

Challenge Based Innovation 2022-23

Phase 2

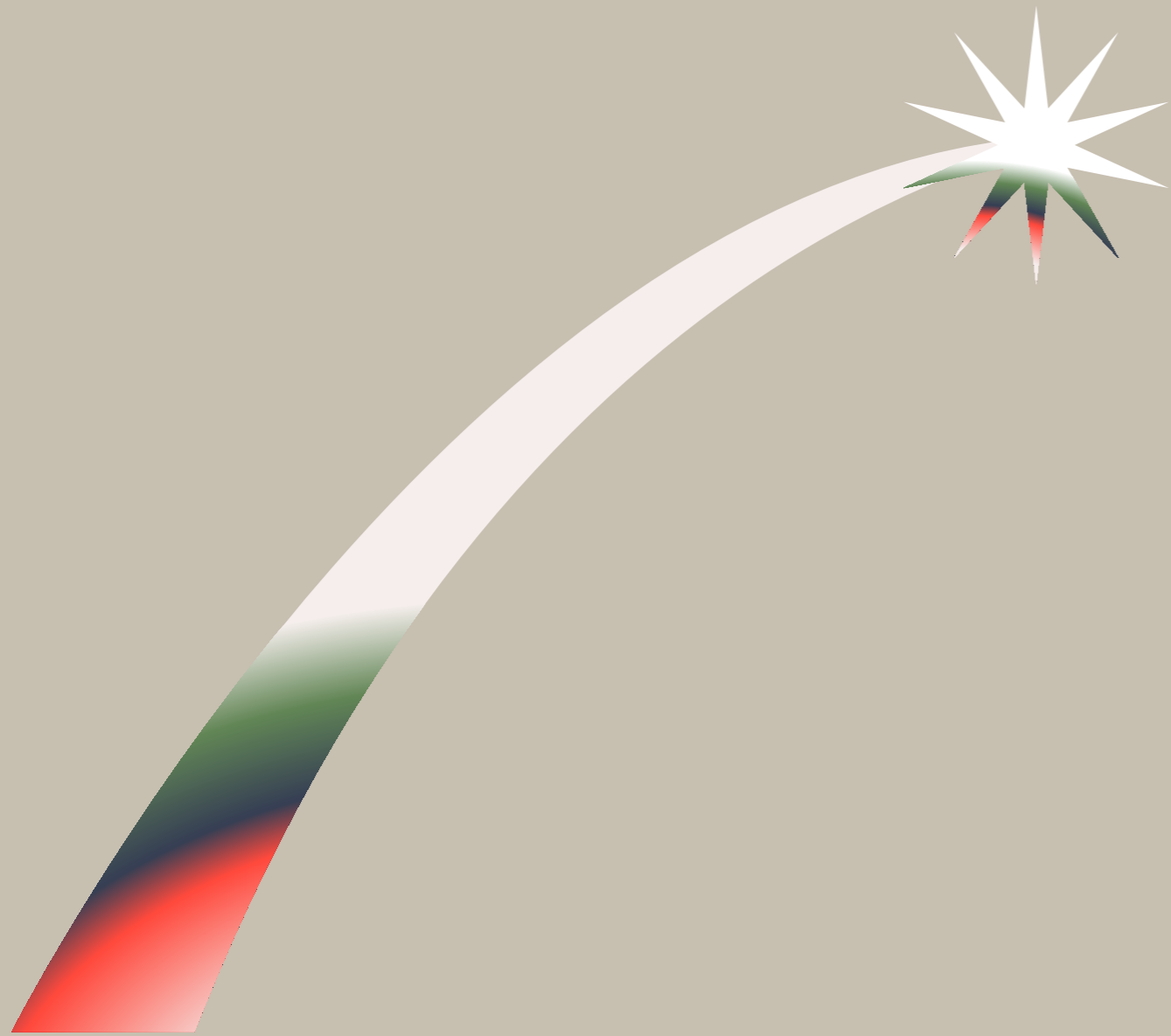
White Paper

Acknowledgement

We respectfully acknowledge the Wurundjeri People, and their Elders past and present, who are the Traditional Owners of the land on which Swinburne's Australian campuses are located in Melbourne's east and outer-east. We are honoured to recognise our connection to Wurundjeri Country, history, culture, and spirituality through these locations, and strive to ensure that we operate in a manner that respects and honours the Elders and Ancestors of these lands. We also acknowledge the Traditional Owners of land across Australia, their Elders, Ancestors, cultures, and heritage. We also give thanks and acknowledge all involved in our journey during the CBI A3 Program for 2023-2024.

