situational awareness services. From a business perspective, STS's strategy is to explore ways of making use of this security and privacy platform as a tool for end-users and system administrators of cyber physical systems or private and public organizations in all the critical sectors which are the focus markets of the company (e.g., healthcare and telecoms). STS will also seek to develop consultancy services in setting up training programs for establishing cybersecurity dynamic certification for situational awareness, based on the outcomes of SmartBear.	The platform has been already tested in isolation, and what follows is its deployment in Kubernetes. With the completion of this stage, the platform will be put into operation.

3.2.2 Assets readiness

We reckon it's still a bit early to work on asset exploitation, thus it can't be taken for granted that all the assets above will have a market.

In order to be taken in consideration for the market, an asset has to be at TRL 9. The TRL aims to define the development phase, but it also takes into account the steps that were taken in order to prepare an asset for commercialisation and to bring it to the market.

From *D1.1, Chapter 3.4.1 Innovation readiness*, it can be observed that most of the assets, when the project started, were technologies validated in the laboratory (*Level 4*) or validated/demonstrated in an industrially relevant environment (*Level 5/6*).

Therefore, during development the situation has evolved, and a recent survey pointed out that more assets could be at level 9 by the end of the project.

These assets during the large-scale pilots will undergo an evolution going up one or two steps on the scale. That means that the subset of the assets potentially available for an exploitation is still evolving.

Feedback from the pilots will be another fundamental input for the exploitation. They will be of primary importance in driving the exploitation strategy.

At this point, the pilot experience will make clear how the single asset, or a combination of them, responds to the needs that they are addressing, thus the real chances to have a place in a competitive market.

For instance, and only to give a better idea, if "Quality of Life recommendations" will have positive feedback from the study participants, a specific evolution of the APP with standard kit of devices, embedding a static or uploadable DSS focused on "nonclinical life improvement recommendations and notifications" might be an

exploitable asset (**horizontal approach**). On the other hand, inputs from pilots could suggest there will be better market opportunities with a vertical solution addressing a specific pathology (or to a set of), using a subset of devices and a specialized DSS.

3.2.3 IPR

Once a more precise idea of the possible market proposal will be identified, it will be then possible to proceed also with IPR. The contribution of each partner will be clear during the asset's development. Next chapter defines the **methodology for IPR Management in SMART-BEAR project**.

The following matrix specifies the current situation in terms of leaders (marked as L) and contributing partners (marked as C) related to each specific asset.

Assets / Participants	CNR	ATOS	PHILIPS	IBM	ARIA	ROP	MPF	CSC	FCSR	CATEL	QUIRON	ANA	FORTH	NKUA	UOI	UMIL	UPV/EHU	CITY	ICCS	STS	SV	ITSS	INV	ATC	NOVA	SRS	BB
Model-based BDA-as a service																**L**											
Machine learning analyser														C		**L**		C									
Dashboard																**L**											
FHIR based data model and implementation guide	L		L																								
Decision Support System														C					L								
Personalized interfaces and tools																								L			
IoT tools															**L**												
Security assurance platform																		C		**L**							

3.2.4 SMART-BEAR Business canvas

In this section, we use the standard "Lean Canvas" in order to demonstrate the joint business plan for the SMART-BEAR project and to inspire how to achieve jointly exploitable results rightly positioned in the

respective competitive market.

This canvas is a variation of the traditional "Business Model Canvas" [7] that has been already applied to the project and is available in the Technical Annex of *SMART BEAR* GA [1]. The lean versionused here is more focused on customer needs and will provide a grounding for future exploitation work. Theoverall idea is to start looking at the SMART-BEAR platform as a whole, built around specific needs. This approach should help defining the best possible exploitation strategy and will evolve along with the project. The Business Model Canvas for SMART-BEAR is presented in Figure 21.

