

# ENERGIA

Design for evolving  
scenarios

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# d=.light



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Innovation Studio PS2, a.y. 2022-23

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# 01 Team



## F.A.M.O.S.A.

### / Who we are

F.A.M.O.S.A. is a group of six designers. We are a multicultural team with members from five different countries, three continents and four languages. This cultural mix allows us to develop projects with diverse visions, create interesting workspaces, and most importantly emphasize the unique value that each professional can bring.

#### **ANNIS ALFANSI**

User Experience Designer

#### **MARCO BIFERALE**

Product Designer

#### **FERNANDA DIB**

Business Administration / MA Innovation and Design

#### **STEFANIA MARIANI**

Product Designer

#### **OONA O'BRIEN**

Experience and Communication Designer

#### **ANGELICA RODRIGUEZ**

User Experience Designer



# 02 Scenario

## In 2030, darkness awaits...

### / Institutionalized black-outs during transition to renewable energy

In 2030, the pursuit of net zero carbon emissions, coupled with the 7th Sustainable Development Goal (SDG), has led to the rapid development of the world's energy infrastructure. Italy is transitioning from fossil fuels to completely renewable energy sources. While renewable energy is better for humanity in the long term, this transition is not without risks; weather-dependent energy sources such as winds or water add the risk of unreliability, especially when we factor in uncertain weather conditions due to climate change. It takes a massive grid restructuring for these sources to be reliable. During that transition, energy supply and demand would be the most volatile.

This transition also causes energy prices to increase by 20% while energy demands double. To maintain sufficient energy savings to meet consumers' demands, the government introduced an **electricity ban for households from 10 PM to 6 AM every day**. The aim is to abolish the environmental issue of light pollution at night and reduce unnecessary power consumption during a timeframe where electricity demand is at its lowest.

## / Drivers of Changes

This scenario is based on several ongoing phenomena as of 2023. These are the drivers of changes.

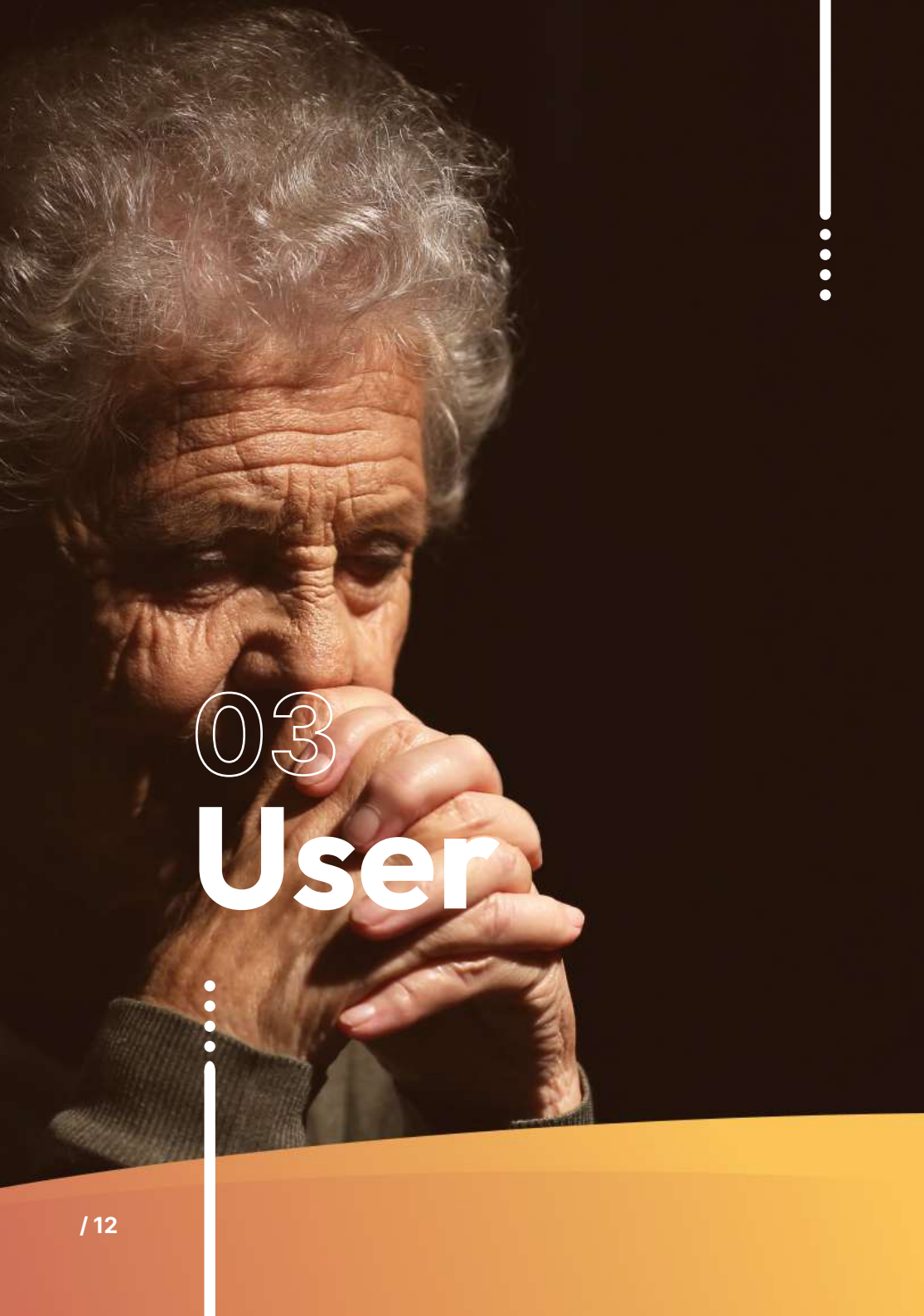
- ↗ Energy consumption will be 2.5x higher (IPCC)
- ⚡ Weather-dependent energy sources increases the risk of blackouts (Forbes, 2021)
- ⊘ France braces for power outages as nuclear group EDF struggles to meet demand (Reuters, 2022)
- 📺 UK households could experience three-hour power cuts this winter (Guardian, 2022)
- ☀️ European Union adopts new guidance to reduce light pollution (Environmental Protection, 2019)
- 💡 Lighting accounts for 12% of global electricity consumption (Electrical Review, 2022)
- 📡 Electricity prices rise due to energy shortages (The Local IT, 2022)
- 🏠 Lower income households put at risk by net-zero transition (McKinsey, 2022)
- 🔌 Cyber attacks poses a threat on national electrical grid (US Government Accountability Office, 2022)



💡 **During the power outage, light is the most pressing issue. Lack of access to light is a matter of safety.**

How might we empower people to generate light for themselves during the power outage?









# 03 User

/ In this scenario,

## The elderly would be the most vulnerable.

Older people (**70+ y/o**) are the ones who are **most affected in our scenario**, due to the number of elders expected to increase by 22% by 2050 (WHO, 2006).

For the elderly, the lack of light is not just a convenience; it can be a matter of life and death. The following factors make them more vulnerable:




-  **Decreasing eyesight**  
Their ability to see has decreased, especially in darkness.
-  **Lack of balance and fewer reflexes**  
If they trip in the dark, they have fewer reflexes to stay on their feet.
-  **Risk of falling down**  
For elderly people, falling down can lead to serious consequences.
-  **Higher frequency of waking up during the night**  
Older people tend to wake up more during the night, thus they frequently need light to navigate.

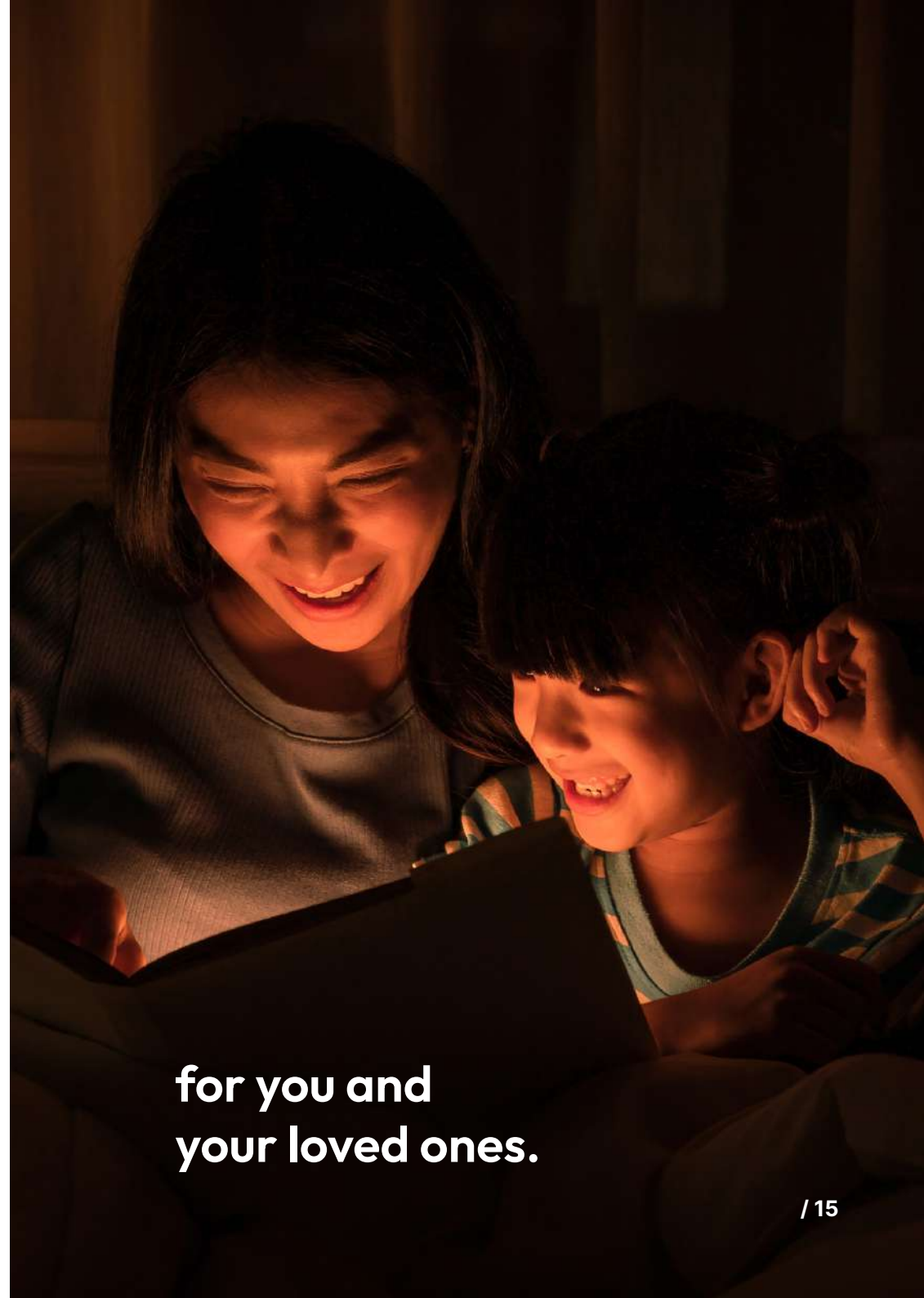
Not just for the elderly,

## It's for everyone else too.

While the lack of light is potentially dangerous for the elderly, it is a significant problem for everyone. Adults, teenagers, and children would also benefit from an alternative source of light to navigate the daily black out.

