



**HORIZON 2020**

**PHC-26-2014**

**Self management of health and disease: citizen engagement and mHealth**

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**A co-operative mHEALTH environment targeting adherence and management of patients suffering from Heart Failure**



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**Reviewer(s):** SAS

## VERSION HISTORY

Version	Primary Author	Version Description	Date Completed
1.0	FORTH	TOC version	8 November 2017
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1.2	FORTH	Section 1 update	12 February 2018
1.3	FORTH	Section 1 update	26 March 2018
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1.5	LIP	Final version submitted to EU	2 April 2018

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## EXECUTIVE SUMMARY

This deliverable presents the final press release, the social media posts and the related short films that have been created from M1-M39.

### 1. Final press-release

**HEARTEN: A European project aiming at developing a multi-stakeholder patient centered mHealth ecosystem that enables the Heart Failure patients to achieve sustainable behavior change regarding their adherence and compliance.**

HEARTEN has been a project funded by the European Union, with twelve partners from six European countries; three Universities, two research centers, five SMEs, one industry partner and one Healthcare authority partner.

The three-year project targeted Heart Failure, a disease experienced globally by 26 million people with an annual cost to insurers estimated to be approximately 6.000€ per person. The recognition of non-adherent HF patients is important since, even if these patients are fortunate to have at their disposal a plethora of guidelines and health-based knowledge, the integration of this knowledge in their life becomes difficult.

HEARTEN partners achieved significant scientific excellence incorporating sensors and biosensors, Information and Communications technology, data analysis and data mining into an integrated solution that can be used to support Heart Failure patient empowerment and self-management.

The HEARTEN platform is composed by novel breath and saliva biosensors that can be used to monitor patient biomarkers, sensors for measuring physiological signals and physical activity. All communication is performed through a mobile phone, while at the back, intelligent machine learning techniques are responsible for analysing measurements and inputs and notifying the related involved actors (patient, doctor, nurse, caregiver, etc.).

#### **Breath/saliva and other patient monitoring sensors**

The project built novel biosensors that detect and quantify novel breath and saliva Heart Failure related biomarkers (namely TNFa, cortisol and acetone) that reflect the health status of the patient, this being a significant breakthrough as they change the measurement process. Now measurements can be done using breath and saliva at home. Although currently at prototype level the developed biosensors together with additional commercial sensors will be soon able to monitor patient status and progress at home. Through an easy to use mobile application the patient is able to send all relevant information to the HEARTEN platform from home.

#### **HEARTEN knowledge management system**

An intelligent Cloud based knowledge management system analyses all data and delivers critical information at hand, provides alerts, guidelines, trends and predictive models to the patient and the ecosystem actors. Alerts are provided on change of the patient status, on potential adverse event and on non-adherence behavior.

#### **HEARTEN platform tested in Italy and Spain**

The HEARTEN platform has been successfully tested in HF patient in Spain and Italy related to both, its technical accuracy and completeness but also its value as a means to support patient self-empowerment and improve adherence (related to medication, nutrition and medical activity).



Using HEARTEN, patients are self-empowered and they can use their smartphones to track vital signs and take measurements, while the healthcare professionals and the caregivers can issue warnings, coordinate therapies, improve adherence and intervene before frailty incidences occur.

### **HEARTEN partners**

UNIVERSITE LYON 1 CLAUDE BERNARD (France), LYON INGENIERIE PROJETS (France), EVERIS SPAIN SL (Spain), APPART SA (Greece), FOUNDATION FOR RESEARCH AND TECHNOLOGY HELLAS (Greece), AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS (Spain), UNIVERSITÄTSMEDIZIN ROSTOCK (Germany), UNIVERSITA' DI PISA (Italy), SERVICIO ANDALUZ DE SALUD (Spain), YOUR DATA SRL (Italy), CAREDOME PATIENT SUPPORT AND HEALTHCARE SOLUTIONS (Portugal), SESA (Italy).

## 2. Short-films

During the project, 4 short-films have been created to communicate the project, its main goals and the consortium to a wider public.

