



## PROJECT DELIVERABLE REPORT



### Project Title:

Advanced personalised, multi-scale computer models preventing osteoarthritis  
SC1-PM-17-2017 - Personalised computer models and in-silico systems for well-being

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### Revision History

Version	Date	Responsible	Description/Remarks/Reason for changes
1.0	2017/12/29	Axia Innovation	First Draft

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## **1 Summary**

This report refers to Deliverable 10.1, which relates to the OActive Work Package (WP) 10 “Dissemination and exploitation routes”, and specifically Task 10.1. OActive Website and Media Presence. Therefore this report describes: i) Development of the project website (<http://www.oactive.eu/>), including a project overview, the objectives, workplan, impacts of OActive, partner profiles, news, public deliverables, dissemination material and other relevant documents, a technology watch section, and contact details, ii) Design the OActive brochure (including objectives, concept and list of partners); and iii) Creation of profiles in popular social networks (facebook, twitter and linkedin).

## 2 Introduction

Deliverable D10.1 of the OACTIVE project is part of the overall dissemination and exploitation plan of the project. Indeed, one of the main objectives of the OACTIVE is to proceed in targeted dissemination and communication activities of the results of the project. Through dissemination activities knowledge and results are transferred to selected audiences which can best make use of it (see also **Table 1**), maximizing also the impact of this research. Important role in the dissemination and communication plan plays the website and social media presence as well as the printed material (brochures, leaflets). For this purpose, the OActive website was developed, the initial project brochure was designed to be disseminated and social media accounts dedicated to the project were created. All the information used for dissemination and communication purposes will be tailored to the specific dissemination channel.

**Table1:** *Dissemination strategy targeted groups.*

Category	Targetedgroup
Medical care industry	Hospitals, rehabilitation centers, medical care centers, medical institutes, health service providers, physicians, caregivers, companies in the health field or/and in the ICT field
General public	Individuals, OA patients and their families, elderly, athletes
Regulatory authorities	Ministries of health, medical organisations, orthopaedic associations, regulatory authorities, NGOs, non-profit organizations, public initiatives
Research & education communities	Medical and ICT universities and research centers, participants in related EU projects, research societies, interested in early diagnosis and prediction of diseases or interested in computer based modelling and simulation tools technologies, cognitive systems or human interfaces
Media	Magazines, websites, webtv, local tv stations, newspapers, radio stations

The **project website** (<http://www.oactive.eu/>) is the primary information source for the targeted audiences. The purpose of the website is to promote the project and its final results to the Health care industry, OApotients, academia, policymakers and stakeholders, even beyond the project's own community. The website also includes scientific publications and research data targeting particularly to research organisations and academia. The specific goals are summarised below: a. To raise awareness about the objectives of the project, its results, its benefits, use and applicability; b. To share experience on OA prevention, early diagnosis and prediction and treatment (data and knowledge) with relevant stakeholders; c. To seek the support of the authorities, lobbies, policy makers and the general public; d. To build understanding and facilitate adoption of project results; e. To assure that all interested parties are involved, participate and are informed about the status of the project.

The initial **Project Brochure** was created to disseminate the project goals and impacts to the Academia and General public. **Social Network** profiles were also created for the project (through Facebook, Twitter and LinkedIn) being good means of outreach to the public permitting a bidirectional communication so that OActive project activities will be disseminated to end users, authorities, and OA patients.

During the kick-off meeting of OActive project that was hosted by the Department of Life and Health Sciences, in University of Nicosia, on 27-28 November 2017 the members of the consortium and the project coordination team also identify the design and functional requirements of the website and the content of the project brochure.

## **2.1 Purpose and Scope**

The project brochure was designed targeting to disseminate project information, objectives and impacts to general public and academia. The followed workplan is described and the OActive consortium is presented as well as the Coordination team contact information.

Moreover, Facebook, Twitter, LinkedIn profiles were created in order to raise public awareness about OActive project. Social media profiles will be constantly updated with news, events, publications and publicly available dissemination information of the OActive project, based on the partners' contribution (photos from dissemination activities – fairs, conferences, workshops, etc.) or with the info related to project topic.

### 3 Website Structure& Content

The OActive project website ([www.oactive.eu](http://www.oactive.eu)) includes all the relevant information about the project, its objectives, its workplan and impact, the consortium participants, a dedicated news section, a technology watch section, and other interesting Links, including the project's Facebook, LinkedIn and Twitter pages, and the coordination team contact information. The website was designed and developed in a way that will have the following characteristics.