The following aspects are the value propositions for the secondary target users:

-  **Better convenience when navigating in the dark**  
Having to use secondary devices to hold in your hand limits your movement.
-  **A convivial and comfortable atmosphere**  
An alternative light solution can create a comfortable, calming atmosphere that helps them cope with darkness.
-  **A seamless light system that's a part of your house**  
Instead of relying on different types of devices that can fail them, they would benefit from a set of light that can accommodate them wherever they are.



**for you and  
your loved ones.**



04

# Product

## Our concept

### / Introduction to the product

De-light is a project that seeks to provide support through lighting, with the aim that users can perform activities such as moving safely within their homes in a scenario of complete darkness.

Using the existing infrastructure of the house, we have designed guiding lamps with a design that fits any wall. Arranged in patterns that easily adapt to various decorating styles, the design promotes a modern, minimalist aesthetic to the home.

These lamps allow users to create patterns which form a luminous path that connects the rooms in their home. This allows the users to move around without the need to carry lights themselves or rely on classic household lights.

# Interaction

## / User - product

The user's interaction with the product first happens on the wall. The lamps and the electricity source are linked together by conductive ink, which in addition to conducting electricity, is a proximity and touch sensor.

When the users wish to move around, they will activate the product by touching a section of the wall which will be the input. The lamps close to them will light up. As they walk, the lamps nearest to them light up as well. This will generate a luminous movement that will accompany the user in his trajectory.

This fractioned illumination is due to the proximity of the user to the conductive ink, without the need for constant direct contact between the hand and the wall.



# Conductive Ink

## / Connection System

The conductive ink has two main properties. The first is to generate the electrical connections between the electricity source and the lamps. This conductive ink, being of watery consistency, works like a paint and can be placed under wallpaper or paint on the walls without losing its functionality. This replaces the electrical wires of traditional circuits. The second property is to activate the system and the illumination of each lamp given that the ink also functions as a touch and proximity sensor.

This material does not interfere with the design or texture of the walls, as it is imperceptible. Furthermore, as it is placed on the wall just like traditional paint, it allows the lamps to be placed more freely on the wall, without the need to create holes for the electrical connections.





## / Touch sensor to activate the system

As mentioned before, the first interaction takes place when the user wishes to activate the entire system. The user must touch a delimited area of the wall. This area is covered with conductive ink which acts as a touch sensor, generating the input that will power the system.

To delimit this contact area, the same international design parameters used for the layout of the switches will apply. These standards allow the user to identify more easily where the activation area is located, as they can subconsciously associate the location of regular switches with the activation area of the product.

According to international standards, the switches must be located at a height of 130 cm from the floor and 15 cm from the door frame. The activation zone has been delimited based on these measurements.

The layout of the activation zone will depend on the user's conditions and requirements. However, certain measurements and specifications were defined to offer a standard activation. This will allow for a more comfortable interaction for all types of users, and, at the same time, save as much as possible on any installation costs.

In summary, the activation zone shall be placed at the beginning and end of the light pattern, at a height ranging from 30 cm to 130 cm above the ground.

The activation area appears as red on the picture.

## / Proximity sensor to allow the light to move

The ideal height at which the light patterns are arranged on the wall will depend largely on the user's requirements and height. However, some standard sizes have been determined to maximise the brightness of the product and facilitate interaction with the user. The light pattern should be arranged at a height ranging between 130 to 170 cm from the floor. This area appears as orange on the image.

Therefore, the area of interaction with the proximity sensors should be placed below the light pattern: from the bottom of the wall up to 130 cm.

The proximity area appears as yellow on the image.





## The lights



### / Design description

The design of the light allows users to feel that they are being guided along a safe, continuous path.

The design of the flat ellipses provides users with intense illumination while at the same time generating a minimal visual impact on the walls of the home.







## / Design inspiration

The inspirational work to achieve the final shape focused on three main areas: art, nature and design patterns associated with guidance. The aim was to explore the different compositions of figures and shapes to understand how they create larger patterns as a whole.

### Art

The inspiration focused on the brushstrokes on the canvas and how each one contributes to movement and synchrony. It was also inspired by modern art, in which the composition of different pieces communicates aesthetically with each other.

### Nature

The inspiration came from endless organic movement: the water cycle, the formation of mountains, nature trails, the growth of trees and the movement of stars and planets. These movements highlight the constant flow that allows the user to move forward without interruption.

### Guidance

The inspiration focused on using icons and various shapes to help users navigate. One specific case of inspiration was how through tactile paving, it is possible to guide blind people on the street.

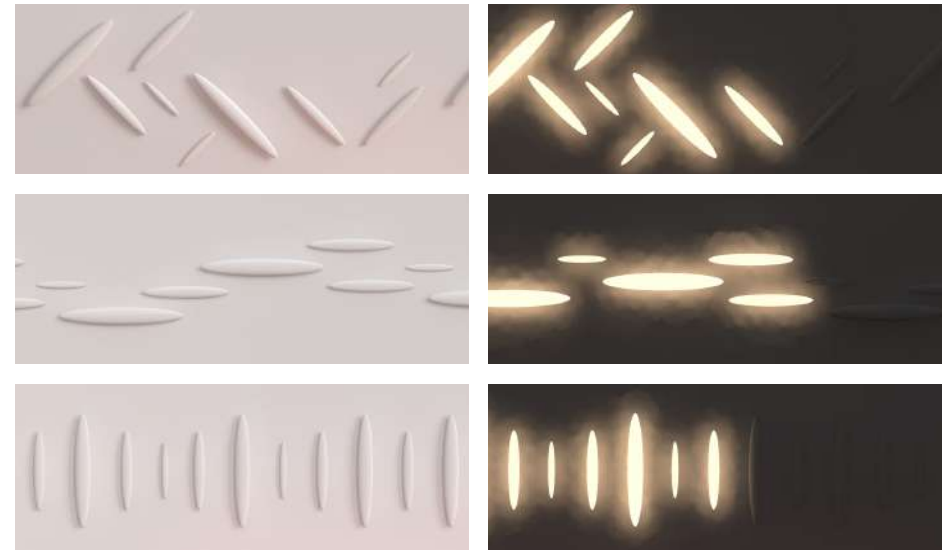
# Patterns

## / Three lights, three possibilities

In order to create a visually appealing pattern, three sizes of lights were designed. Each size contributes to the feeling that the final composition has an organic movement and flow.

De-light seeks to reach different users, understanding that each has different tastes and preferences. For this reason, the product cannot be placed on the walls with the same pattern in every home. Each of these designs creates the sensation that the user is guided along a light path and generates the necessary brightness to illuminate the spaces, creating a safe environment for movement.

Limiting the options to these three patterns will make the installation process easier and faster, optimising time for the technician and the user. In addition, it simplifies the process of choosing a design according to the user's home.





## /n.1 Wave



The first pattern is inspired by the multiform composition of nature, composed of diagonal, continuous and flowing lines. This gives the feeling that everything is connected.

This design focuses on the Gestalt theory, where the human brain tries to simplify images consisting of several elements, arranging each part with the aim of creating a whole, rather than several disparate elements.

This pattern does not conform entirely to a symmetrical order, bringing fluidity and originality to the home's design.





## / n.2 Earth



The second pattern is inspired by the horizontal line and how it creates a sense of continuity and movement. Inspired by the patterns of tactile paving, the line is the main element that guides the user along the wall.

The different sizes of each lamp break the monotony of a regular line, generating a harmonious flow for the eye.

In this design, the user navigates with the product without generating any vertical “visual break”.





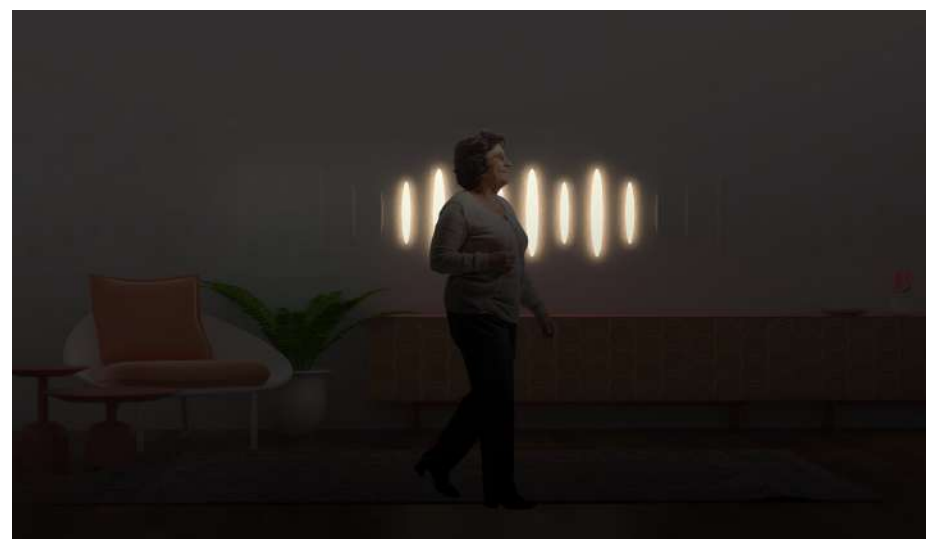
### / n.3 Sky



In this third pattern, the design was inspired entirely by symmetry. Vertical lines arranged in a visual balance create a rhythm as the user moves alongside them.

