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EQUILIN

EUROPEAN REGIONAL DEVELOPMENT FUND
"A way to make Europe"

CONCLUSIONS WORKSHOP OF THE PRELIMINARY MARKET CONSULTATION OF THE PROJECT EQUILIN-061

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I.1 Background information

Mobile assistance for sanitary emergencies by intervention equipment teams

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- COORDINATION CENTERS OF MEDICAL AND HEALTH EMERGENCIES (CCUE)
- HEALTH EMERGENCY LAND UNITS (EET)
- HEALTH EMERGENCY AIR UNITS (EEA)
- ADVANCED COORDINATION TEAMS (ECA)
- AMBULANCES FOR BASIC LIFE SUPPORT (BLS)

PROFILES OF THE PROFESSIONALS	• Medicine. • Nursing. • Emergency medical technicians.
SPECIFIC MATERIAL RESOURCES	• Logistic Support Vehicles. • Decontamination Units.

I.1

Background information

Mobile assistance for sanitary emergencies by intervention equipment teams

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EPES

32 Care centers distributed around Andalusia.

Last year, CCUEs dealt with **2.952.212** calls.

78.440 teams' activations and **558.742** Andalusian Healthcare Service ambulances' activations.

Average Response Time (ART) was **10:53** minutes in urban areas

- The weight of the "equipment" and the mobilisation of the patient imply an overcharge, that can sometimes lead to overstrain injuries.

- Light equipment would reduce the risk of injuries, a faster assistance in time dependent processes and more safety for patients and professionals.

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I.2 State of the art

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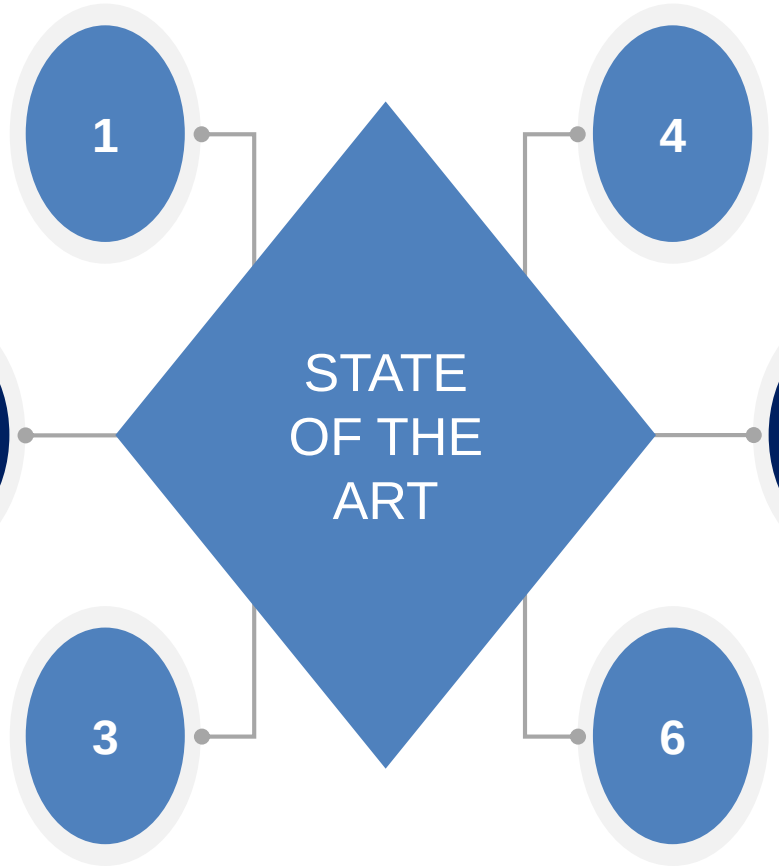

Revision of the state of the art at the possibility of integrating the distance biosignals technologies.