More specifically; (i) the 1<sup>st</sup> short-film presents the main technological components of HEARTEN platform, their communication and the technology/infrastructure that has been used for their development, as well as the benefits for the HF patients and the ecosystem actors. (ii) the 2<sup>nd</sup> short-film is more patient oriented and focuses in the management of HF with HEARTEN. The short-film is available in two languages; Spanish and English. (iii) the 3<sup>rd</sup> short-film provides an overview of the integration of HEARTEN with the Electronic Health Record used by the Andalusian Health Service (SAS) at the Hospital Virgen del Rocío site. The film is available with subtitles both in English and Spanish. (iv) the 4<sup>th</sup> short-film shows an interview of YOURDATA partner presenting HEARTEN project during the 3rd Sardinian workshop on innovation Workshop (SINNOVA).



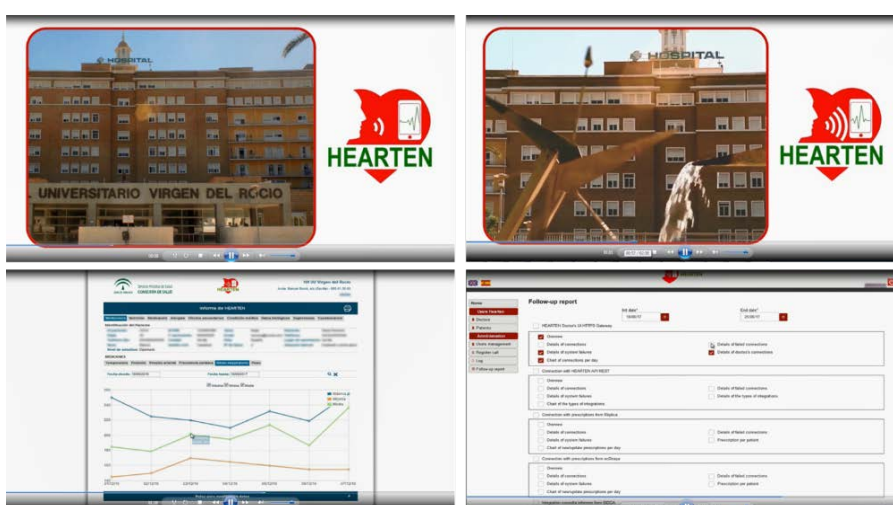
**Figure 1:** Overview of the 1<sup>st</sup> short-film of HEARTEN project (1/2).



**Figure 2:** Overview of the 1<sup>st</sup> short-film of HEARTEN project (2/2).



**Figure 3:** Overview of the 2<sup>nd</sup> short-film targeting the patient population.



**Figure 4:** Overview of the 3<sup>rd</sup> short-film showing the integration of HEARTEN with the Electronic Health Record.



**Figure 5:** Overview of the 4<sup>th</sup> short-film from HEARTEN in the 3<sup>rd</sup> Sardinian workshop on innovation Workshop (SINNOVA).

All short-films have been uploaded in the social media of HEARTEN and in the project website.



### 3. Social media posts

The HEARTEN social have been created early in the project and have been continuously used for communicating the project vision, progress as well as planned activities. More specifically, the project has established accounts in [1], Twitter [2], LinkedIn [3] and Youtube [4]. Through these networks, the interaction with the “friends”, “followers” and “contacts” for Facebook, Twitter and LinkedIn project accounts has been enabled towards following the HEARTEN activities, post, “tweet” or comment on specific subjects. In the following table, the summary of the social media accounts of the project is presented.

