

PROJECT COORDINATOR: EssilorLuxottica

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AMBITIONS

POPULAR aims at developing **the first generic Augmented Reality Eyewear (ARE) platform** covering the widest range of users and use cases, in professional context, leisure, or in daily life. The ordinary-looking glasses will provide **visual, wearable, vestibular, mental and social comfort**, making them suitable for all-day use, including personal ophthalmic correction, which will **enhance society and market acceptance**. Major innovations are related to compactness and invisible technology, optical quality, ultra-low power consumption and long operation times, integrating cost efficiency aspects as well. Social Science and Humanities aspects will be considered in all stages of the project by using a dual approach with an interplay between human-driven Design and multidisciplinary system engineering through iterative prototype testing, combining Human Factors (HF), User Experience (UX) and Lean methodologies. Demonstration will be achieved by **performing end-user tests with the prototypes in 3 realistic use case scenarios: outdoor sports, healthcare, and logistics**.

POPULAR project provides **a unique chance for the European industry to become a leader in the growing market of ARE**, building on its worldwide leadership in the Eyewear industry and its strong R&D and Innovation capabilities.

OBJECTIVES

- Ultra-low power (< 8mW) and high-luminance (target is 10 000cd/m²) RGB colour OLED microdisplay devices.
- High-performance holographic material and customizable holographic lens mirrors compatible with any type of corrective lenses.
- Eyewear system integration with enhanced AR performance (1000 cd/m² RGB colour), reduced size.
- Create societal acceptance and motivate stakeholders and users for adoption, reaching >80% of acceptance of potential users, including people with disabilities.
- Demonstrate at TRL5 the short-term deployment potential and scalability of the proposed solutions/prototypes validated in realistic scenarios especially in healthcare, logistics and outdoor sports sectors.