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I.3 Uncovered need

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EQUILIN-061 looks for the substitution of the electromedical material currently used by emergency outpatient teams to monitor patients, and its replacement by a lighter one, without physical contact with the patient, wireless and integrated in a collaborative work environment that allows a quick remote decision-making and is oriented to the safety of diagnosis and treatment

The healthcare process in medical emergencies is complex and it is subjected to time in each of the stages of operation:

- Time of picking-up the call.
- Time of managing the call.
- Number of abandoned calls.
- Number of missed calls.
- Time of coordination.
- Average response time.
- Assistance time.
- Return to availability.

→ It includes from the moment they arrive to the place where the patient is, to the moment when he is transferred to the hospital. It is the moment when **the professionals transfer the equipmen**t from the Mobile Unit to the patient.

The equipment must have the following functionalities:

Basic:

- Very light
- Monitoring heart rate, respiratory rate, oxygen saturation and blood pressure
- Modular
- Integrated with the Electronic Health Record in Mobility of EPES-061
- Connectivity with other teams of the Unit.
- Measuring of biosignals without sensors, remotely.
- Wireless environment.

Optional:

- Battery, as a complementary element, high discharge capacity and minimum weight.
- Integrated in tablets/ smartphones.
- Autonomous boarded equipment

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I.4 Project objectives

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GENERAL OBJECTIVE	Improve the outpatient assistance process to **individual and collective healthcare emergencies with light equipment**, which allow a fast diagnosis and start of the treatments, with clinical safety for patients and professionals.
SPECIFIC OBJECTIVES	▪ Design, develop and test, in real work conditions, an innovative equipment in the market that includes the **necessary functionalities and quality requirements** to provide quality care in time-dependent pathologies, and improves significatively the portability conditions and ease of use. ▪ Design an **integrated equipment,** connected to the environment, receiver and sender of date, and that can defibrillate in a modular supplementary way. ▪ **Reduce days of temporary disability,** for overstrains, between out-of-hospital emergencies professionals. ▪ **Reduce the health expense** associated to accidents of overstraining. ▪ Review the state of the art, include the project in the EPES processes groups (cardiology, neurology, respiratory, trauma) for the definition of **functionalities** and **requirements** for a quality care in time-dependent pathologies.

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I.5 Expected impacts

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ECONOMIC AND SOCIAL ADVANTAGES, INNOVATIVE FOR THE PUBLIC SERVICE

- **Care quality in terms of clinical safety.**
- **Decrease of IT** between professionals
- **Budgetary balance** in the scenario of sick leaves due to temporary disability.
- **Quickness** in the diagnostic approach through the measurement of biosignals immediately.
- Interconnected, **easing the decision** in managing resources.
- **Exchange of knowledge** and expertise between professionals and companies of the sector.

ECONOMIC ASSESSMENT OF THE BENEFITS AND SOCIAL SAVINGS OBTAINED

- The model is based on:
  - Expected impact on the **accident rate by overstrain** between emergency professionals who use the light mobile equipment that will be eventually developed.
  - Impact on the **improvement of the healthcare process** as a consequence of a faster and more effective assistance.

DESCRIPTION AND ASSESSMENT OF THE EXTERNALITIES OF THE PROJECT

- Impact on the technological development.
- Provision of advanced services of assistance to emergencies in other scenarios, including:
  - Engagement of patients in their self-care and/or formal and informal caretakers in the community and/or socio sanitary field.

OTHER EXPECTED IMPACTS

- **Reduction of lost hours because of overstrain disability** expected with the new system (every category).
- **Reduction of healthcare assistance costs** for overstrain accidents.
- **Increase** on patients and professionals' safety.

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I.6 Expected final results

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Exploration and application of **diagnosis and control solutions of portable clinical values** using technologies: Ballistocardiography (BCG), Seismcardiography (SCG), Photoplethysmography (PPG) and Thermograpy.

