MEDILIGHT: Miniaturized smart system for light stimulation and monitoring of wound healing

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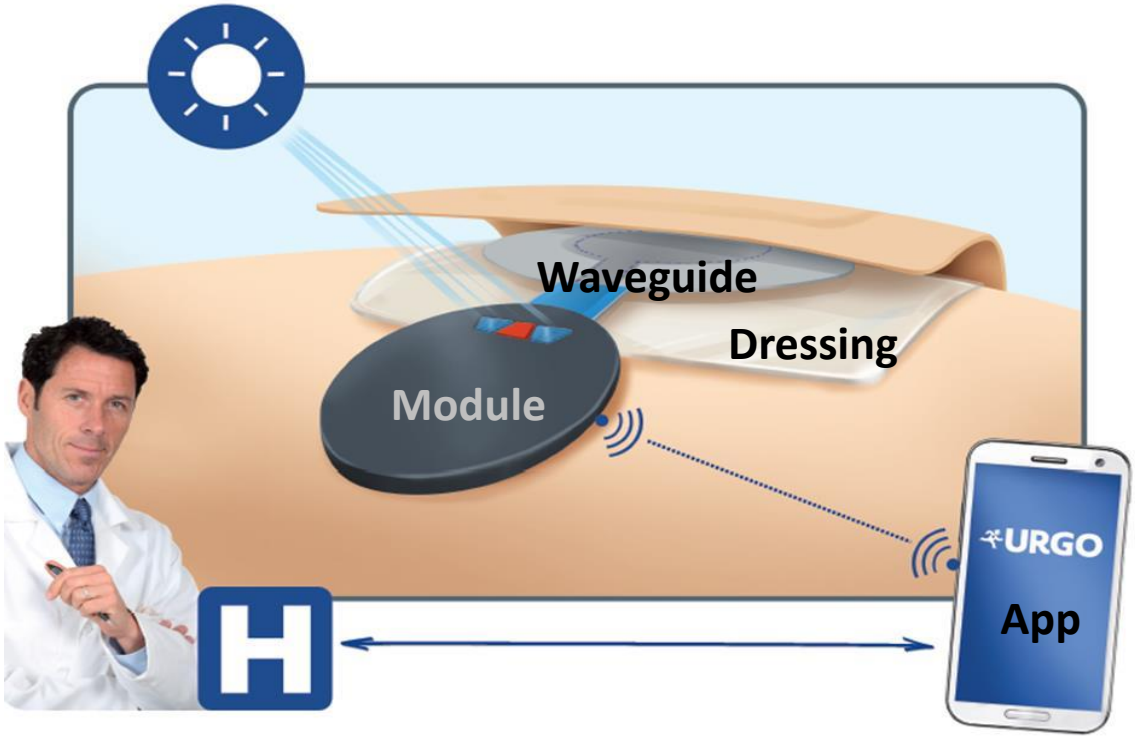
Presentation of the project's goal & consortium