- An attractive, modern and professional website design
- A homepage presenting the overall project idea
- Latest news from the project as well as news, publications and important links of other parallel R&D activities
- Forthcoming events
- Easy access to project information and documents including details of work packages, partners and deliverables.
- Links to the OActive Social Media pages.

Throughout the project the website will become a major tool to present the project research outcomes to a wide audience. The website will be regularly updated and enriched with new content and updates. Visitors of the OActive website have access to all information about the project, they can download the project's promotional material (events posters, brochures and banners), read press releases and the public deliverables, find audiovisual content, subscribe to the newsletter and contact the consortium.

The website is designed in a way that its different sections are targeting specific audiences of OActive. More specifically, in the **home page** information targeting to the general public, the Healthcare industry and OA patients will be included describing general information, the overall concept and the objectives in brief of the OActive project. The **objectives and workplan section** is focusing to the research community, as well as the health industry, while the **impact section** of the OActive website is targeting the OActive patients, athletes as well as medical organizations, orthopaedic associations, hospitals, rehabilitation centers, and medical care centers. The **partners section** including links to the consortium profiles provides interesting information that can be easily accessed by academia regarding the expertise and involvement of each partner in the project. Moreover, the partners section can also be accessed by investors as well as the health sector to monitor state of the art technologies developed and implemented through the OActive project. The **news section** is targeted to academia and all project partners, monitoring the advances in the field of OA diagnosis, prevention and treatment. The **Documents section** of the OActive website includes public deliverables, dissemination material and publications targeting mainly to disseminate the information to research institutions, Medical and ICT universities. Finally, the **Technology watch section** will present state-of-the-art articles, parallel R&D activities and relevant links to bring to the attention to the academic community and possible to medical and health care industry.

Followingly, the sections of the OActive website are presented.

#### 3.1 Creation and Design of web site

The OActive project website has been developed during the early project stage and launched under the [www.oactive.eu](http://www.oactive.eu). Website was built with Wordpress, and the following programming languages were used for the website creation: html, php, database MySQL, Java Script and reduction system based on the Open Force. Under the webhosting project info email “[info@oactive.eu](mailto:info@oactive.eu)” was created to be further used

for social network profiles creation – registration, newsletter campaign, etc. The website and the project email are maintained by AXIA Innovation and the coordinator of the project.



### 3.2 Home page

The home page contains the project title as well as a brief summary of the project. The upper part of the screen shows a navigation panel, using a structure that is commonly used. Home page also displays EC logo and H2020 framework logo.

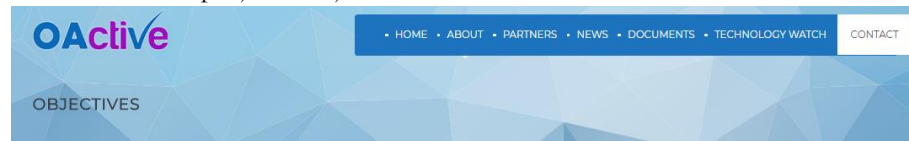


*Figure 1: Home page*

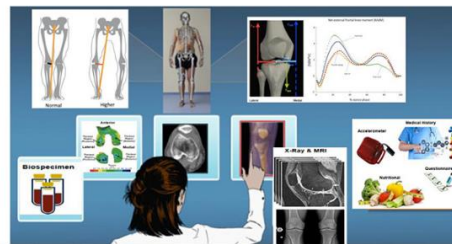
### 3.3 About OActive

A more detailed description of the project is given while information is also given regarding the OActive project's objectives, workplan and impacts.

#### 1. Objectives: A list of the project's objectives are summarised in this section.



The OACTIVE scientific and technological objectives focus on the development of patient-specific computer models and simulation in order to develop appropriate OA prevention interventions or treatments. The main focus of the OACTIVE will be on knee OA (KOA) because this is the joint where OA symptoms most frequently cause significant loss of function and mobility.  
The project objectives include:



#### Mechanistic modelling framework of the musculoskeletal system

- Development of personalized neuromusculoskeletal models that could be used to predict knee OA onset and improve treatment
- Development of novel calibration pipelines for the transformation of generic musculoskeletal models to personalized models by scaling anatomic geometry, kinematics and muscle kinetics and activation parameters.
- Development of organ and tissue level models for the incorporation of detailed bone and cartilage models capable of predicting tissue responses following estimation of forces from the rigid body musculoskeletal models.