This verticality creates a sense of movement due to the different sizes of each light.

In addition, this verticality is based on the growth of trees and how they project a sense of protection and welcoming for people. These are some of the values of De-light.







## / Lights number according to the space

We decided to operate within a 3m-long area of action on the wall to optimise the luminous efficiency and the costs of the installation process. Each pattern will be formed within this area using a specific number of lights.

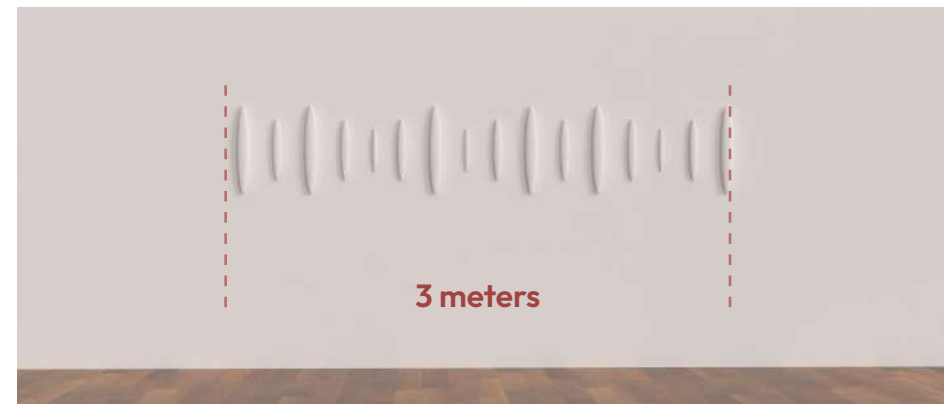
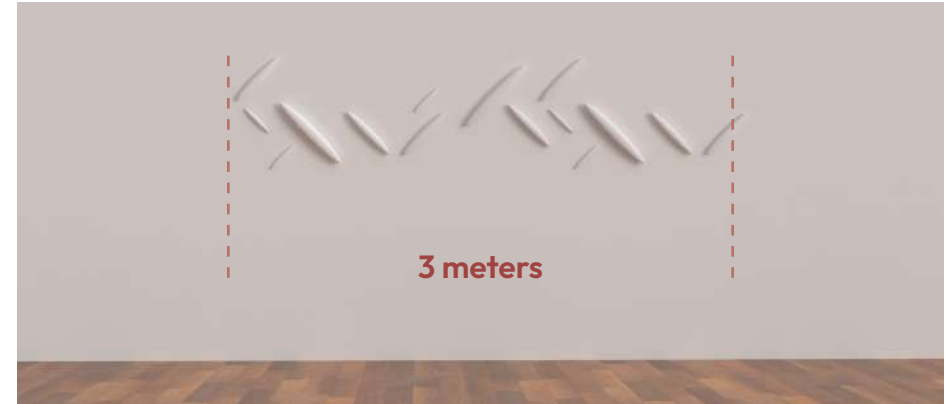
For the Wave pattern (pattern n.1), 15 lights are required for a 3m area.

For the Earth pattern (pattern n.2), 11 lights are required for a 3m area.

For the Sky pattern (pattern n.3), 16 lights are required for a 3m area.

According to the user's actual wall size, the number of lights required will be adjusted based on the one set by the 3m wall standard.

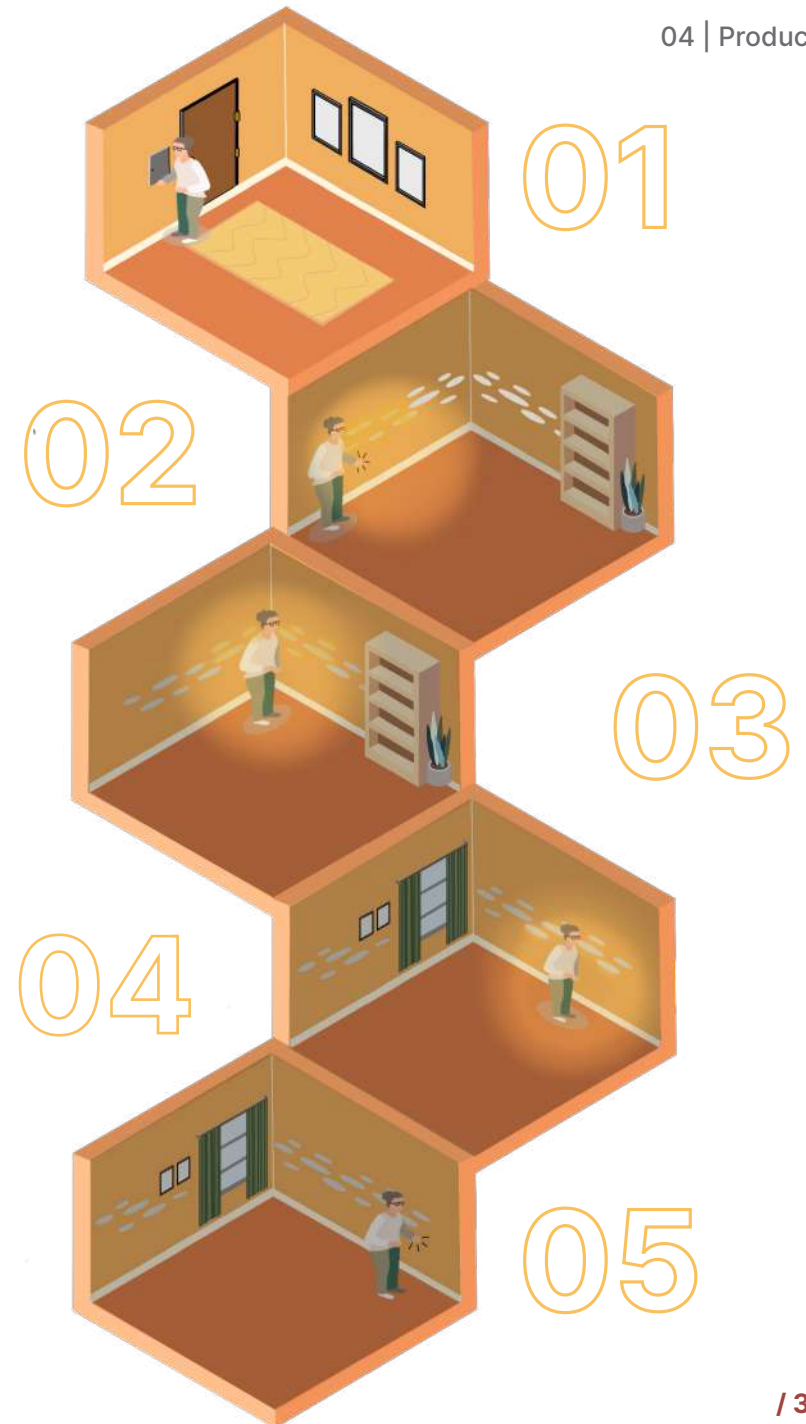
These standards will help to establish the final price of the product.



# Functioning

## / How does it work?

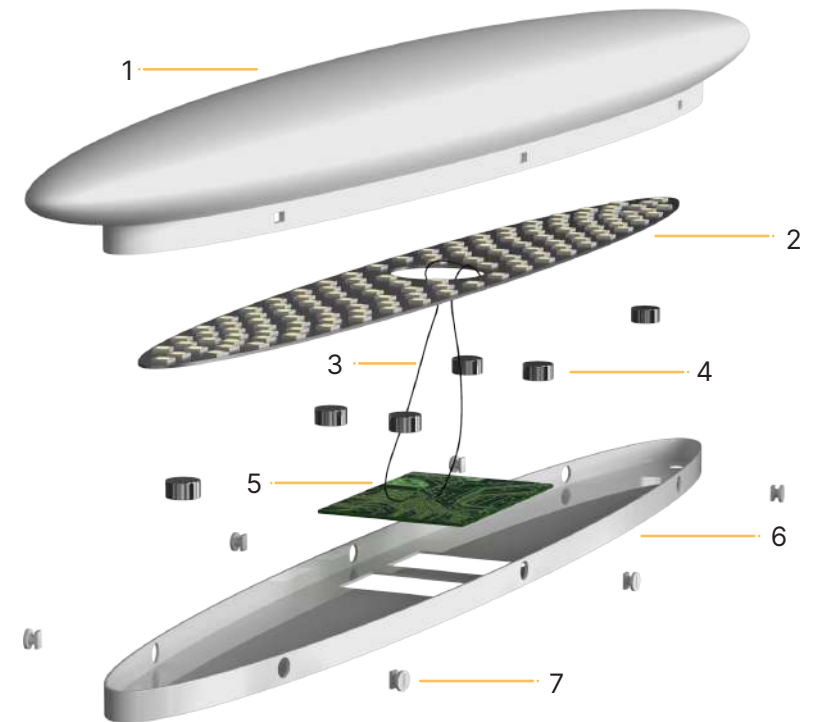
- 01 The system is electrically operated thanks to a battery that immediately provides energy after a power outage. This battery will be located close to the home's electrical panel.
- 02 To activate the system and start using De-light, a first interaction is required: the user must touch a section of the wall containing conductive ink that functions as a touch sensor to allow electricity input to each light.
- 03 After this first interaction, the user can start moving immediately. As the conductive ink acts as a proximity sensor, every light is turned on as the user approaches. The light can move gradually between the lamps because of the function of the motherboards inside each lamp. This illumination generates a safe and continuous movement for the user.
- 04 As the conductive ink is positioned easily under the wallpaper or paint, the ink can electrically connect all the walls of the home without the need for major structural interventions. In case the user decides to move to another room, it is not necessary to re-activate the system (by touching the wall).
- 05 To turn off the lights, the user simply touches the wall again, which will discontinue power to the system.