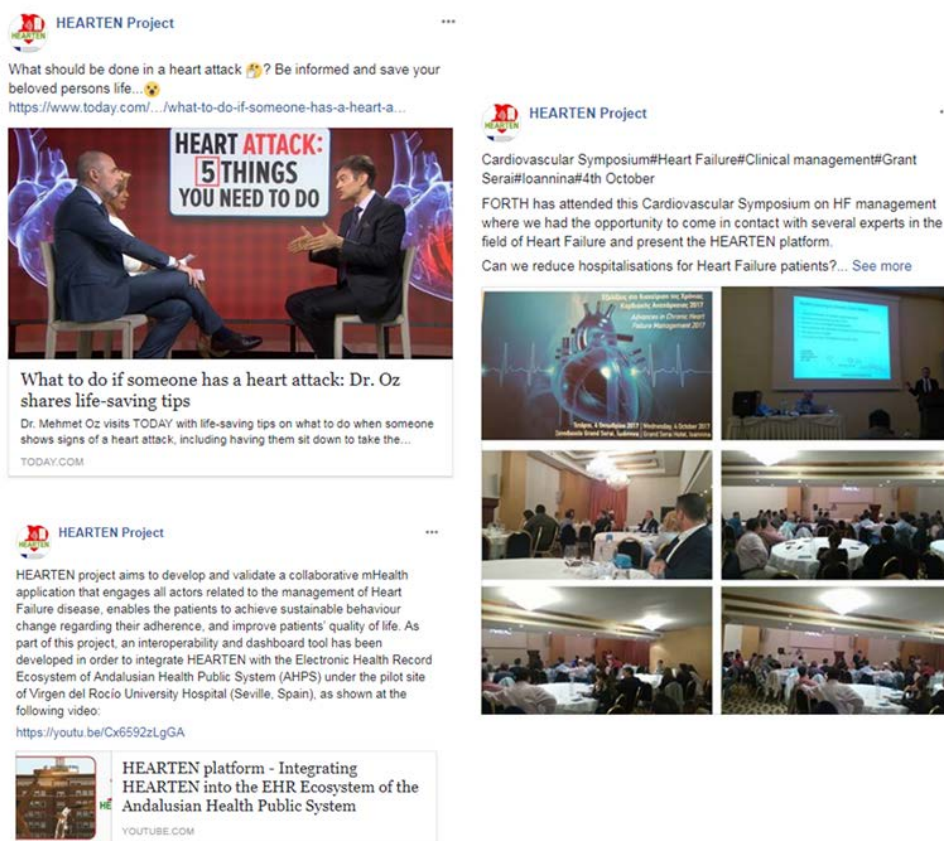


Figure 6: HEARTEN project in Facebook.