#### Systemic health and inflammation modelling framework

- Development of a system of prognostic biomarkers of bone and cartilage degradation and synthesis applied to OA based on serum markers.
- Development of a system of inflammatory prognostic biomarkers for OA monitoring based on biofluid samples (blood, urine and synovial fluid).

#### Behaviour, social, environmental modelling framework

- Assess and model behaviour of users related to physical activity using flexible platforms of wearable body sensors.
- Development and implement behaviour analysis to create a set of behaviour models and "normality patterns".
- Investigate the effect of socio-economical risk factors

#### Hypermodelling framework empowered by big data

To develop the hyper-modelling framework of OActive which will include:

- Data management mechanisms
- Development of data pre-processing algorithms.
- Development of data mining techniques.
- Identification of patient-specific significant risk factors associated with the onset as well as factors related to OA progression using computational efficient Feature Selection algorithms.
- Development of the ICT deep learning infrastructure.
- Design and implementation of personalized predictive Decision Support (DS) models.

#### Ontology-based framework for data /models reusability and sharing

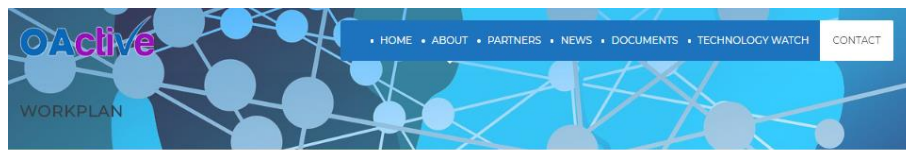
- To employ model and data encoding and exchange standards for multiscale modelling
- To develop modular approaches to ensure that self-contained models could be developed and validated independently before being incorporated into a hierarchy of imported models
- Employ Semantic web technology to make knowledge interpretable by web agents
- To issue authentication mechanisms (via X.509 certificates) assuring the secure access to data.
- To employ enhanced replication mechanisms to warrant the integrity of data including the prevention of loss.
- To ensure a certain k-anonymity using pseudo-anonymization techniques.

#### Personalised interventions using Augmented Reality (AR)

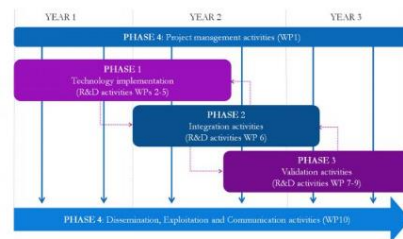
- To issue personalized intervention relying on the AR gaming concept.
- To employ assistive, real-time visual and vibrotactile feedback for OA gait retraining.
- To calculate of biomechanical indicators for assessment and clinical decision support.
- To implement personalized stimuli to impact on game task completion performance.
- To apply the model in knee OA patients to investigate what effect simulated biomechanical treatments have on the mechanical load characteristics in knee joint structures in different groups of knee OA patients.

*Figure 2: Objectives*

**2. Workplan:** The OActive project phases as well as a list of the work packages is given in this section.



The OActive project has a proposed duration of 36 months (3 years) and is divided into four phases which include the following activities: R&D activities (WP2-6), Validation activities (DEMO) (WP7-9), Dissemination and Exploitation Activities (DEC) (WP10), Project management activities (PM) (WP1).



#### Phase 1: Technology generation and experimentation

This phase of the project includes all the R&D activities for the development of the OActive personalised models implemented at various scales along with the design / development of the intervention module. The phase is finalised when all the developed models have been designed and tested in the laboratory and are ready for integration (WP2-5).

#### Phase 2: Integration of the developments from Phase 1 using big data

This phase involves the integration of all the developed technologies of Phase 1 (including mechanistic/phenomenological models, output information sets from various scales such as biological, social and behavioural). Big data and deep learning technologies will play a key role being the integrator of the various information sets as developed in Phase 1. Each model will be fine-tuned with the rest, and minor modifications are expected in order to optimise all the submodules to operate as a single integrated multi-scale hyper-model. In order to achieve this, the integration process runs in parallel with Phase1 giving constant feedback for modification for each sub-model.