# Components

## / Materials

The materials used for the lamps were chosen according to their white color, but also their robustness. It was also important that their texture didn't interfere with the aesthetics of the home spaces.



	Component	Material	Function
1	Dome	White PMMA	Protect
2	Led panel		Illuminate
3	Cables		Connect
4	Magnets	Steel	Join
5	Motherboard		Communicate
6	Base	White stainless steel	Fix
7	Bolts	White stainless steel	Join

# Prototype

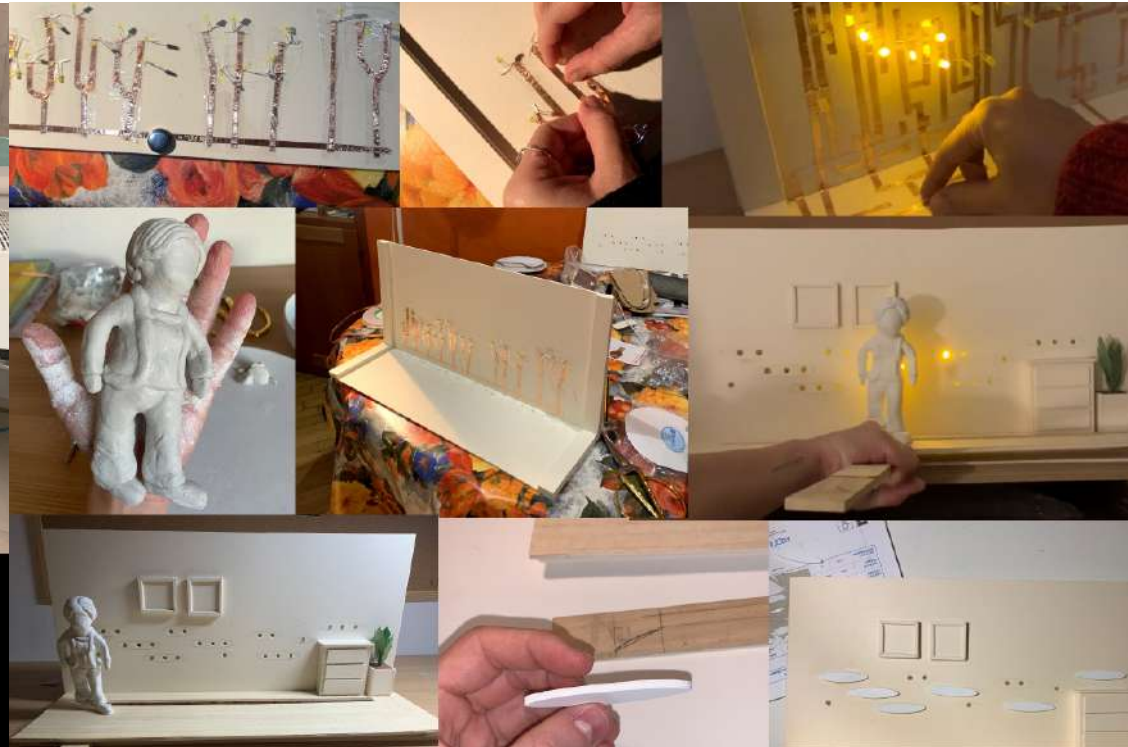
## / Light

The lamp design process started by making the case of the light. For this, we decided to use a sheet of glycolized polyester (PETG) and thermoform it. For the thermoforming mould, a block of industrial Ciba Necuron was carved by hand. For the base, a block of wood was carved with tools to give the curvatures and later to define details by sanding by hand. Finally, PETG was used to close the base. Inside, LED lights were placed to illuminate the prototype.



## / Mock-up

The model was created with the aim of showing the light interaction between the user and the system. Vegetable cardboard was used for the model. To create the conductive system, we used self-adhesive conductive tape and a battery. LED lights were utilised for the illumination. Finally, a block of clay in the shape of a person was manually modelled to represent the user.







05

# Service

## Our Service

### / The purpose

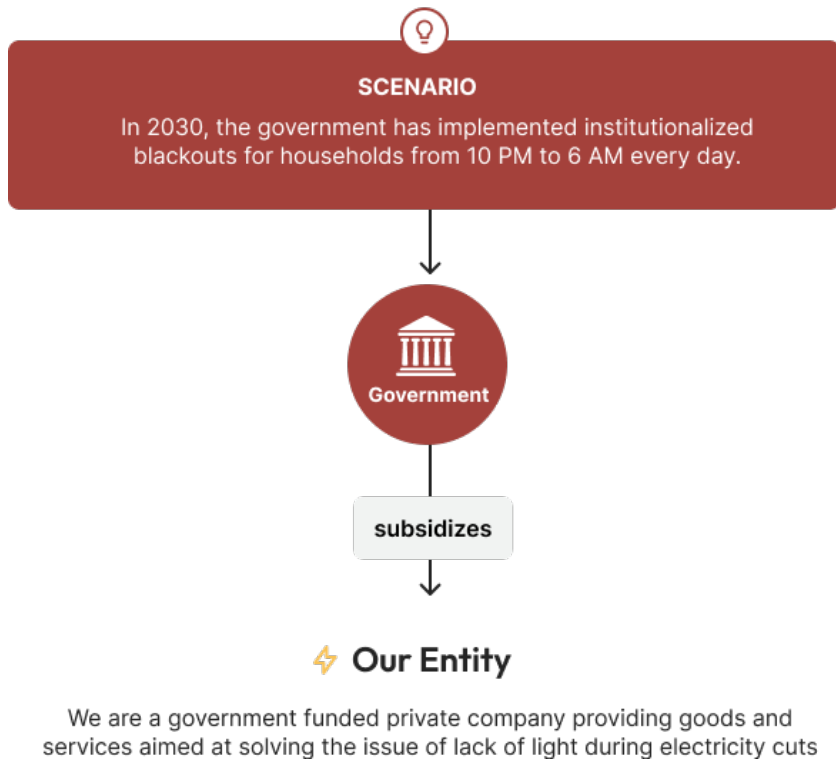
De-light's service aims to provide the customer with a streamlined experience tailored to its needs. It focuses on every detail of the installation process, so the customer can sit back well informed and enjoy not only the best product, but also the best support system.

In this chapter, we will walk you through the different steps of the service, how it works and operates and who are the involved actors.

# Legal entity

## / Fundings

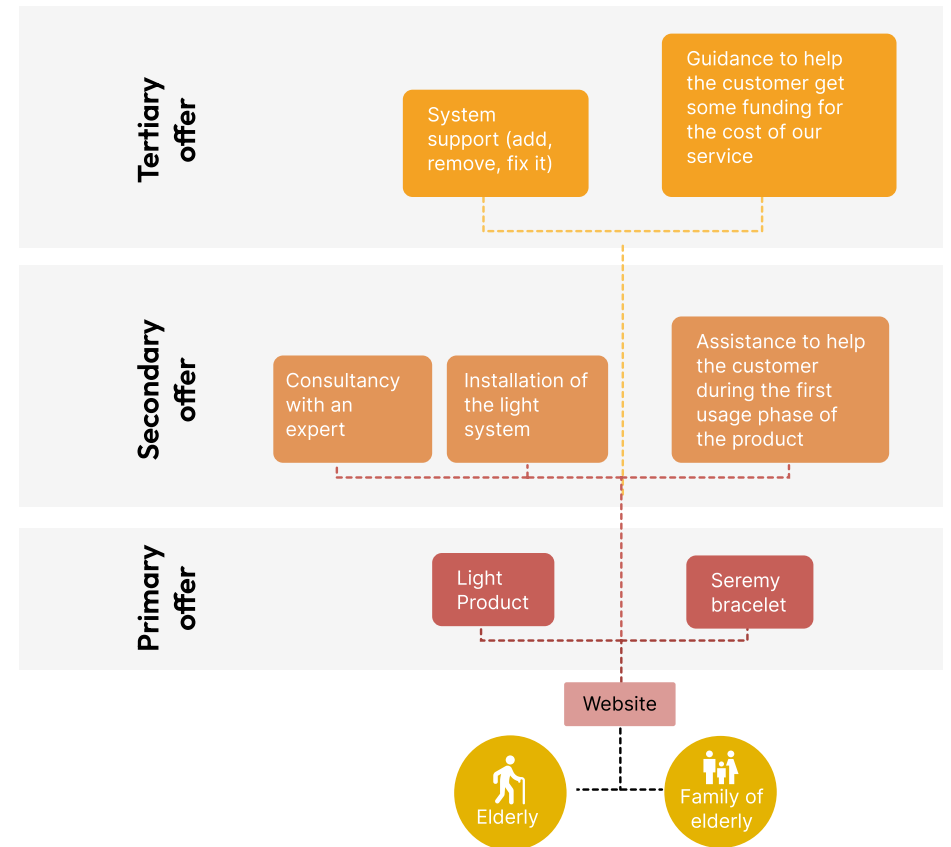
Based our futuristic scenario including institutionalized black-outs, it became clear that larger entities also needed to play a part in the problem solving. It therefore makes sense for De-light to be a government funded company, benefiting from this support through state programs aimed at reducing the issues caused by forced black-outs.



# Offering Map

## / Prioritization of offers

De-light provides customers with three different levels of offering based on how relevant they are to the customer's needs.