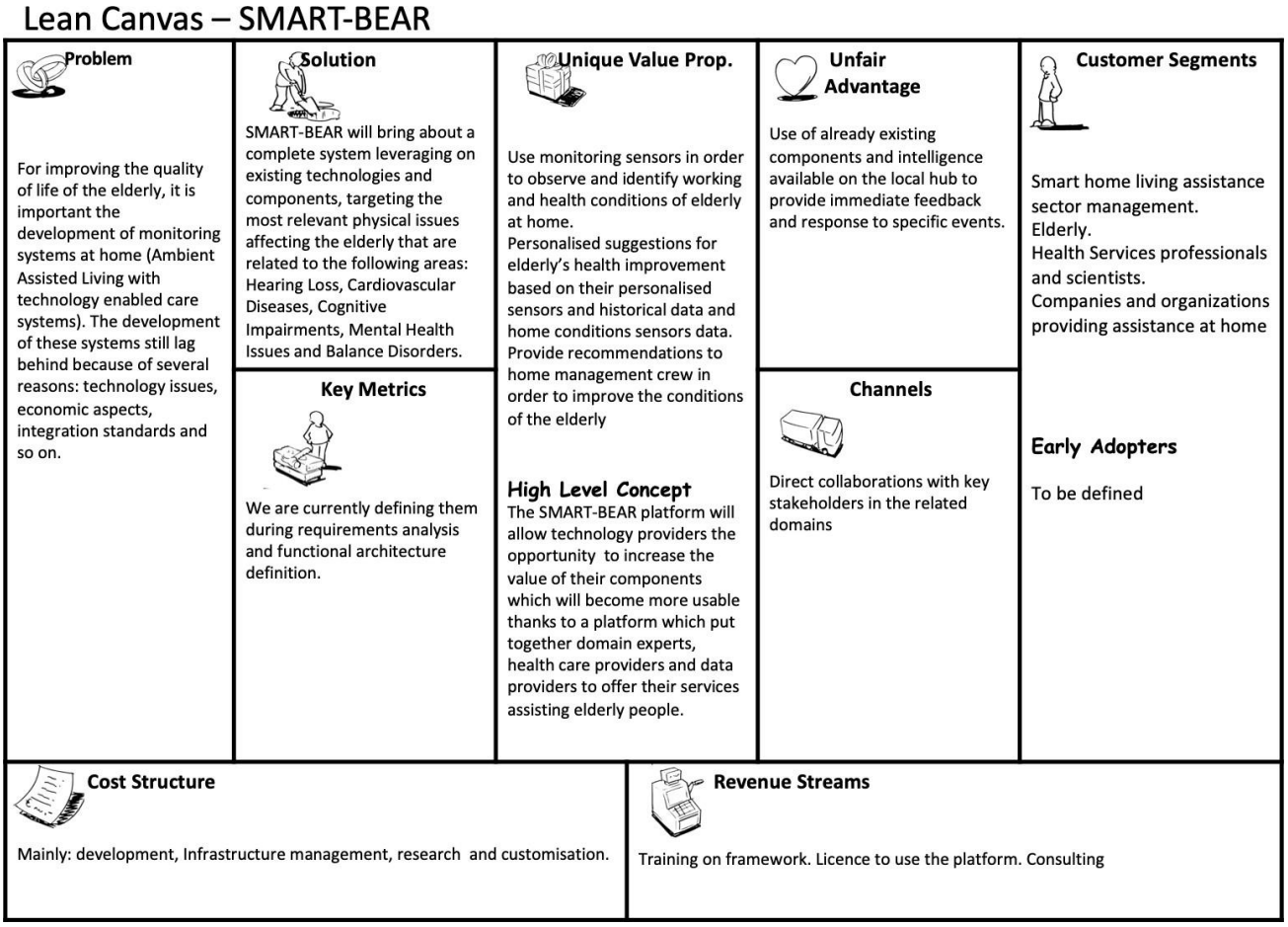


Figure 21: SMART BEAR Business canvas

3.3 IPR Management in the SMART BEAR Project

Intellectual property rights (IPR) management is mainly dealt with in Section 3 of the Grant Agreement 857172 and in Section 9 of the Consortium Agreement. These sections do not regulate IPR *per se*, but regulate so-called "Results" and "Background" - notions which do not equate IPR, but do include them.

Background refers to "*any data, know-how or information — whatever its form or nature (tangible or intangible), including any rights such as intellectual property rights — that:*

a) is held by the beneficiaries before they acceded to the Agreement, and

b) *is needed to implement the action or exploit the results"* (article 24, Grant Agreement).

Results refers to "*any (tangible or intangible) output of the action such as data, knowledge or information — whatever its form or nature, whether it can be protected or not — that is generated in the action, as well as any rights attached to it, including intellectual property rights*" (article 26, Grant Agreement).

The following sections provide a simplified and non-exhaustive overview of the contractual framework around IPR management in the SMART BEAR project.

3.3.1 Ownership

Background: Background is and remains owned by the Partner which held it prior to becoming a Partner.

Results: Results are owned by the Partner who generates them. Where Results have been jointly generated or it is impossible to establish the respective contributions of the Partner or where the protection of Results require them to be considered together, the Results are jointly owned by the relevant Partners. In this case, the relevant Partners must conclude a joint ownership agreement.

3.3.2 Protection

Background: The contractual framework of the SMART BEAR project does not regulate the protection of Background, although the existence of IPR protection of Background may impact access to it.

Results: Each Partner must "examine the possibility" of protecting its Results and must protect them *for an appropriate period and with appropriate territorial coverage*, having regard to its own and the other Partners' legitimate interests, if:

a) the results can reasonably be expected to be commercially or industrially exploited and
b) protecting them is possible, reasonable and justified (given the circumstances).

However, if before 1 September 2028, a Partner intends not to protect its Results, to stop protecting them or not to seek an extension of protection, it must formally notify the Commission 60 days prior. In this case, the EU may decide (with the Partner's consent) to assume ownership of the Results to ensure continued protection. The Partner may refuse to grant consent if its interests would suffer legitimate harm or if one of the exceptions foreseen by the Grant Agreement is satisfied, such as:

a) protecting the results or extending the protection is not possible, reasonable or justified (given the circumstances);
b) there is a lack of potential for commercial or industrial exploitation, or
c) the beneficiary intends to transfer the results to another Partner or third party established in an EU Member State or associated country, which will protect them.