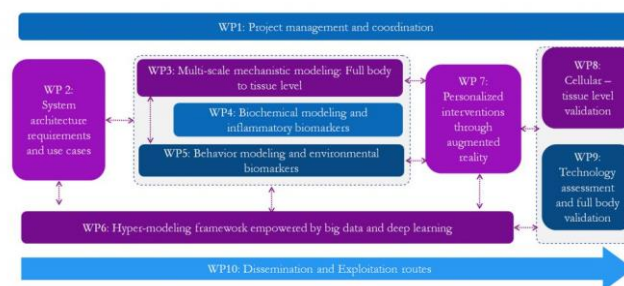
#### Phase 3: Validation of the OActive system

The aim of this phase is to validate the integrated OActive system in both clinical studies/trials and big data registries. Clinical studies will also offer vital input to make any necessary adjustments before deploying the system in humans. Big data registries will be used to verify the efficiency of OActive in a large human population. The accumulated results will give feedback to Phase 2 in order to monitor the required actions and perform an evaluation of the KPIs.

#### Phase 4: Project Management and Dissemination, Exploitation, and Communication Activities

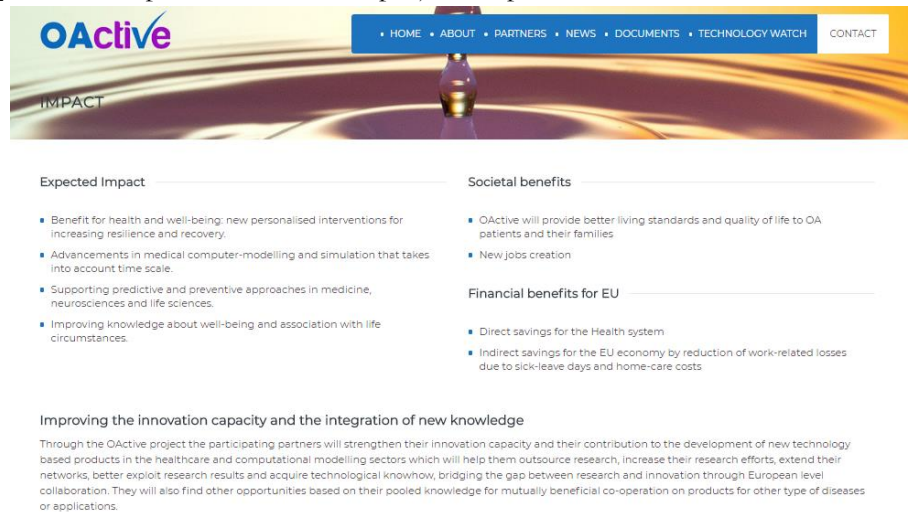
This Phase runs the whole duration of the project in order to keep track of all the involved activities (R&D, DEMO) and take action when is required. This will ensure the smooth progress of all the R&D and demonstration activities as well as efficient planning for dissemination of the results throughout the duration of each phase.

OActive will be achieved in ten (10) WPs, as shown in the Figure below.



**Figure3: Workplan**

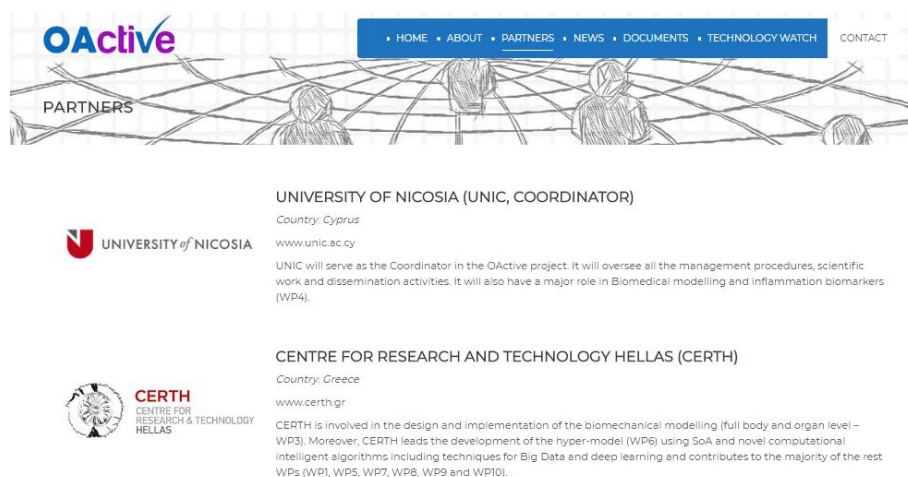
### 3. Impact: The impact of the OActive project are presented in this section.