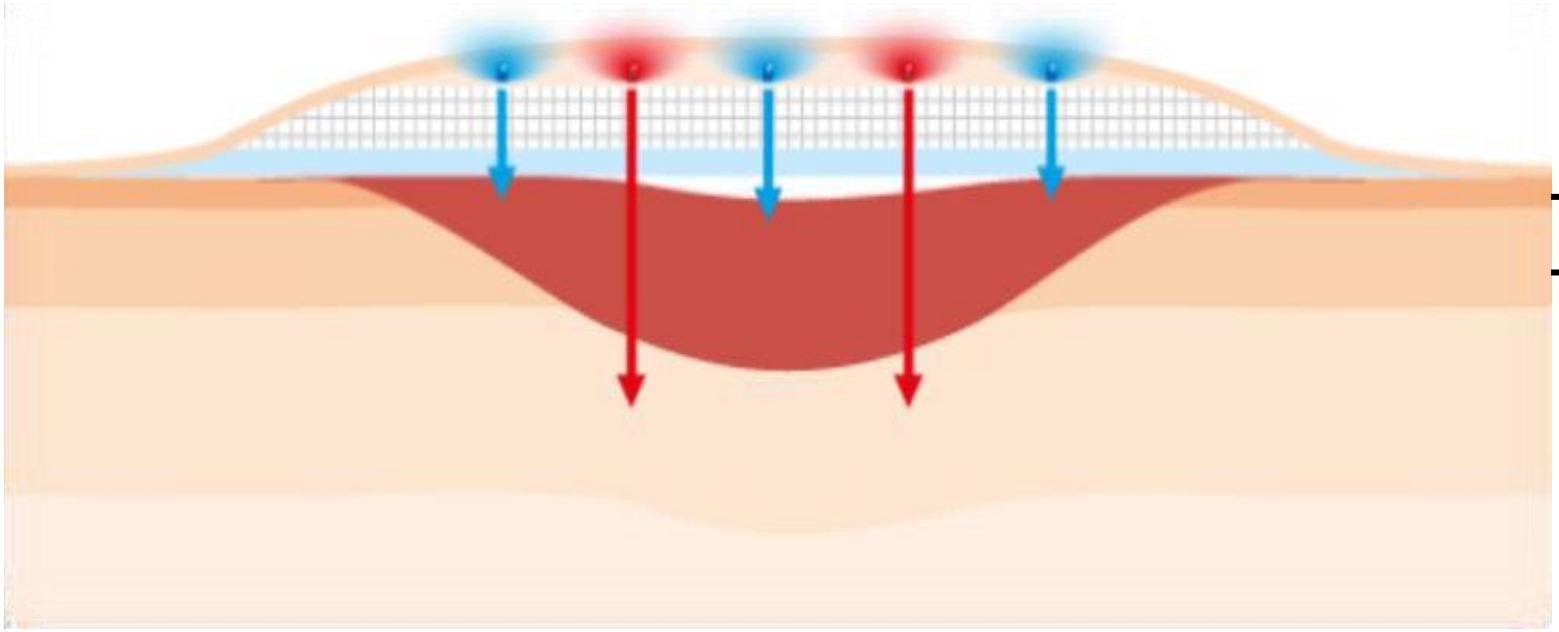


- Induction of "healing“ for chronic wounds by individualized light therapy using red and blue LEDs.
- Specific monitoring and evaluation of the healing process using sensor data from the wound area (Temperature & Oxygenation)

Partners and budget

Total Budget: 2,988,033 Euro / Max. EU Contribution: 2,485,593 Euro

MEDILIGHT – model of photonic band



Categories of healing stages

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Healing Stage	INFECTION (Bacteria)	CLEANSING (Macrophages)	GRANULATION (Fibroblasts)	EPIDERMISATION (Keratinocytes)
Purpose	Limit proliferation, virulence, formation of biofilm	Modulate inflammation mediators	Proliferation, synthesis (collagen), migration	Proliferation
Tested in our lab	Bacteria, fibroblasts and keratinocytes	Reduce inflammation	Proliferation of fibroblasts	Proliferation of keratinocytes
Light	Blue	Blue	Red	Red

In a nutshell

- Goal to be achieved:
  - ✓ Blue light for antibacterial and anti-inflammatory effect
  - Red light for stimulation of fibroblasts and keratinocytes
- Do not create an imbalance by inhibiting just one or two bacterial strains because the remaining ones can become more active through selection.