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Executive Summary

Workplace burnout and the pursuit of a healthy work-life balance have become increasingly pressing concerns in modern society.

This white paper presents our solution to these challenges by facilitating the necessary disconnection from work and promoting a better work-life balance. Backed by research and user insights, our goal is to enhance overall workplace well-being and address the far-reaching implications of the “Great Resignation” phenomenon.

Through surveys, prototype evaluations, and extensive secondary research,

we have developed a solution that effectively tackles workplace burnout while incorporating valuable user feedback and existing knowledge. Our solution helps individuals balance work and life, reducing stress in remote work situations and enabling them to prioritise their overall well-being. We empower users to make autonomous decisions while providing gentle reminders and support for self-care activities. By promoting disconnection from work, our solution fosters improved well-being, leading to a healthier work environment and potential mitigation of the “Great Resignation” trend. Importantly, our solution aligns with Sustainable Development Goal 3, as it addresses workplace burnout, promotes work-life balance, and contributes to individuals’ overall health and well-being.

Looking ahead to the year 2030, we have considered the advancements in technology and their implications on work environments. With remote work becoming the new norm and the advent of 6G infrastructure facilitating seamless connectivity from anywhere, our solution helps individuals navigate this changing landscape while prioritising their well-being. By anticipating possible scenarios and adapting to evolving needs, our solution remains relevant and effective in supporting individuals to achieve a healthier and more fulfilling work-life balance.

Introduction

CBI A³ is an initiative led by Design Factory Melbourne in collaboration with partners from the Global Design Factory Network (DFGN). Our focus is on designing for 2030, intending to address local opportunity areas in Australia while working within the UN’s Sustainable Development Goal #3 - Good Health and Well-being. We aim to explore the connection between UN Sustainable Development Goal challenges and deep technologies to ensure responsible commercialisation and accelerate tech transfer for social impact.

Problem Space

Disconnecting from work has been more challenging than ever.

The problem space surrounding work-life balance and workplace burnout is complex and significantly impacts individuals, organisations, and society.

Research shows that burnout can harm physical health, mental well-being, personal relationships, work performance, and career development. Burnout can also lead to decreased productivity, higher turnover rates, increased absenteeism, and poor organisational morale (Jessica, 2023).

Extensive qualitative and quantitative research has revealed a pressing issue within work-life balance.

It has been found that the average person spends approximately 90,000 hours at work throughout their lifetime (Henley, 2018), equating to spending one-third of one's life dedicated to work. In 2023, six out of ten Australian workers have already adopted a hybrid working style, and this trend is projected to continue growing until 2030 (Peters, 2022). However, amidst this shift, it has become evident that many workers are experiencing burnout. More than two-thirds of Australian workers have reported feeling burnt out (TheWellbeingLab, 2022), indicating the gravity of the problem.

Furthermore, it has been observed that the average Australian work-from-home employee dedicates over six hours of unpaid overtime each week (Wishart, 2022). As a result, the inability to disconnect from work has become increasingly challenging, exacerbated by factors such as imposter syndrome, the compulsion to work overtime, the struggle to take breaks, and the prevalence of an always-on culture characterised by notification overload and restlessness. Additionally, the boundaries between work and personal life have blurred, posing difficulties in effectively separating the two domains.

Looking towards the future, it is anticipated that working environments will undergo significant transformations.

Leading to profound changes in how individuals operate and maintain productivity. Therefore, addressing these challenges and finding sustainable Solutions to improve work-life balance and mitigate burnout becomes crucial as the work landscape evolves.