# Stakeholder Matrix

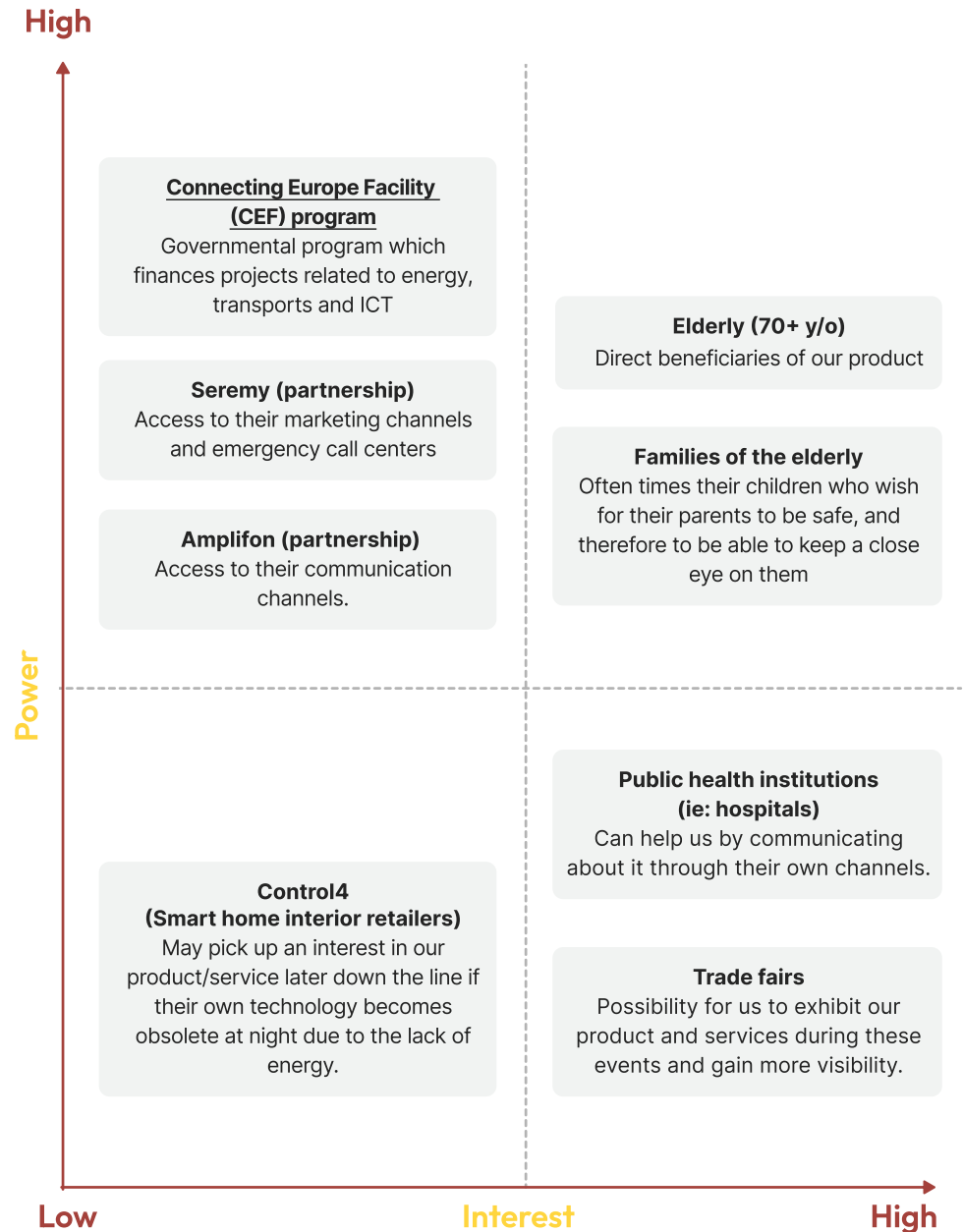
## / System's Key Stakeholders

This map hierarchizes the different stakeholders involved in our system according to their level of interest and power.

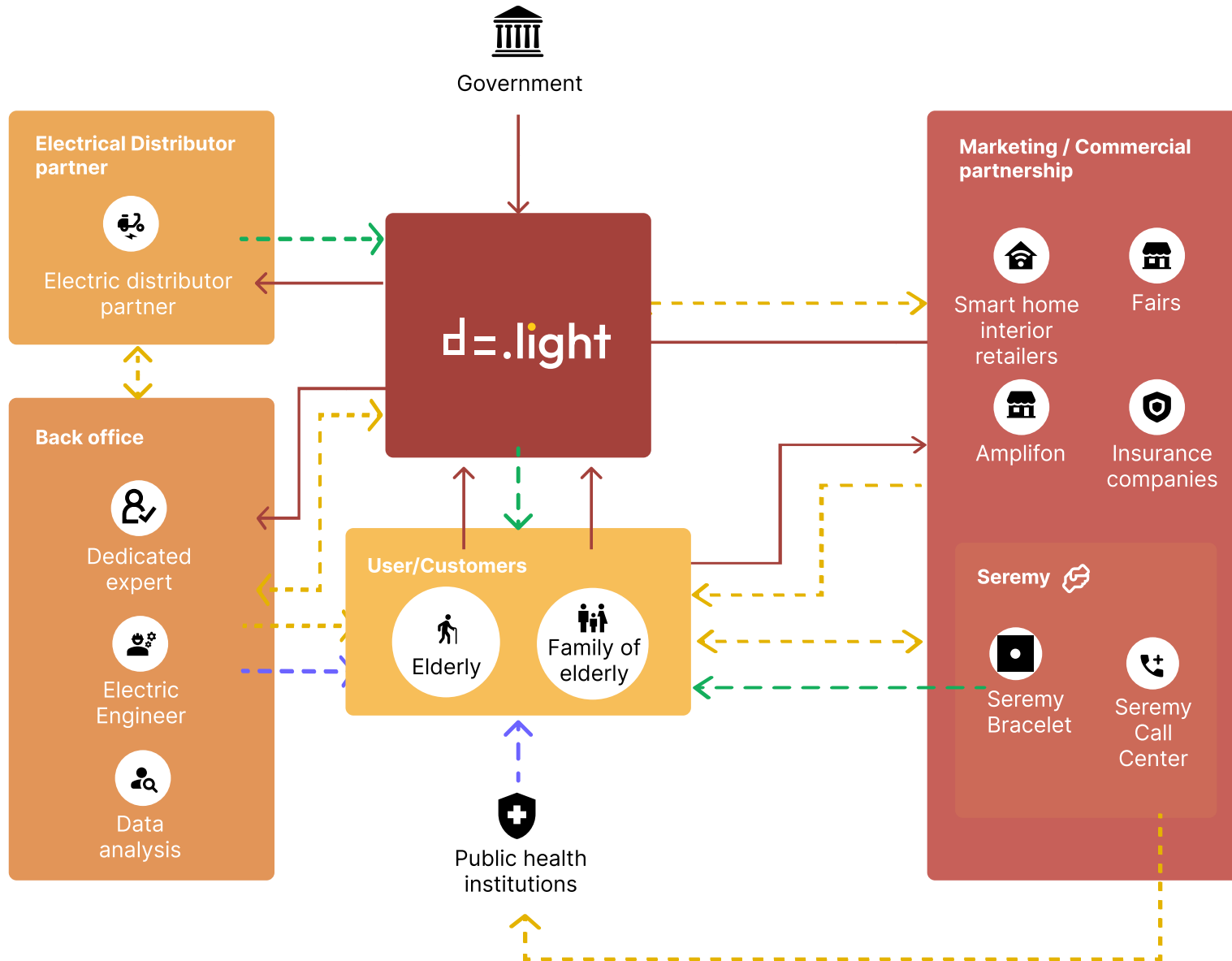
The bottom left quadrant displays stakeholders with low interest and low power over our service (such as smart home companies who might be interested in us if their business model deteriorates because of blackouts), while the top right quadrant shows stakeholders with high power and interest (typically our target audience).

The bottom right quadrant shows stakeholders which would display a high interest in our service but have little power over it (hospitals and trade fairs are both interested in what we offer but don't have much influence over whether or not our product will succeed).

Finally, the top left quadrant shows entities with high power over Delight and little interest in acquiring it. The government and key partnerships such as Seremy and Amplifon will help to promote our service but are not our main purchasers.