*Figure 4: Impact.*

### 3.4 Partners

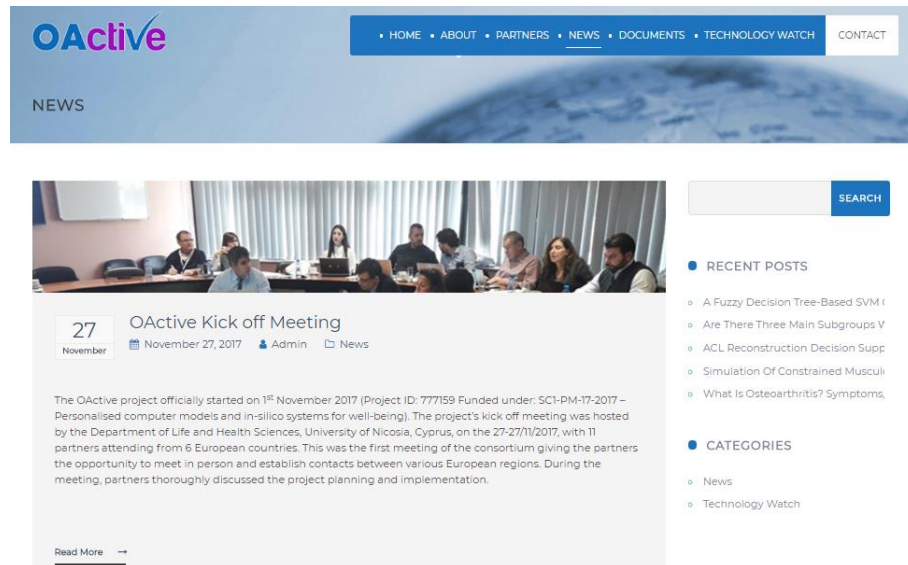
Detailed information is given regarding the consortium partners. The partners logos and a link to their website is available, as well as a description of their role in the project.



*Figure5:A part of Partners section*

### 3.5 News

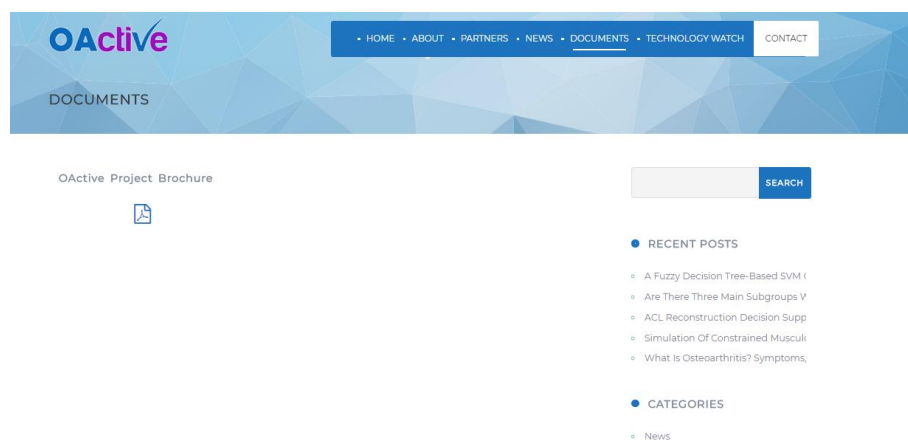
News regarding the project are uploaded in this section. This section will be constantly updated during the project.



*Figure6:OActive project News*

### 3.6 Documents

Every visitor of the website has access to the project's public documents regarding dissemination activities and official results.