Working overtime
Struggling to take breaks



Notification overload
Restlessness



Struggling to separate work
with personal life



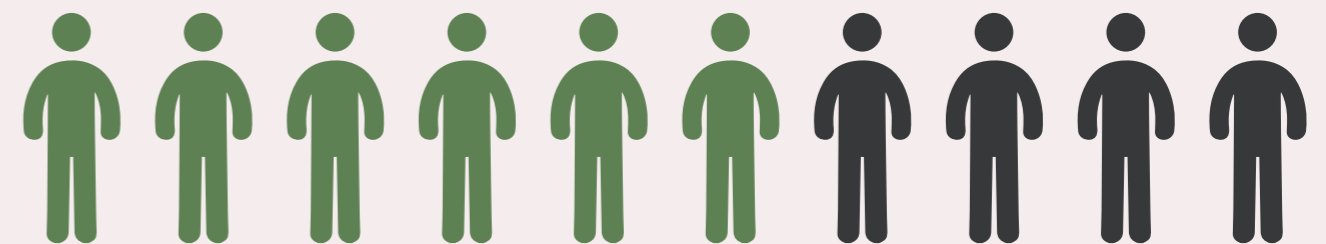
The average person will spend around 90,000 hours at work over a lifetime.



An average Australian WFH worker puts in >6 hours of unpaid overtime each week.



More than two-thirds of Australian workers felt burnt out at work.



As of 2023, 6 of 10 Australian workers have adopted a hybrid working style.

2030 Future Scenario

The future we are designing for in 2030 is one where technology has affected society and changed how people work.

6G networking infrastructure is well established (Future Today Institute, 2023), making communication and connecting people worldwide easier and of higher quality than ever. As a result, more and more social events take place virtually, replacing events that used to be in physical locations. However, this brings about a rise in digital addiction as more content creators use digital platforms to distribute their content and encourage consumers to keep scrolling.

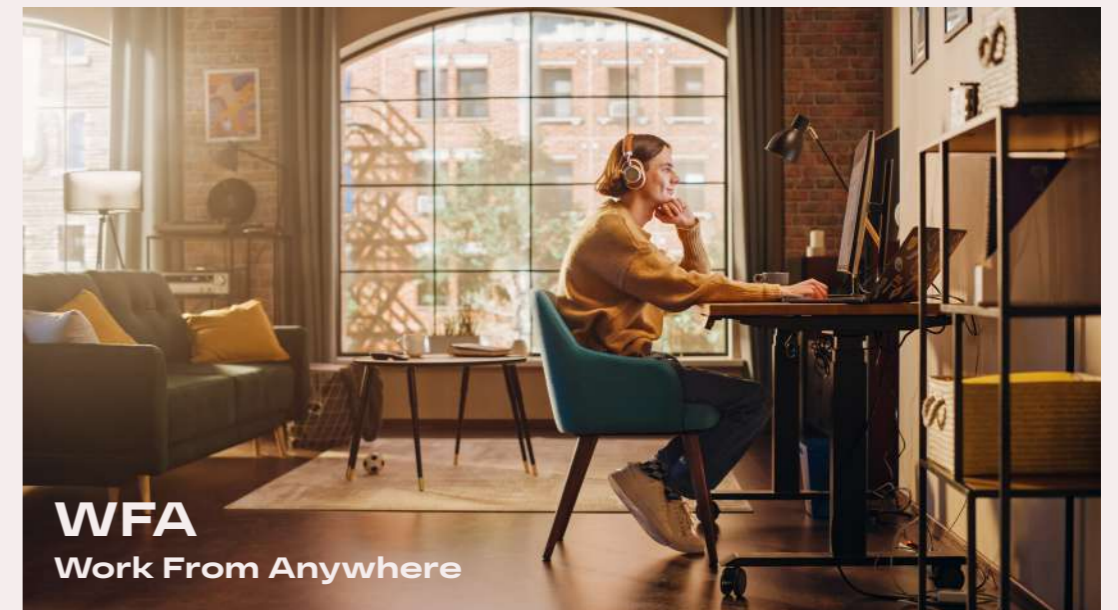
The vastly increased bandwidth and capabilities of 6G pave the way for the internet of senses, giving people augmented vision, hearing, touch and even smell, all transmitted directly to their devices wherever they are (Future Today Institute, 2023).