Real-world application Needs and Unique Value

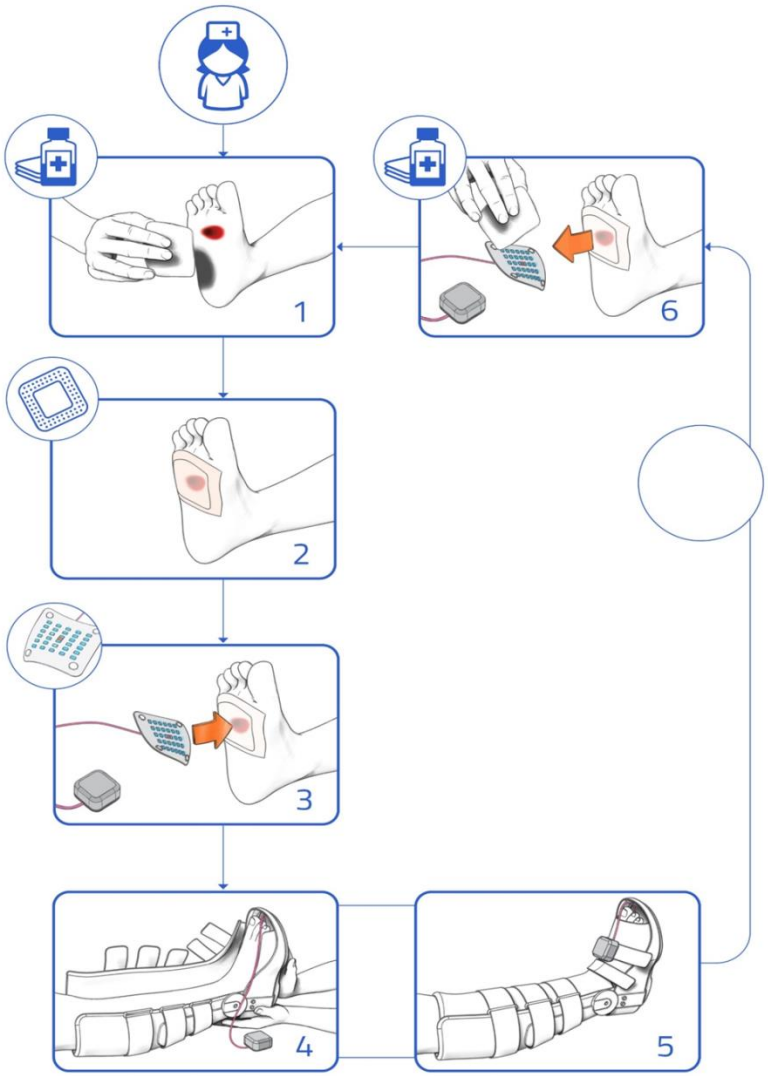
- Urgent patient needs
  - Chronic wounds = non healing wounds
    - Chronic wounds reduce quality of life and may lead to infections, amputations and even death !
    - Increasing witn ageing population.
  - Common chronic wounds
    - Diabetic foot ulcers,
    - Leg ulcers (venous stasis ulcers),
    - Pressure ulcers
  - Burns
- Contact end-users (patients) with KOL, nurses, clinical personnel
  - Capability for clinical studies in higher Developmental stages (TRL 6-7)

Diabetic Foot ulcer

Pressure Ulcer

Venous Leg ulcer

Real-world application Needs and Unique Value



- Urgent Caregiver needs
  - efficient for all healing stages
  - Heal wounds faster
  - Safe treatment
  - Easy to handle (nurses/patients/doctors)
  - Flexibility for patient's everyday life
  - Saving time and money

Innovation process & Technology Translation

- Our wish is to implement MEDILIGHT product as a disruptive technology that could address all healing stages (infected or not infected) (All-in-on product)
- The targeted market is the global market. Profitable market perspective in western countries is expected through public and private health care systems and private patients in emerging countries.
- We believe that MEDILIGHT will create a strong technological platform that could lead to several « product generations » in the future (Product diversification based on LED cycle, treatment etc.). For URGO, this project fits into the internal strategy to increase the market shares and to maintain its global competitiveness.
- **Road to technology translation and partners enabling this:**

  After MEDILIGHT:

  Electronic Module:

  - (1) Microsemi or other EMS to fabricate the electronic module (for TRL>6)

  Photonic part:

  - (2) CSEM transfering light source technology to a main flexible manufacturer (e.g Contaq, ANDUS, Flextronics, etc.) to fabricate this part of the product
  - (3) URGO to integrate the light source on the patch
    - URGO's subcontractor for the sterilisaton of the patch

  **It will be possibly explored by URGO to undertake also step (2) and in this way control the whole disposable part, influencing significantly the value chain.*
- What investment is needed for TRL>6: An estimate number will be provided in the oral presentation.