# System Map



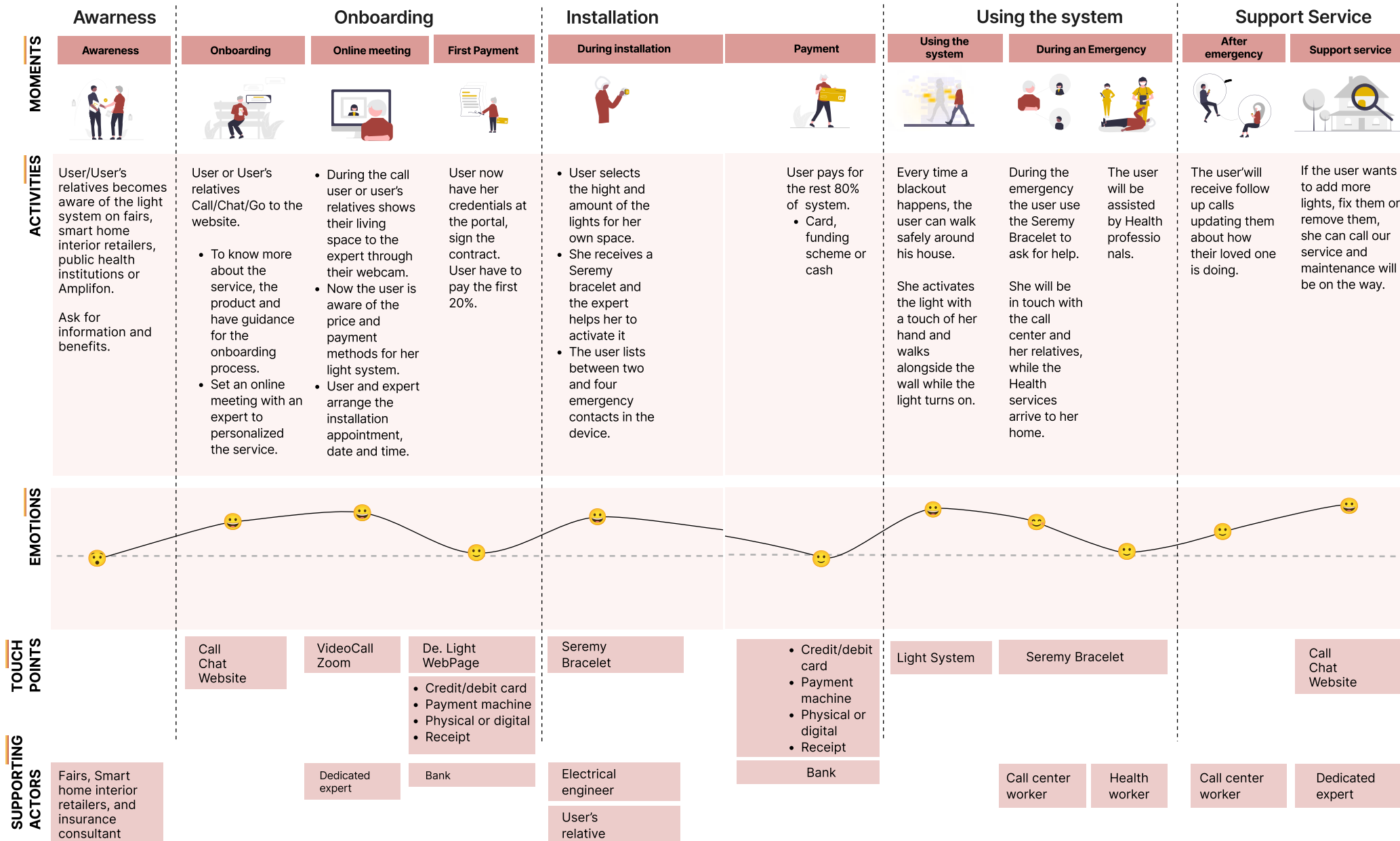
- - - - - → information flow
- - - - - → material flow
- — — — — → money/credit flow
- - - - - → space flow

The stakeholders are divided into four groups.

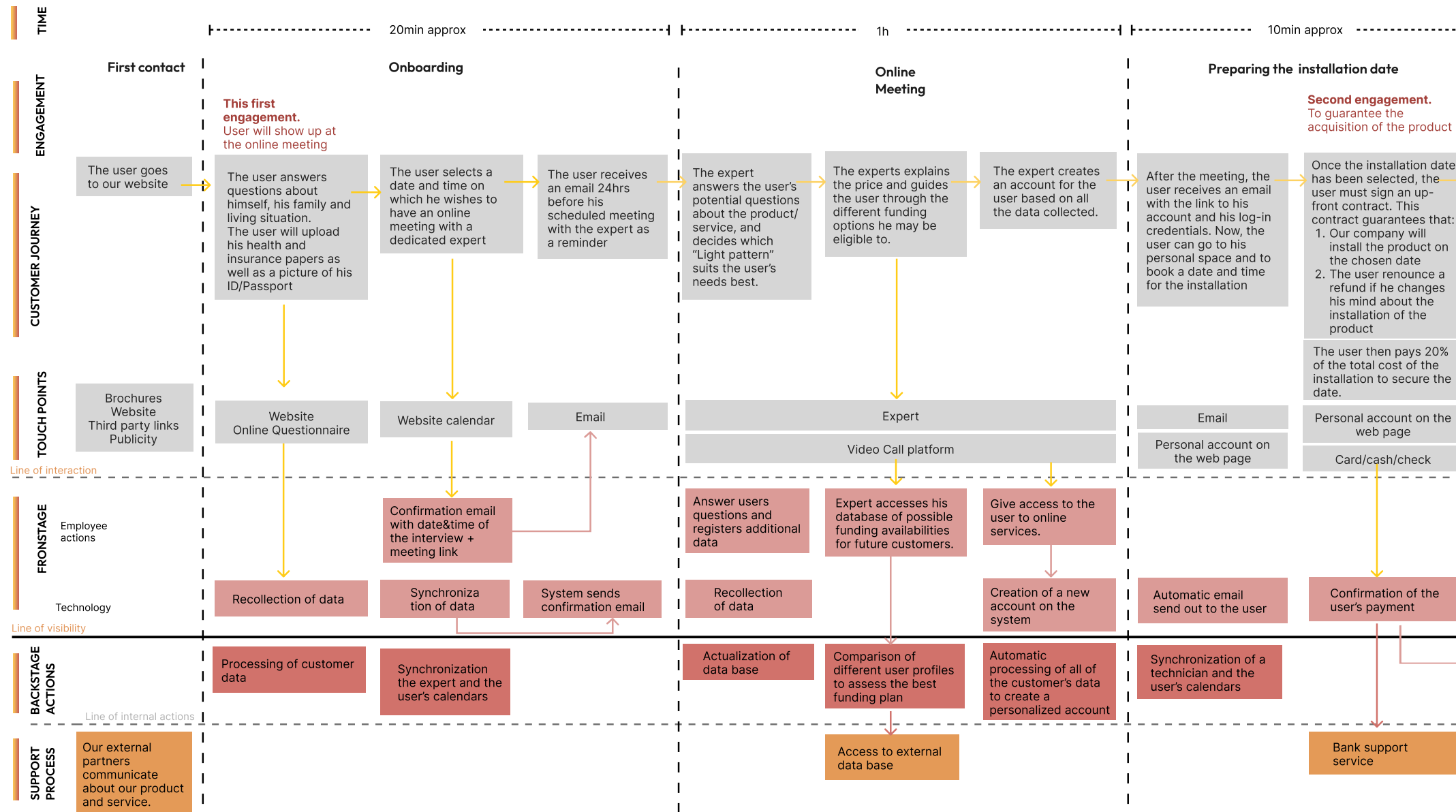
In the center are the users. On the left is the internal De-light team, together with a technology partner.

On the right, is a group of marketing-focused partners. Within this category, there is Seremy, the most important strategic partner for De-light.

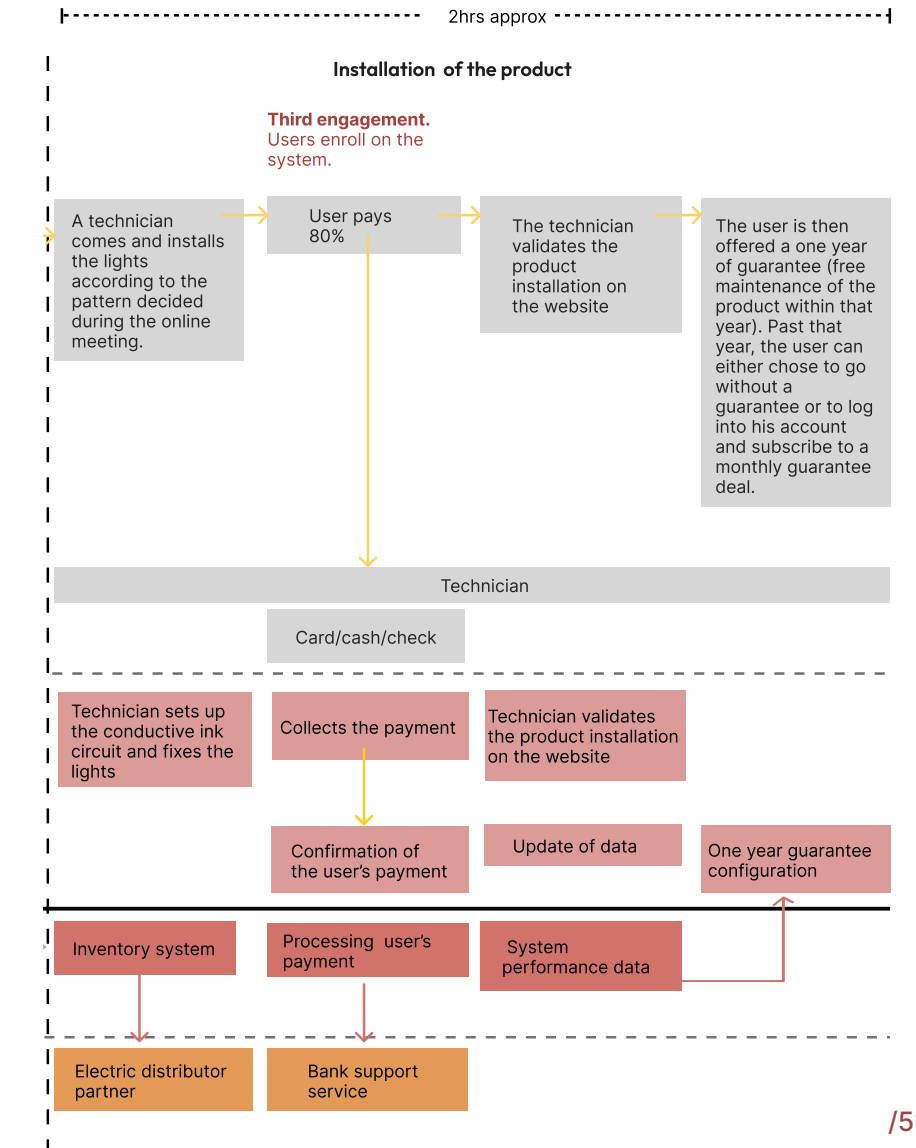
# Journey Map



# Service Blueprint



The service blueprint is a zoom into the user onboarding process, with special emphasis on the points of engagement involving key resources.



06

# Branding

d=.light

see beyond.

## Brand definition

/ Di'lait /

We are here to bring **light** and **delight** to people's homes. Energy crisis is terrifying especially when you are elderly; we'd like to give them hope that life can be delightful once again.

### SAFETY

We help users deal with emergencies and feel safe in their everyday lives.

### RELATIONSHIPS

We help bridge relationships between elderly people and their family.

### INDEPENDENCE

We help elderly people gain independence by navigating in the dark.