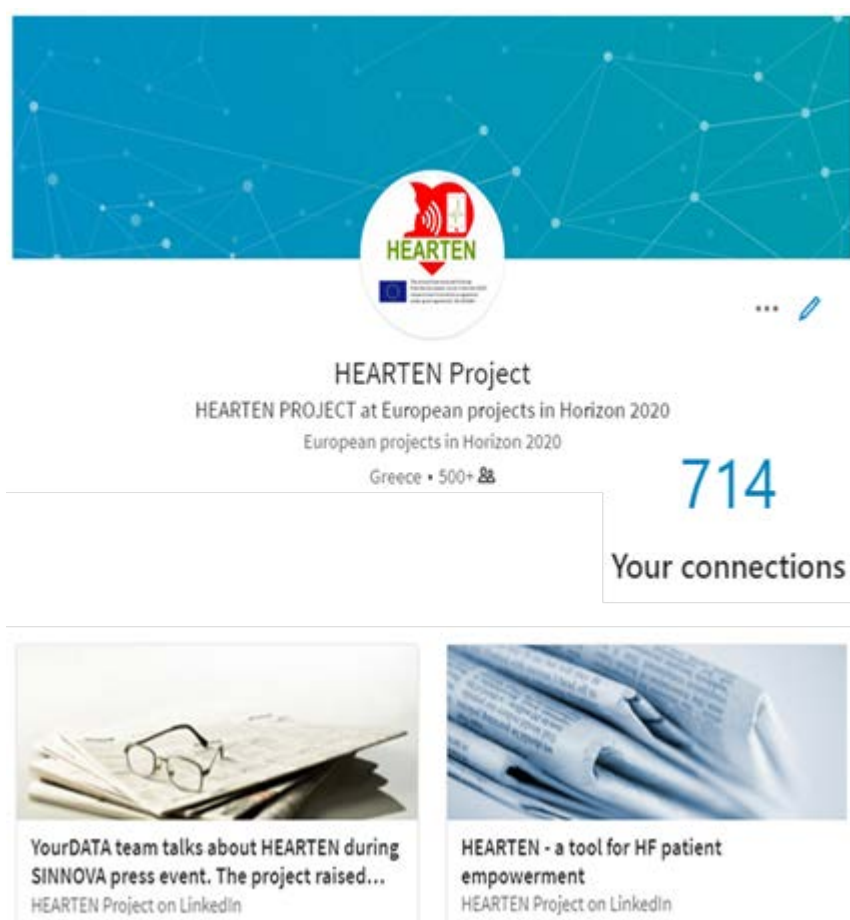


Figure 7: HEARTEN project in LinkedIn.

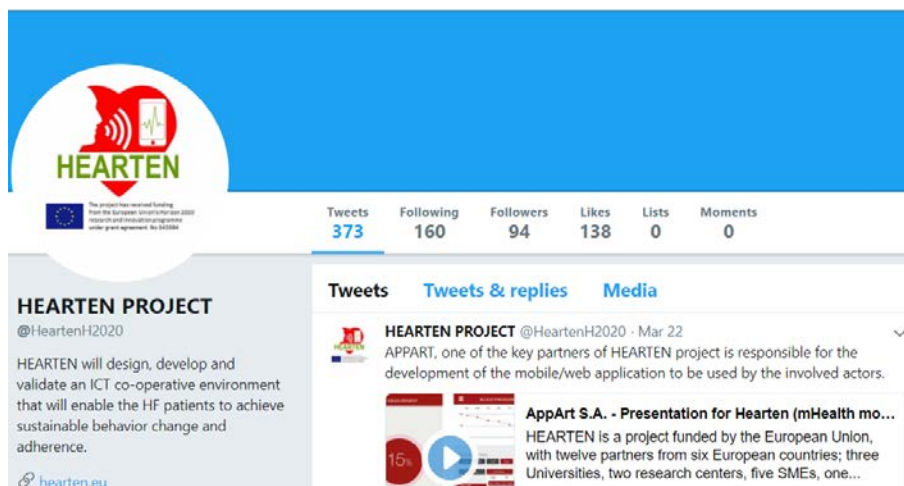


Figure 8: HEARTEN project in Twitter.

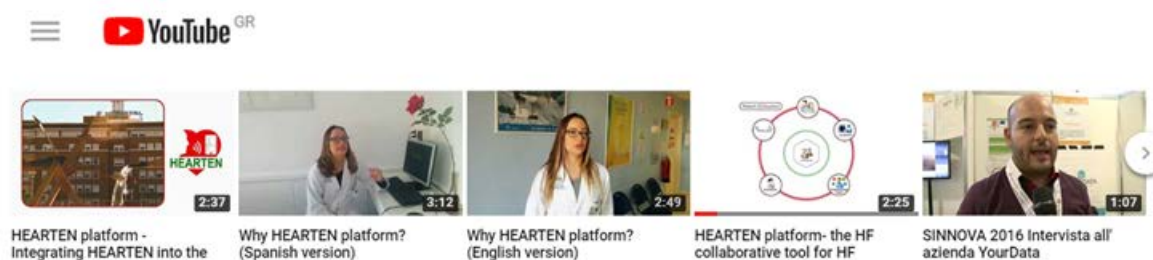


Figure 9: HEARTEN project in YouTube.

Social media	M1-M12	M13-M24	M25-M39	Total
Facebook	54	89	113	310
Twitter	N/A			373
LinkedIn connections	N/A			714

## References

- [1] "HEARTEN Project@Facebook." [Online]. Available: <https://www.facebook.com/pages/HEARTEN-Project/605460052917539>.
- [2] "HEARTEN PROJECT@Twitter." [Online]. Available: <https://twitter.com/heartenh2020>.
- [3] E. projects in H. 2020, "HEARTEN Project@LinkedIn." [Online]. Available: <https://www.linkedin.com/in/heartenproject>.
- [4] *HEARTEN in Youtube.* ., <https://www.youtube.com/channel/UCJtP1ZkpQu6GPslpe3Obpxw>