3.3.3 Access

The rights of access of the Partners to other Partners' Results and Background are granted where these Results and Background are "necessary" for their intended use, i.e. either for the implementation of the former Partner's obligations within the Project or for the exploitation of the former Partner's Results.

Background
The Partners have access to other Partners' Background necessary to accomplish their obligations in the Consortium without any formalities and for free. However, if the Partners want to access other Partners' Results which are

necessary for the exploitation of their own Results, they must make a written request. This request may be made up to twelve months after the end of the Project, and access must be granted under "fair and reasonable conditions", under conditions set out in a separate agreement.

Background may be identified by the Partners in written form, in which case its use by other Partners may be subject to specific limitations and conditions (see Background identified in Attachment 1 to the Consortium Agreement). In addition, Partners may still use their own unlisted Background. However, if this unlisted Background becomes necessary to other Partners for the implementation or exploitation of the Project, the aforementioned access rights of other Partners apply and may not be subject to limitations or conditions.

Results
The Partners have access to other Partners' Results necessary to accomplish their obligations in the Consortium without any formalities and for free. However, if the Partners want to access other Partners' Results which are necessary for the exploitation of their own Results, they must make a written request. This request may be made up to twelve months after the end of the Project. Access is granted under "fair and reasonable conditions" if the requesting Partner has been sent a written notification about the existence of registered IPR in the Results no later than two months after the end of the Project. Otherwise, this access is granted for free.

In addition, Partners must give EU institutions, bodies, offices or agencies and EU Member States royalty-free access to their Results for developing, implementing or monitoring EU policies or programmes. This right of access is limited to non-commercial and non-competitive use.

3.3.4 Transfer and licensing

Background: The contractual framework of the SMART BEAR Project does not regulate the transfer and licensing of Background.

Results: Partners may transfer ownership of their Results to third parties given prior reasonable written notice is provided to the other Partners. The obligation to provide notice does not apply if the recipient of the Results is an Affiliated Entity or a party identified in Attachment 3 of the Consortium Agreement. In any case, the transferring Partner must ensure that the rights of other Partners will not be affected by the transfer.

Partners may also license or grant third parties the right to exploit Results if this does not impede access rights of other Partners. However, granting exclusive licenses on Results requires all other Partners to waive their access rights in writing.

3.3.5 Special obligations of universities and public research organisations

Partners that are universities or other public research organisations must take measures to implement the principles set out in Points 1 and 2 of the Code of Practice annexed to the Commission Recommendation C (2008) 1329 of 10.4.2008 on the management of intellectual property in knowledge transfer activities. These Partners must ensure that researchers and third parties involved in the action are aware of the rights and obligations set out above.

4 Conclusion

The current deliverable is the second deliverable of WP13 and is an update of the partners' progress regarding the communication, dissemination, impact, creation, exploitation and standardisation interim results. The project's website, the presence in social media (Twitter, Facebook, LinkedIn) with the relevant metrics, the distribution of Newsletters, publications to high-impact journals and conferences, workshop participation and organization are some of the key dissemination activities described in this document as well as the exploitation assets of each partner individually and also as joint plans. Furthermore, the impact creation in the main pillars of the project are presented, as well as the standardization activities foreseen during the project's duration. It has to be noted that the breakthrough of D13.2 can be summarised in the IPR draft strategy and the first attempt of a collective exploitation strategy where partners have identified the more mature of the assets to sustain commercialisation. Moreover, the legal and ethics framework that was set up from the Consortium Agreement pertinent to the exploitation of SmartBear as a whole, has seen its first update in section 3.3 of the current document.

Last but not least, the dynamic nature of the aforementioned exploitable assets, oblige the consortium to work on internal documents in order to keep track of the process in order to respond accordingly and rectify conditions if necessary.

5 References

[1] Horizon 2020 *SMART BEAR* grant agreement No.857172, https://3.basecamp.com/4308590/buckets/14115550/uploads/2137462595

[2] https://en.wikipedia.org/wiki/WordPress

[3] https://sproutsocial.com/insights/best-times-to-post-on-social-media/

[4] SMART-BEAR Consortium Agreement v13.1, paragraph 8.25

[5] http://praxinetwork.gr/el/

[6] http://www.stepc.gr/

[7] https://en.wikipedia.org/wiki/Business_Model_Canvas

[8] https://www.itu.int/en/ITU-T/studygroups/com16/ehscg/Pages/default.aspx

[9] https://www.iso.org/committee/54960.html

[10] https://academic.oup.com/eurheartj/article/37/29/2315/1748952

[11] https://www.pgeu.eu/en/component/policy/policy/110-policy/22-active-and-healthy-ageing.html?Itemid=101

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[13] http://www.who.int/dietphysicalactivity/factsheet_olderadults/en/