*Figure7:Documents*



### 3.7 Technology Watch

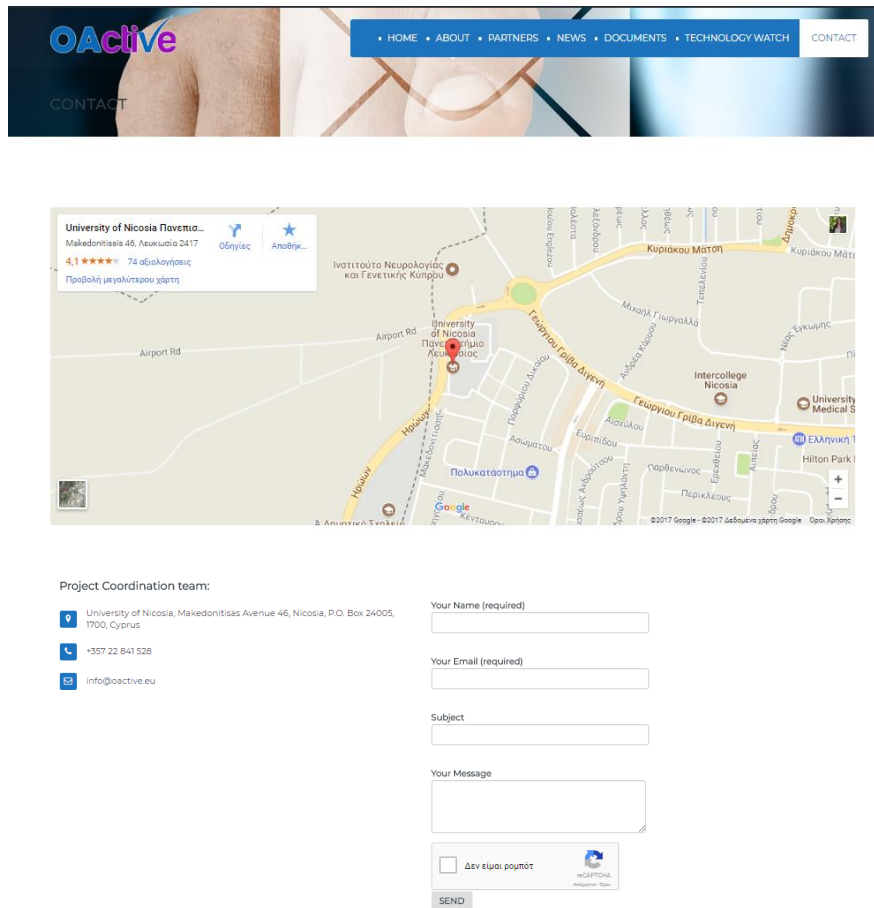
News, publications and important links from other parallel R&D activities are found in this page.



*Figure8:Technology watch*

### 3.8 Contact

A contact form for communication with the coordination team as well as contact details are given in this page.



**OActive**

HOME • ABOUT • PARTNERS • NEWS • DOCUMENTS • TECHNOLOGY WATCH • CONTACT

CONTACT

University of Nicosia Pavlou Pavlou Building  
Makedonitissas 46, Nicosia 2417  
4.1 ★★★★★ 74 αξιολογήσεις  
Προβολή μεγαλύτερου χάρτη

Project Coordination team:

University of Nicosia, Makedonitissas Avenue 46, Nicosia, P.O. Box 24005, 1700, Cyprus

+357 22 841 528

info@oactive.eu

Your Name (required)

Your Email (required)

Subject

Your Message

☐ Δεν είμαι ρομπότ

SEND

*Figure9: Contact*

#### 4 The OActive brochure

An information brochure about the project was produced. It describes the concept, the objectives, the impacts and the consortium of OActive project. The key project information is given, as well as contact information and the URL for the project web site and social networks. The brochure is available in the OActive website under “Documents” section and will be distributed among the public on request.

It is a single sheet, letter size, tri-fold brochure, in English, with a clean, modern and attractive design which was created for dissemination purposes. The external side of the brochure presents the project logo & name and contains various project information (website, consortium members, project duration), the programme under which it has been funded and the logos of both the European Commission and the H2020. In addition, the project’s domain name is given on the page. (See **Figure 10** below). The internal part of the brochure is also structured in three pages. A brief description of the project’s main idea is presented on one page, along with the project phases. In the internal part the methodology, as well as a graphic representation of objectives is also given. (See **Figure 11** below). The brochure is developed in order to be distributed for communication/dissemination and awareness raising purposes to academia and stakeholders with an interest in OActive during local events, conferences, or workshops. A printable version of the brochure is also available for partners’ use.