## BRAND VISION AND MISSION

# We believe that everybody should have light in their home.

Our vision and mission reflect who we are; they are the story we would like to tell across our communication channels.

## / Vision

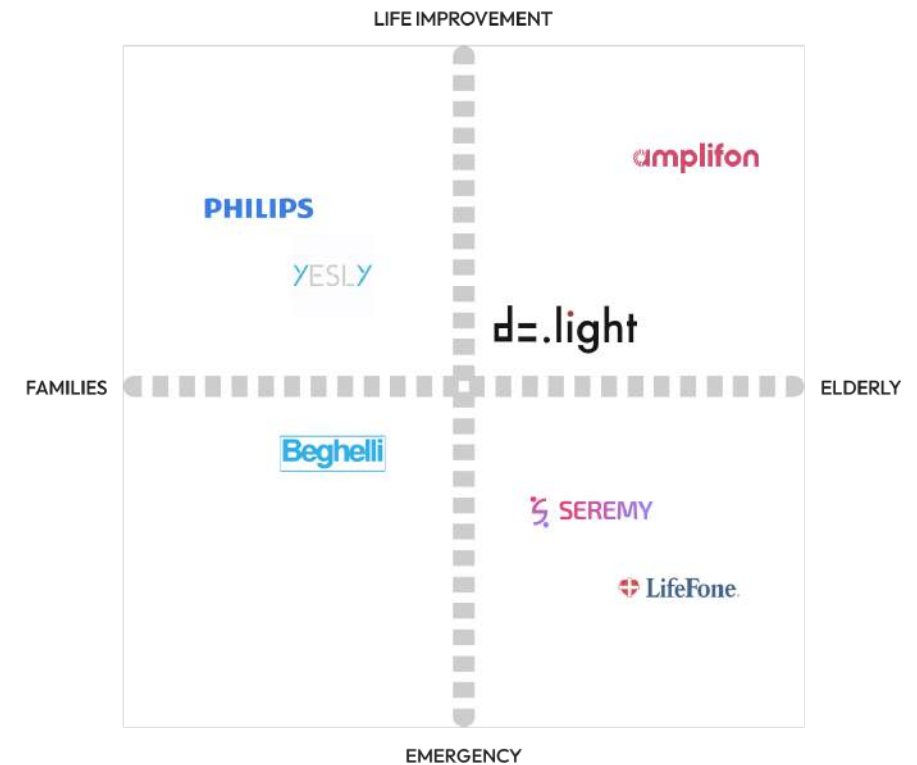
Access of light for all, allowing people to protect themselves and their loved ones in the dark. We are independent from the national grid.

## / Mission

- Provide dependable access to light free from the national grid
- Provide safety to vulnerable groups in the dark
- Preserve energy and provide energy-efficient appliances
- Help people stay connected to their loved ones in case of emergency

## / Brand positioning

Our brand focuses on the **elderly and their loved ones**. Unlike existing brands that have similar target markets, our product is there for both emergencies and for long-term improvement of their quality of life.





# Brand identity

## / Logo

We put the 'light' in 'delight'. The main logo separates the word into 'DE' and 'LIGHT'. The 'DE' letters represent the **ink circuit** linking our product and building our pattern.

The dot above the letter 'i' is highlighted in a different color, representing the single source of light.



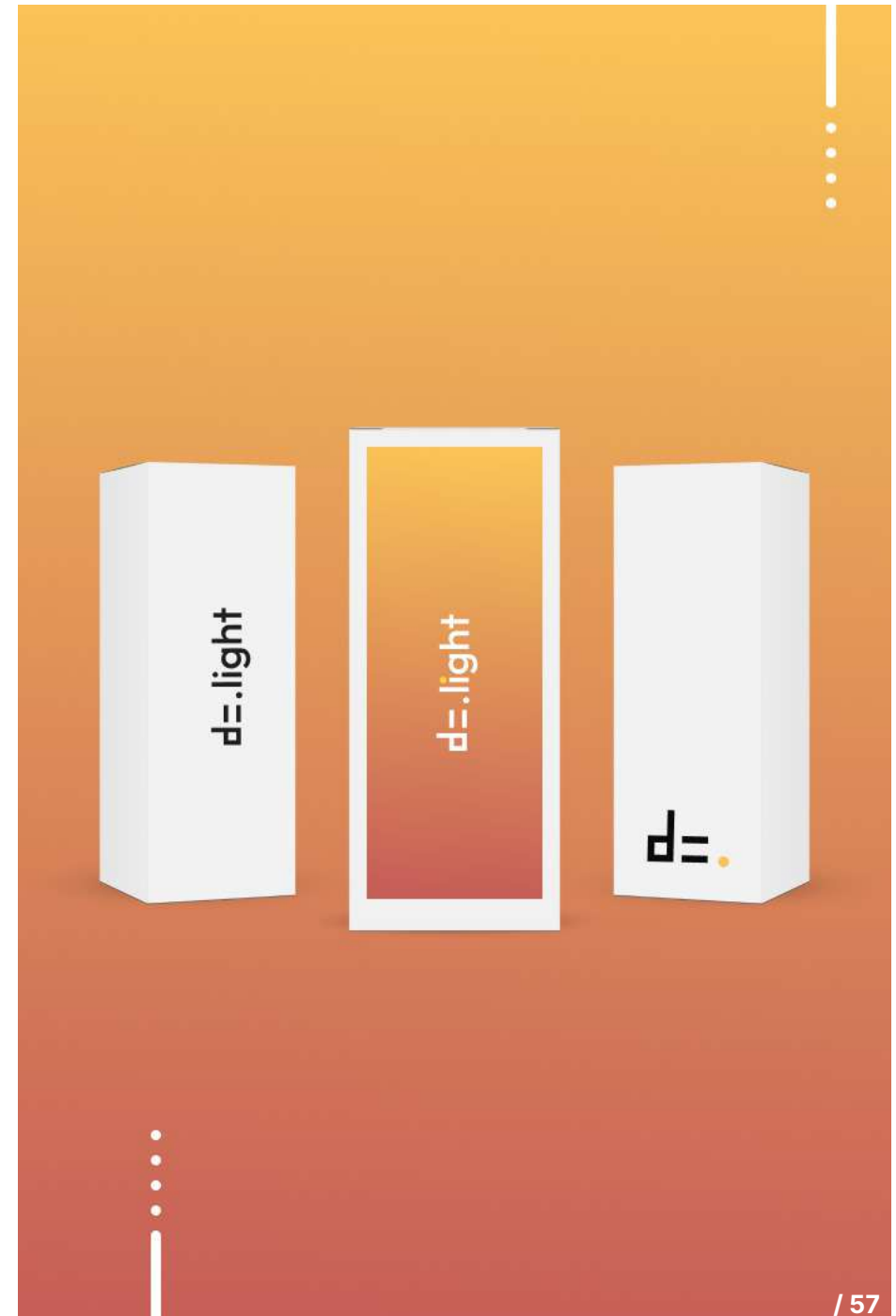
default logotype



icon logo



logotype on dark background



## / The Color of Sunset

Psychologically, sunset conveys the feeling of peace, warmth, and stress relief. Metaphorically, it represents the sunset years, or the final stages of one's life.

It also symbolizes the time where light leaves and darkness sets for the electricity ban, creating a softer transition towards darkness.

### / Red-Brown Shades

Red tones were used to convey a feeling of warmth. They are mixed with brown tones, as the latter is the colour of stability & reliability.

### / Yellow Shades

Yellow was chosen as a clear reference to light, as it is generally associated with the sun, energy, and joy.

PRIMARY

Sweet Brown

#A4413B

Bold red to call users' attention. Useful for headlines and Call-to-Actions.

Sunset

#C65F58 - F9C357

Bright main colour of the shade, representing the disappearing light for which we'll provide.

SECONDARY

Yellow

#F9C357

Used as one of the two main colors. It represents the darker hue of the sunset that carries users gently into the night.

Orange

#E19458

NEUTRAL

Light Grey

#F1F3F2

White

#000000

Black

#242424

## / Typography

We used two sans serif fonts: Outfit and Inter. Outfit has the modern, sleek, timeless look that works best for headlines. For long texts, we chose Inter for its excellent readability and adaptability on different platforms.

Outfit

HEADLINE

Aa Bb Cc

abcdefghijklmnopqrstuvwxyz

Inter

BODY TEXT

Aa Bb Cc

abcdefghijklmnopqrstuvwxyz

Headline

# Light your way to safety.

Title

## Protect your loved ones.

Subtitle

Protect your steps. Protect your sunset years.

Body

We are here to bring light and delight to people's homes. Energy crisis is terrifying especially when you are elderly; we'd like to give them hope that life can be delightful once again. Our vision and mission reflect who we are; they are the story we would like to tell across our communication channels.

Our brand focuses on the elderly and their loved ones. Unlike existing brands that have similar target markets, our product is there for both emergencies and for long-term improvement of their quality of life.

### / Brand personality

We are empathetic, respectful, and curious; we care for the vulnerable but do not patronize. We are open to change and always listen.

### we are...

### / Tone and voice

#### **caring, but not coddling**

we care for the elderly, but we recognize their independence and capabilities.

#### **conversational, but always respectful**

we talk as we would in real life, but are respectful and appropriate.

#### **friendly, but not ingratiating**

our friendliness is genuine, and we are not fake.

#### **clear, concise, and human**

we are a brand, an entity, a product - but most of all, we are people first.