New solutions of portable equipment with functionalities adapted to Emergency Equipment, which in an easy, friendly, fast way would facilitate work, interconnection, records transfer, and biosignals monitoring.

Improvement promptness, effectivity and efficiency of the mobile assistance process to healthcare emergencies by using light portable systems to monitor and intervene quickly, safe for patients and professionals, in a domiciliary and community environment.

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- **II.4 Interviews with companies**

II.1 General development of the consultation

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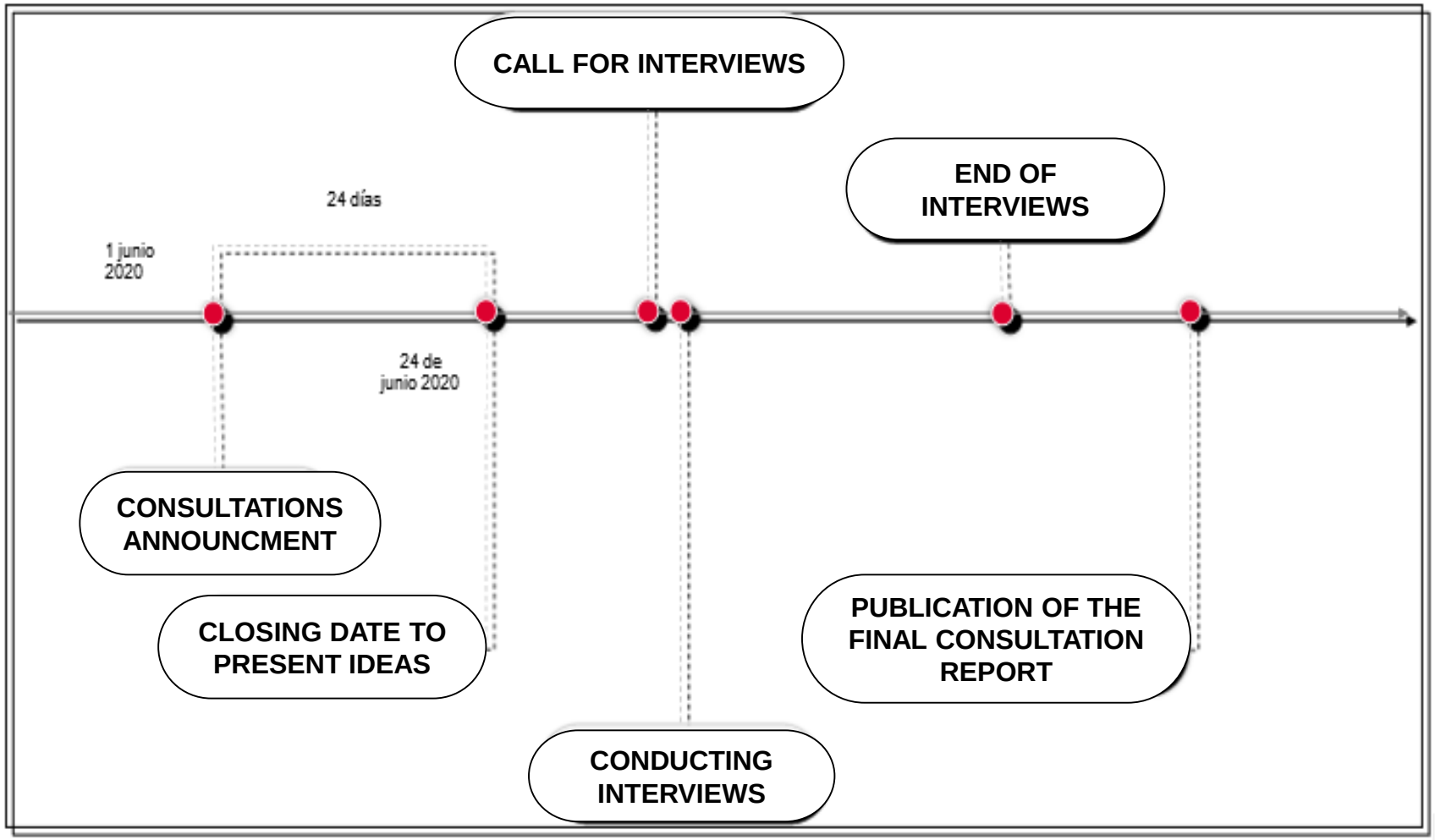

The project team through the web:

web: *http://www.equilinproject.com* facilitated all the documentation related to the challenge.