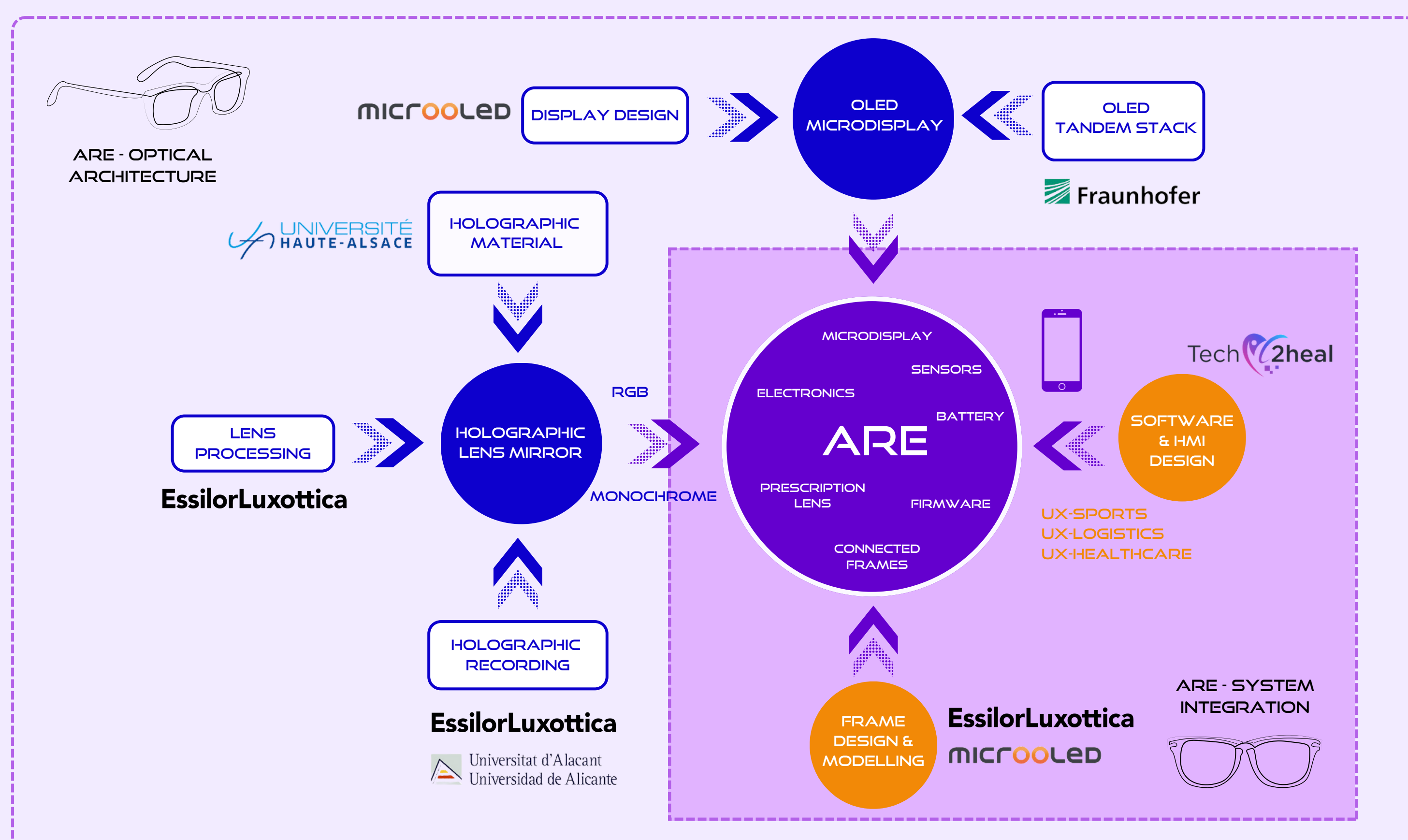
10 PARTNERS

6.3 M€

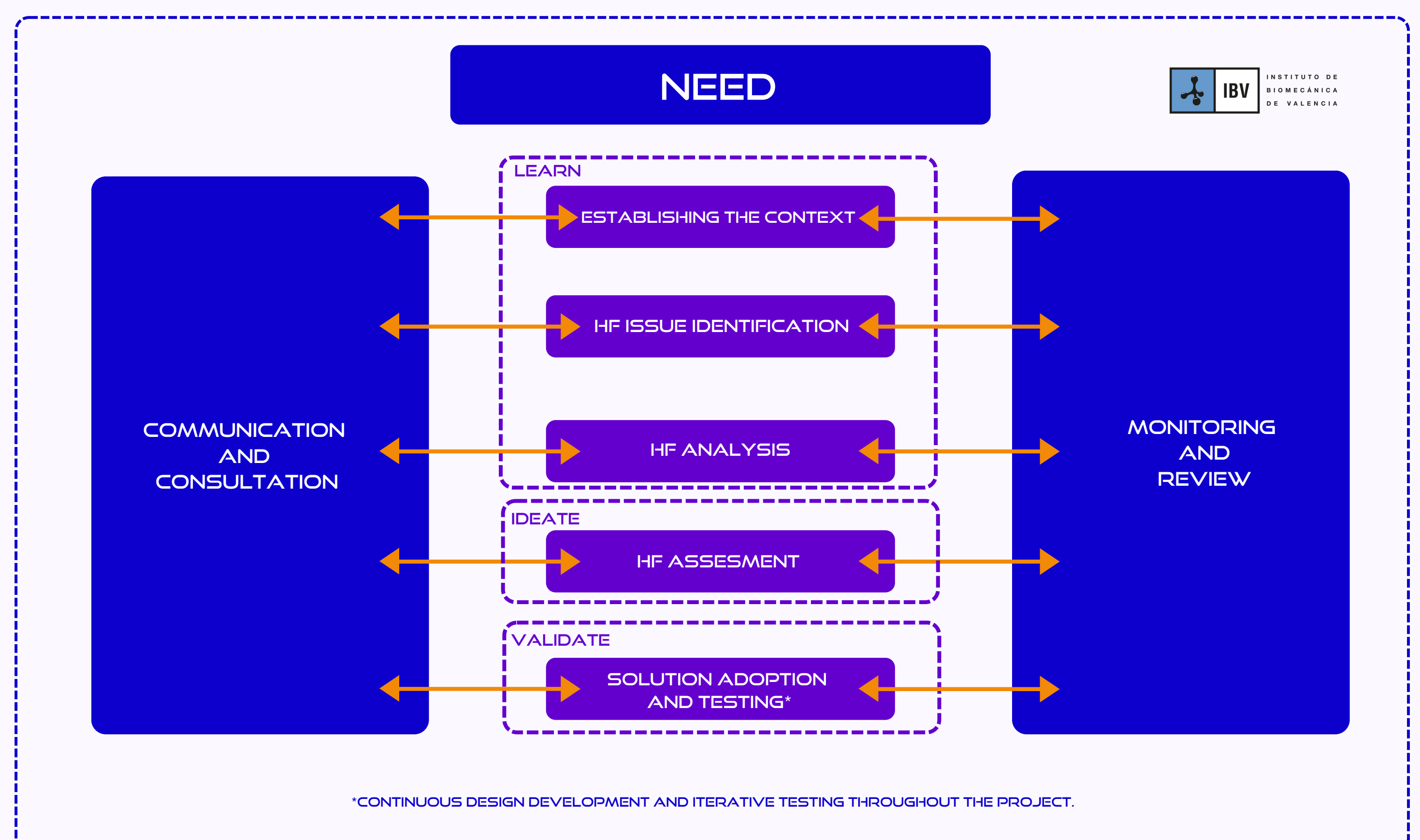
2024-2026

METHODOLOGY THE PROJECT METHODOLOGY CONSISTS OF A DUAL APPROACH, COMBINING:

1/ MULTIDISCIPLINARY AND SYSTEM-ENGINEERING APPROACH



2) HUMAN DRIVEN DESIGN AND SOCIAL INNOVATION COMBINING HF, UX AND LEAN, AND TAKING INTO ACCOUNT ALL USERS AND STAKEHOLDERS IN A WIDE SENSE.



(Jose Laparra-Hernandez et al., 2024)

APPLICATIONS

HEALTH

TRAINING IN SURGERY ROOM



SAPOWIEDZENIOWY ODRZĄDZ ODRZĄDZ
CENTRALNY SZPITAL KLINICZNY
UNIWERSYTETU MEDYCZNEGO W ŁODZI

UNIWERSYTET
MEDYCZNY
W ŁODZI

Initial Problem:

In surgical training, accessing relevant information without diverting attention from the surgical site is challenging. Traditional methods of information access can disrupt the focus and flow of procedures, affecting training effectiveness.

Solutions:

- Provides step-by-step guidance and feedback through AR glasses, enhancing the educational experience.
- Displays crucial information within the surgeon's field of vision, minimizing distractions.
- Offers a holistic view of the patient's status through seamless integration, without overwhelming surgeons.

Impacts:

- Enhances the learning experience for trainees with direct guidance and accessible information.
- Reduces the need for surgeons to look away from the operation site, increasing focus and efficiency.
- With more accurate and efficient procedures, patient care and outcomes are improved.

LOGISTICS

EFFICIENCY AND ACCURACY FOR PICKING PROCESS



Initial Problem:

Workers traditionally rely on handheld devices or paper lists for order picking, which can be slow and prone to errors. Finding the correct locations within large warehouses adds to the challenge, impacting overall productivity.

Solutions:

- Integration of AR glasses provides real-time order information directly in the user's field of vision, streamlining the order picking process.
- AR glasses display precise product quantities and locations, minimizing errors during inventory checks for more accurate stock management.
- Guides workers to correct locations efficiently within large warehouses, enhancing productivity.

Impacts:

- Reduces reliance on traditional, slower methods, significantly speeding up the picking process.
- Leads to fewer errors in inventory checks, ensuring accurate stock levels.
- With efficient navigation and real-time information, workers spend less time searching for items, increasing overall productivity.

SPORTS

ROWING TRAINING OPTIMIZATION



Initial Problem:

Athletes, especially those with visual impairments or in high-performance sports, require access to real-time performance data without disruptions. Traditional devices are impractical, posing challenges for training efficiency and inclusivity.

Solutions:

- Provides real-time data access, allowing athletes to adjust their performance immediately.
- Customizable display settings cater to athletes with visual impairments, enhancing accessibility.
- Offers tailored data feeds to improve training session quality and efficiency.

Impacts:

- Athletes can optimize their performance with immediate feedback, enhancing training effectiveness.
- Makes sports more inclusive for athletes with visual impairments, broadening participation.
- Improves safety with the potential for collision avoidance technologies, increasing enjoyment and performance in training.