### / Graphic elements

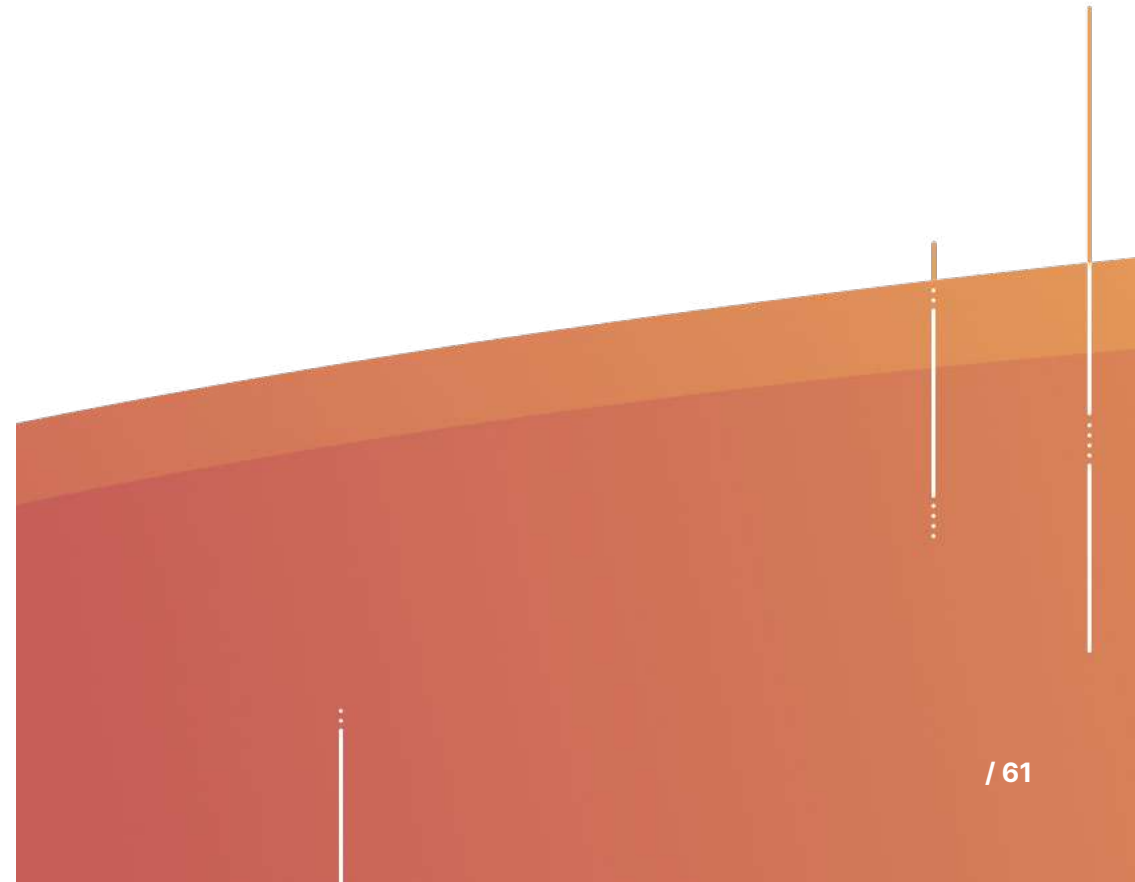
#### curve and texture

We've taken **the shape of our product (an ellipse)** and put one layer on top of the other to create texture. We use the gradient color of sunset to add dimension.



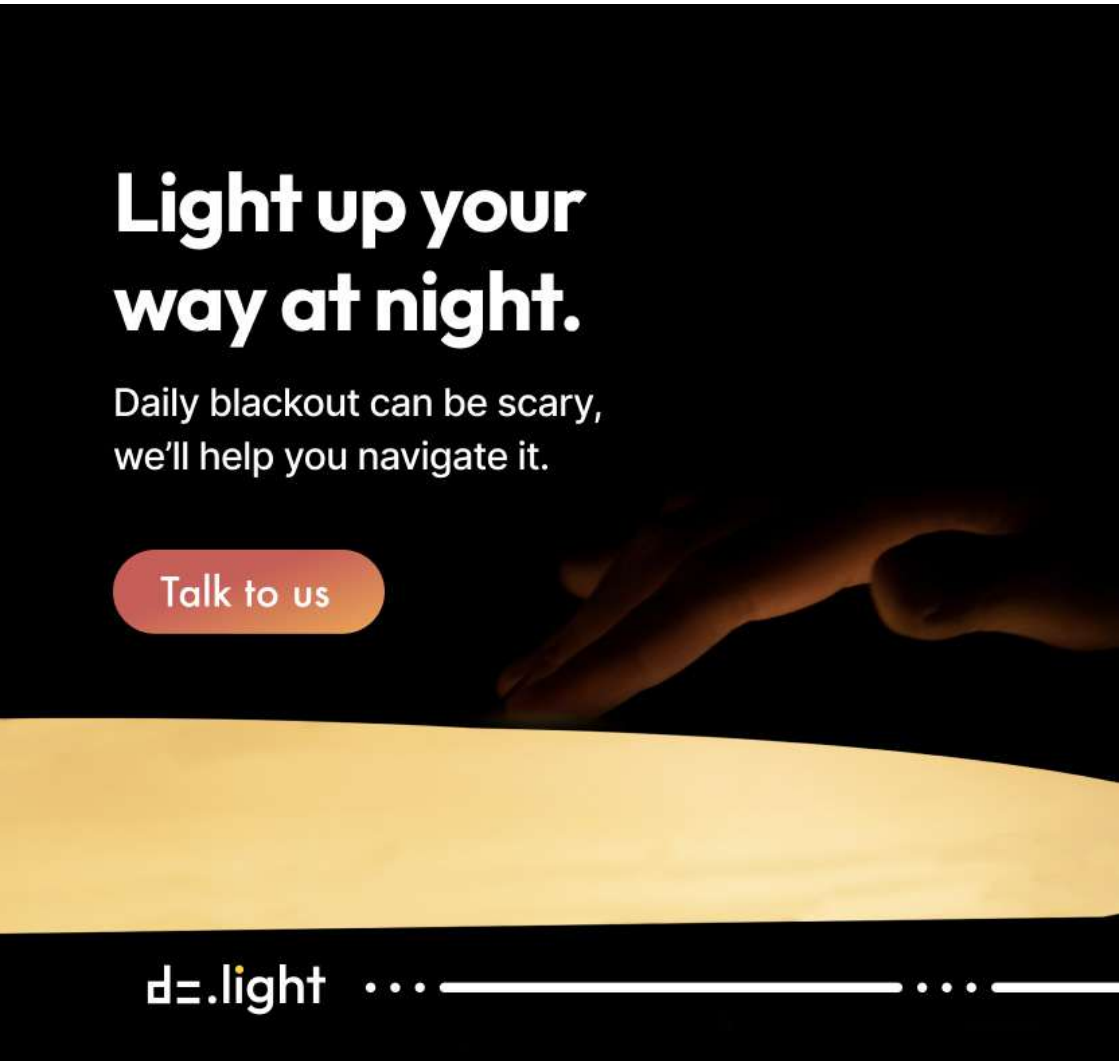
#### line and dot

**Our products exist in a collective, forming a linear pattern** on the wall. This is represented by the use of line and multiple dots in a consecutive order.

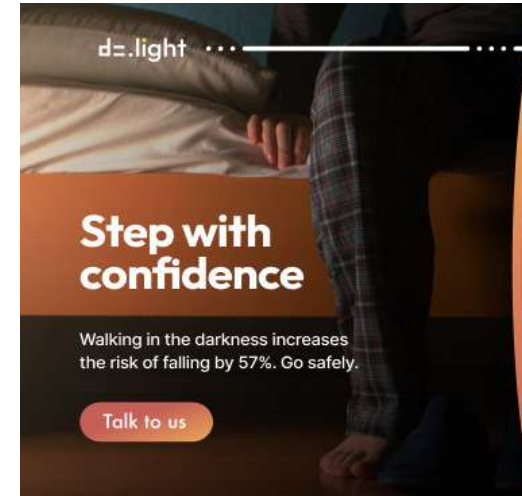


# Brand Collaterals

## / Image guidelines



We focused on photography rather than illustration. Our images need to be contextualized within the home, centered around the elderly and families, and to put emphasis on **safety, mobility, and comfort.**



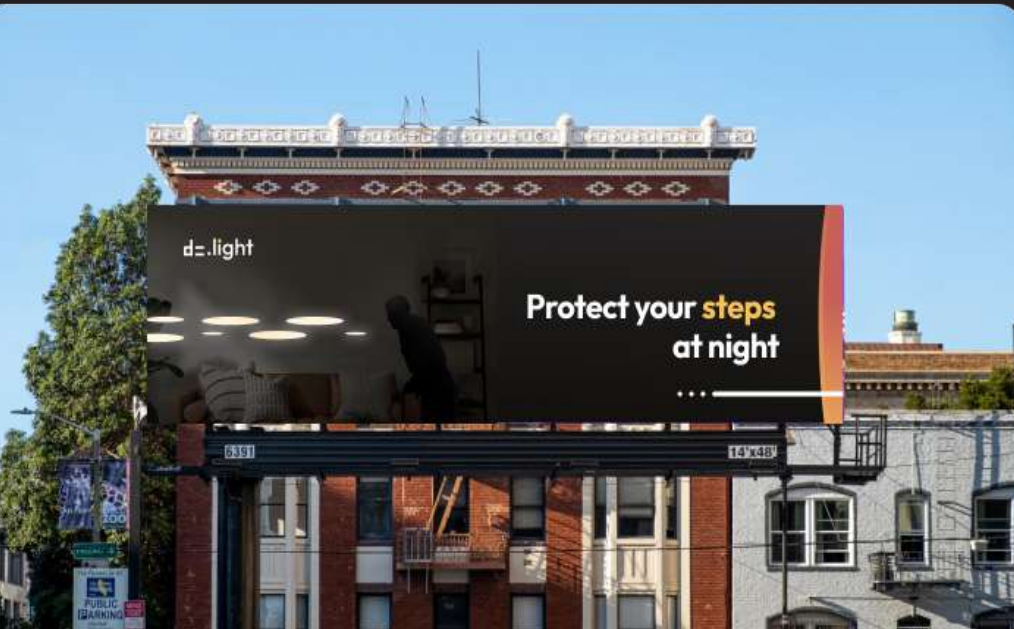
## / Digital touch points + mock ups

Some examples of our brand collaterals across different touch points, such as a website, a lightbox, and billboards.

Lightbox



Billboard



Website





EVOLVING  
for scarcity