Moreover, in the contracting profile of the Junta de Andalusia were facilitated:

- The Consultation terms
- Annex I where the challenge is described
- Annex II for the submission of applications
- Annex III for the submission of doubts and questions

II.1 Information on the informative session

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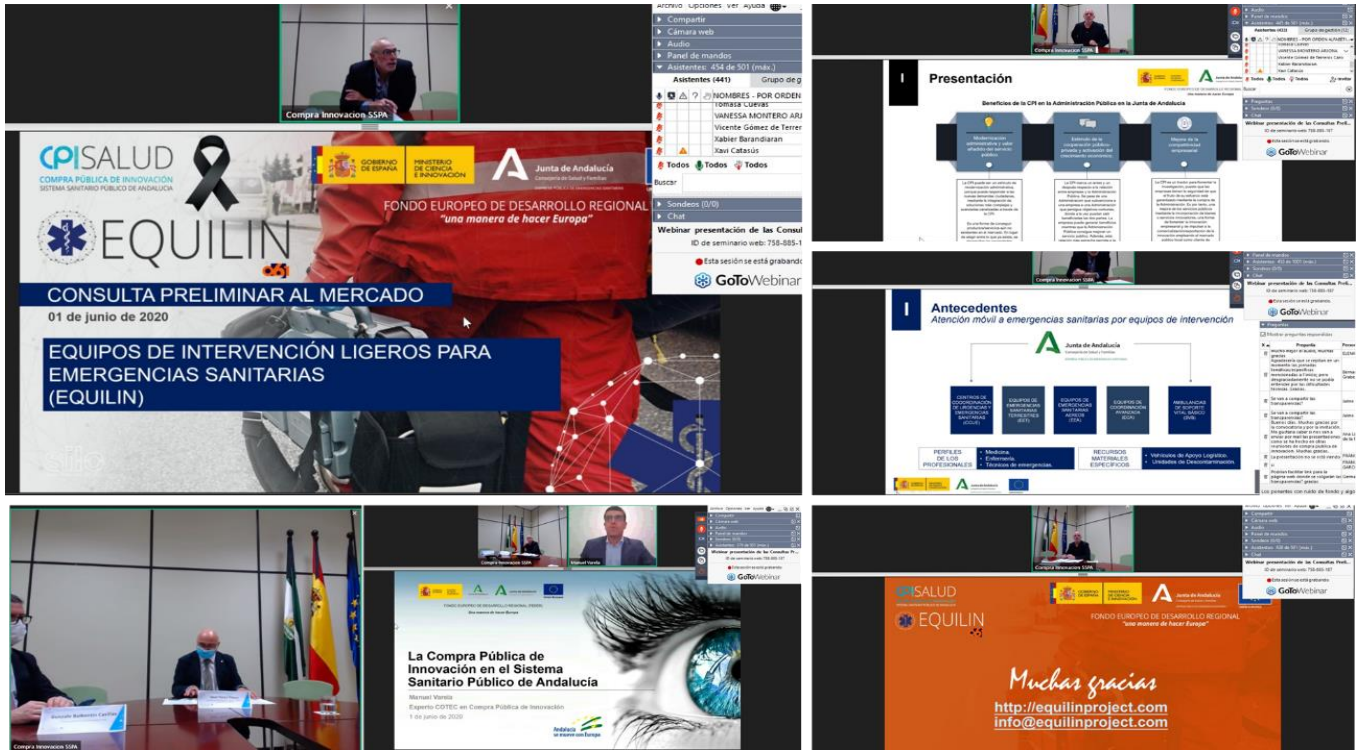
It was held **the 1st June 2020**, through the platform *Go To Webinar* and there were **522 attendees**