Innovation process & Technology Translation

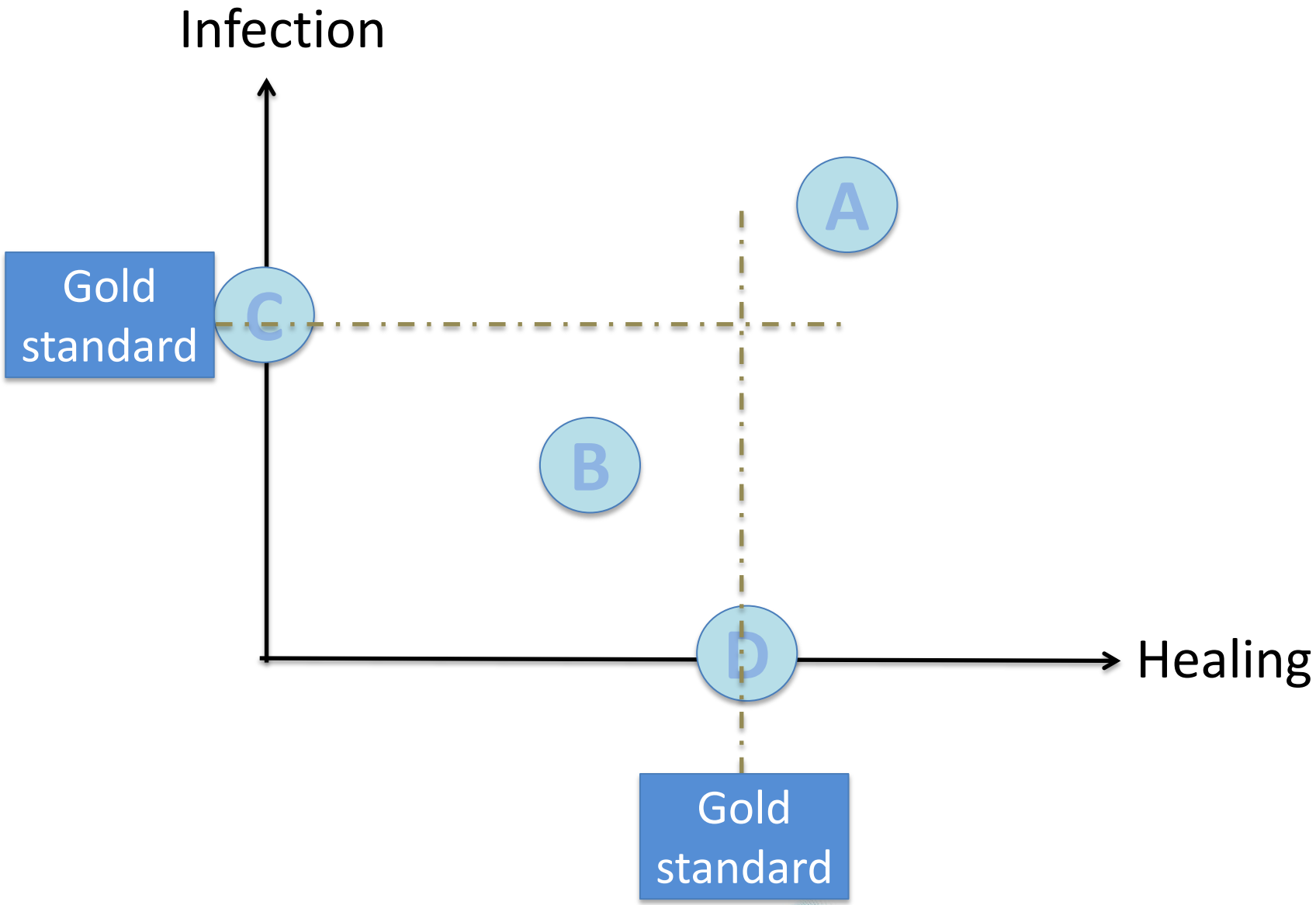
A New Industrial Transposition Unit in 2013