*Figure 10: Outer page of OActive brochure*





*Figure 11: Inside page of OActive brochure*

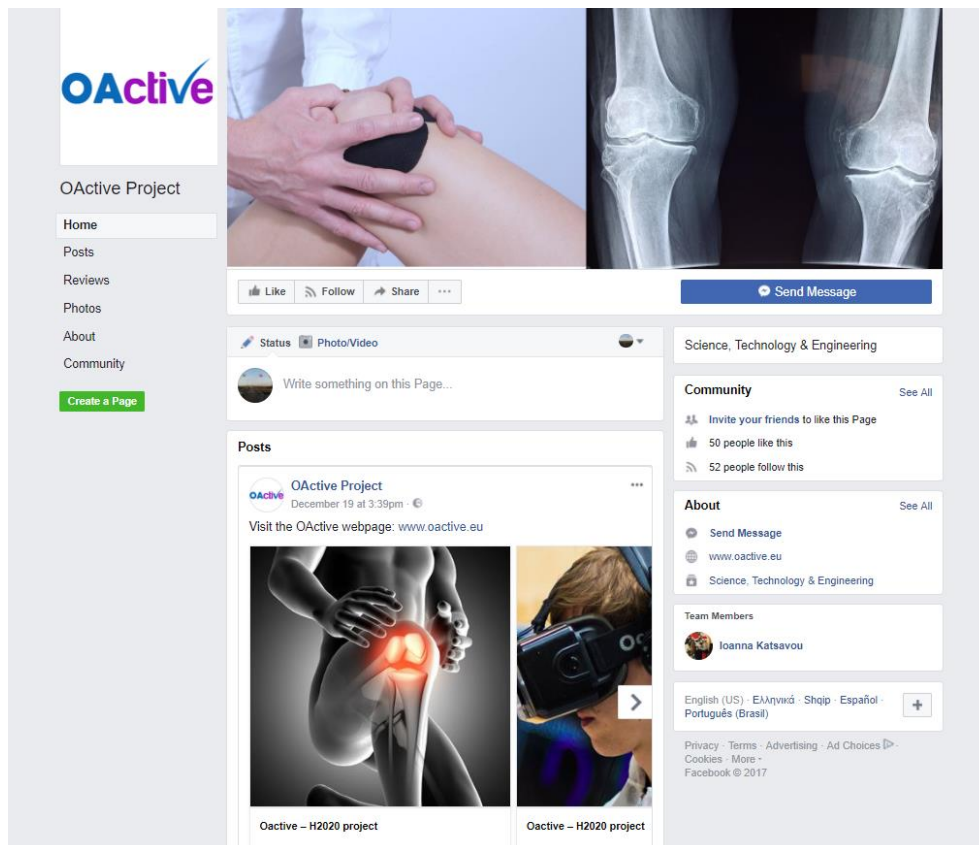
## 5 Presence on popular social networks

Facebook, Twitter and LinkedIn are currently the most popular social media with billions of users around the world. Social media have become the preference for many people who use them more than other traditional media, as they are inexpensive, easily accessible and they enable anyone to share and access information. Currently Facebook claims to have over 2 billion active users, Twitter about 330 million users and LinkedIn near 500 million members. To benefit from these effective and freely available social media, OActive has created profiles on all three media and has started sharing information about the project. The project profiles will serve as a complementary dissemination and communication channel in addition to the project website. They will include general project information with the aim to proactively promote the project and its final results permitting a two-way exchange. OActive's presence in social networks aims to accomplish the following specific objectives: a. Generate awareness and multiply the communication efforts done by all Consortium partners; b. Raise interest on the project topic in non-expert audiences; c. Promote understanding of knowledge, activities, benefits and outcomes generated throughout the project; d. Promote feedback gathering, consultation and engaging with target groups; e. Enhance project positioning through engine search, image search, local search, etc. The links to the project's Social Media profiles seen below.

### OActive Facebook page

Facebook is the most popular social network that was mainly designed to connect people in a more casual way. The OActive page on facebook targets to rising awareness to the wide public related to OA and the patient-specific solutions provided through OActive project.