The objectives of the session were focused on:

1. Presentation of the project EQUILIN-061
2. Presentation of the Public Procurement of Innovative solutions within the Andalusian Healthcare Service.
3. Explication of the stages of Pre-Commercial Procurement: Regulation, documents related to the consultation, stages and key aspects for participation.



The questions asked during the session, the presentations used by the speakers and the video of the workshop were made available through the project's website: *http://www.equilinproject.com*

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II.2 Informative workshop

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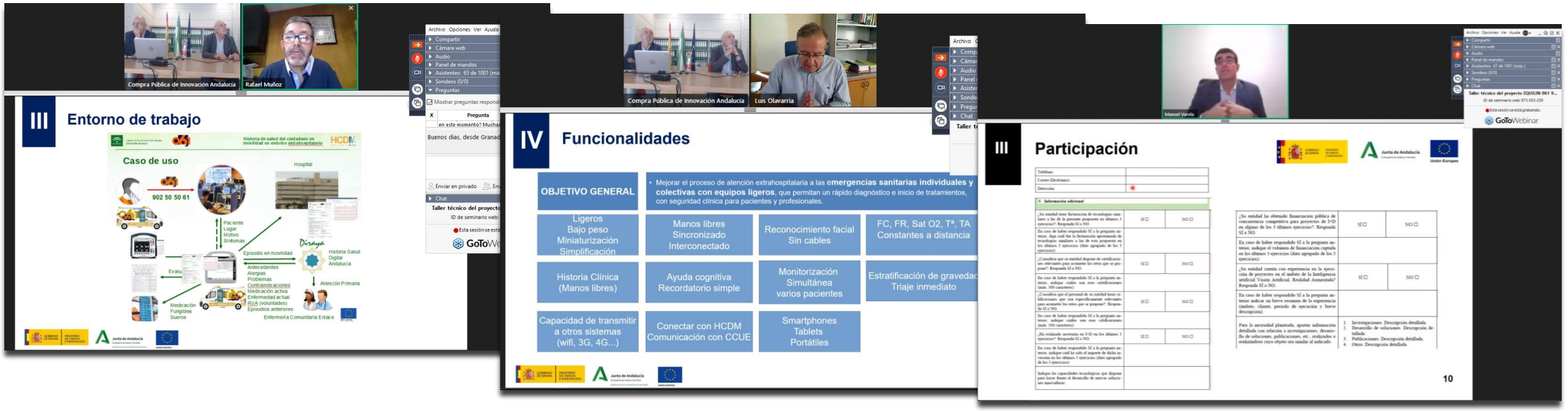
It was held the **9th June 2020** through the platform *Go To Webinar* and was attended by **92 entities**



It was focused to every entity interested in participating in the Pre-Commercial Procurement of the project EQUILIN – 061.

The project and functioning of Pre-Commercial Procurement were explained, and doubts and questions submitted by the entities were answered, that can be found in the project's website: *http://www.equilinproject.com*

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II.3 Entities who submitted proposals

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This consultation had **8 entities** (companies, technological centres and universities) who submitted their proposals for the project through the questionnaire given.

IBV INSTITUTO DE BIOMECÁNICA DE VALENCIA

MASIMO

NIHON KOHDEN

Palex Constant Improvement

PHILIPS

samu

skylife

vicomtech MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

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II.4 Interviews with companies

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After the receipt and analysis of the received proposals, the project team conducted **individual interviews** with those entities from which more details were needed.