A few figures

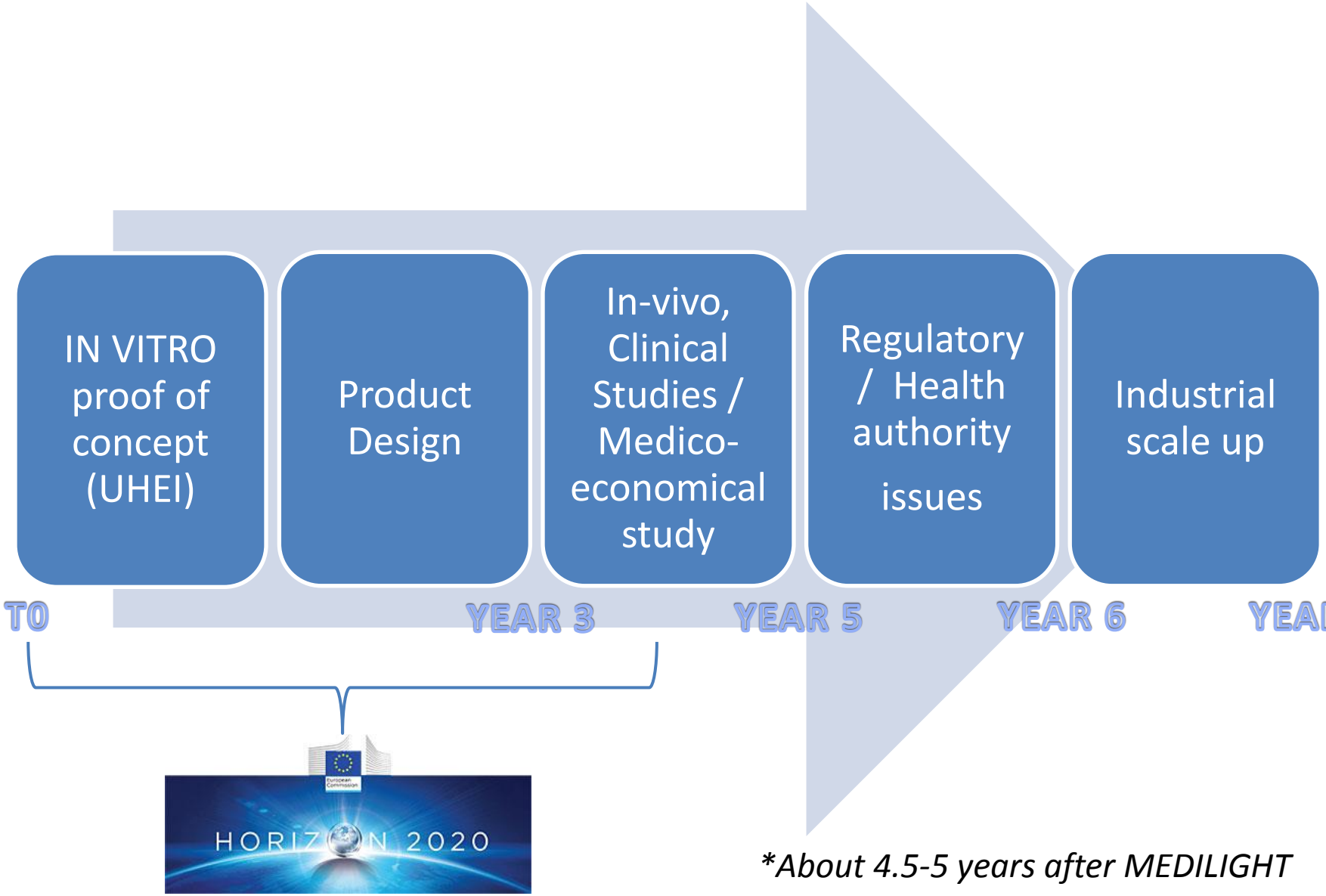
- A dedicated industrial area of 1,400m² for prototype manufacturing
- A « bridge » facility between R&D (TRL:2-5) and the main URGO's manufacturing facilities (TRL:9)
- Demonstrators for Medilight and later for the clinical studies (TRL 6-8)
- A global budget of 7,5M€
  - 3,5M€ dedicated to construction and renovation of the building
  - And 4M€ dedicated to mechanical devices

- A dozen people dedicated to this industrial unit
  - 6 engineers, 6 technicians

Road to Exploitation leading to flagship products



Road to Exploitation and distance to the market



*About 4.5-5 years after MEDILIGHT

The following additional issues considered:

IP

- A bilateral collaboration between a research entity and an industrial entity of the consortium resulting in a co-ownership contract and patent to protect the results coming from this H2020 project.
- Does your consortium have already an agreement for the exploitation of the IP after the project?
  - Consortium Agreement has been done

Manufacturing

- Do you know who and how can be manufactured all the components of your systems?
  - Urgo converting and assembly into plasters
  - A preliminary plan has been drawn in Foil 8

Access to the market

- Does any of the partners in the consortium has direct access to the intended market?
  - URGO has direct access to the Advanced Wound Care Market

THANK YOU FOR YOUR ATTENTION

http://www.medilight-project.eu/

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