Link: <https://www.facebook.com/OActive-Project-385818195209245/>

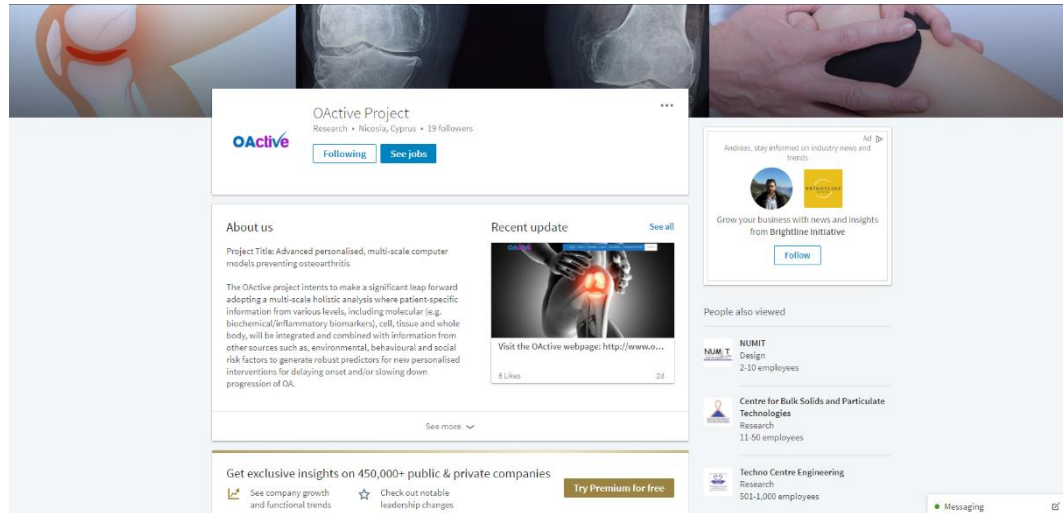


*Figure15:OActiveFacebook page*

## OActiveLinkedIn

Link: <https://www.linkedin.com/company/27154628/>

On the other hand, as LinkedIn is designed more for business and professional networking an OActive profile has been created to disseminate the project results in a business sense through creating a network of connections from the academia, health care sector, media, the general public, as well as possible investors and relevant stakeholders.

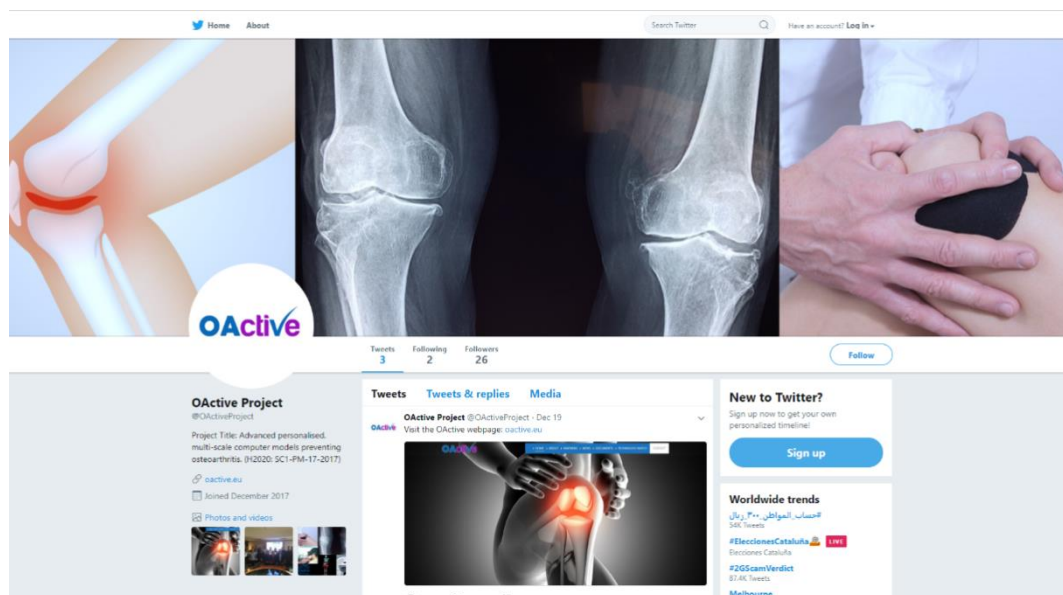


*Figure16:OActiveLinkedIn page*

## OActive Twitter

Link: <https://twitter.com/OActiveProject>

Finally, twitter is an online news and social networking service where OActive followers will be able post and interact with messages. OActive followers will come from research organisations, universities related to ICT and medicine, and the general public.



*Figure17:OActive twitter page*

## **6 Conclusion**

The OActive website is developed and is currently up and running giving the opportunity to visitors get constantly updated information about the project. The project website will continuously evolve as the project itself grows. The information included on the project website will be valuable even after the end of the project. Therefore, the consortium aims at ensuring that the website will continue to exist after the project funding has finished. The OActive website is planned to provide information about the project to the wider public.

Moreover, the project Brochure was created and is uploaded in the project website. The Social networks presence of the project is ensured through the creation a facebook page, as well as a linkedin and a twitter account.