- Interviews were conducted on the **23rd, 24th , 28th July** and **3rd August 2020.**
- In every meeting, a **script was followed,** where the following aspects were covered:
  - Introduction of the meeting by EPES
  - Presentation of the proposed company
  - Highlighted projects of the proposed company
  - Proposed solution
  - Need for outsourcing
  - Quality control
  - Timeline and budget
  - Questions on the proposal from EPES
  - Doubts and questions from the proposed company

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III.1 Participation data

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The **deadline for submitting applications** was the **24th June 2020** at 11:59 p.m. Then, the applications were analysed.

- 8 received proposals.
- 8 conducted interviews.
- 8 entities:
  - 4 global leading multinational companies in different business areas.
  - 2 national technological centres of reference in R + D + i.

Proposals' provenance

- 4 with headquarters in national and international territories
- 4 based in Spain

Highlights:

- Dedication and reaction time in the process
- Most of the proposals have been innovative
- Participation of large and small companies, as well as a research centre.
- Given the technical complexity of the challenge, the term granted for its response, the period of the year in which we find ourselves and the current situation we are going through, it is worth highlighting the broad response and interest shown by the market in providing innovative solutions

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III.2 General conclusions

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The participating entities **do not have immediate solutions adaptable to the situation**, so the need for some type of integration, specific adaptation and / or technological development for the execution of the project is considered.

It is an approachable challenge based on technological trends, it has a budget adjusted to its magnitude and complexity and it is formulated in realistic terms for its development.

- Companies have proposed alternatives focused on a lightweight system with the ability to measure vital signs without contact and the possibility of continuous monitoring.
- They have also proposed the interconnection with the unit's equipment, as well as with the EPES management system, monitoring centers, etc. to facilitate the decision-making process, the patient registration and the access to clinical data in real time by other professionals.
- Additionally, some entities propose the ability to defibrillate and the possibility to make predictive models that help to predict the evolution of the patient, the risk of suffering a sudden deterioration and multiple patient care.

The forms, documents and presentations have been always available in the contracting profile of the Junta de Andalucía.

III.2 Technical conclusions

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Necessary features

- Low weight.
- Contactless / wireless.
- Modularity.
- Adequate autonomy, with fast-charging replaceable batteries.
- Portability, possibility of being used as a handheld device or being shipped in remotely controlled media (UAV, UGV, USV ...).
- Connectivity with information management systems EPES-061 (including Digital Medical Record of Mobility).
- Obtaining biosignals: heart rate, respiratory rate, temperature, oxygen saturation and blood pressure.
- Redundancy in the procedures to obtain these biosignals.
- Guarantee the taking of biosignals, at least, on a subject within the field of view of the device.
- Display of biosignals on screen included in the device.
- Alarm system on the device screen in the event of biosignals outside the physiological range (possibility of colour triage in the device's graphical display interface).

Optional features

- Multitargeting (possibility of simultaneous detection of biosignals on all subjects within the field of view of the device).
- Biosignals that can be obtained with contactless sensors.
- Sending data to a remote server with processing capacity to carry out complex analysis using artificial intelligence: predictive analysis of time series through the use of prognostic scales (CIP, MEWS, NEWS, ...), automatic launch of notifications, statistics, digital assistant for the improvement of decision-making processes.
- Possibility of integration to a defibrillator equipment.
- Possibility of integration to a smartphone / tablet.
- Privacy protection.

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III.3 Early Demand Map

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Object	Maximum amount	Estimated tender
Improving the process of out-of-hospital care for individuals and collective health emergencies with light equipment that allows rapid diagnosis and initiation of treatments, with clinical safety for patients and professionals. ▪ Quality care in time-dependent pathologies and significant improvement in portability and ease of use conditions. ▪ Integrated equipment, with connectivity to the environment, data receiver and transmitter, with an additional modular tool that can defibrillate. ▪ Definition of functionalities and requirements for quality care in time-dependent pathologies.	1M€	First quarter of 2021

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THANK YOU!

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