AI, having developed alongside the 6G network, can now reach the mainstream, enhancing and changing lives profoundly, making what was previously thought impossible possible. Not only are general consumers benefiting from AI taking over menial tasks, but small and large

businesses are also using AI to streamline processes. For example, politics underwent a painful adjustment process that took several years. However, legislations and limitations that were carefully thought out and, ironically, created with the help of AI are now fully established.

Working from anywhere becomes the new norm (Choudhury, 2020) as workers can use these established technologies to make navigating the experience painless. Corporations hire worldwide based on experience and qualifications, with location becoming irrelevant since they no longer gather employees together in physical offices.

As a result, far fewer people make long commutes to work, and the city streets have emptied. Most people never go further than their homes or the neighbourhood coworking space daily.





Introducing SOL

What is SOL?

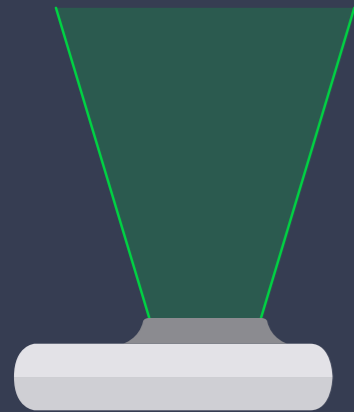
SOL is a unique solution to improving and maintaining workplace well-being in a society where remote work has become the norm. It is a personal device that delivers immersive experiences to improve a user's daily life.

SOL employs physical, personal and passive strategies to improve work-life balance. It will transform the workday, keeping users refreshed, giving them time to focus and helping them disconnect from work at the end of the day.



Disconnect from work, connect with life.

SOL have three main features: *Interlude Mile*, *TimeOut* and *Silent Lock*.



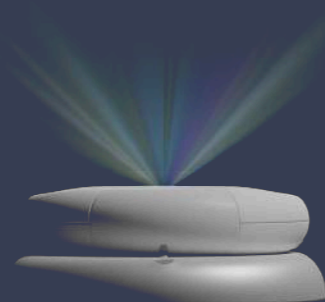
Interlude Mile

Enjoy a relaxing sensory experience that takes you away from work and into a new environment.

Interlude Mile is a type of break suggestion that typically occurs at the end of the work day. SOL's full capabilities are used, immersing users in a virtual commute of their choosing. This could be a recreation of an actual commute, such as a train ride, a meditative session, or even a reliving of an experience.

These few minutes of immersion into the virtual commute will give users the feeling that their environment has changed, helping them make a clean disconnect from work (BBC, 2020).

In order to achieve this, the holographic projector will work with other intelligent devices and lighting to project high-resolution 3-dimensional video and imagery that, together with audio from its speakers and haptics from the doughnut, will give the user the feeling of a change in their environment. Not only does this provide a bookend to the day, but it also simulates a physical separation of the work environment from the home environment.



TimeOut

Set goals for taking breaks and record your progress to ensure you're taking the necessary time to recharge.

TimeOut is a personalised break reminder system that adapts to the user's needs and preferences. It considers various factors, such as the user's schedule, mood, and stress levels, and uses an intelligent AI system to suggest the most effective types and timing of breaks.

These suggestions are delivered through visual, audio, and haptic notifications to keep the user refreshed and productive throughout the workday (BBC, 2019).



Silent Lock

Quickly configure your workplace with a simple turn to help you maintain your focus and flow.

The Silent Lock feature offers users a tactile "do not disturb" experience by turning a doughnut. With the ability to connect with various work apps and smart home devices, users can effortlessly manage their notifications and customise their work environment to suit their preferences.

In addition, this feature helps to alleviate notification clutter, allowing users to concentrate more on their work without any distractions.



How does it operate?

SOL sits on workers' desks while they work. It has two parts; a doughnut that can be picked up and held in their hands and a base that charges it.

A hologram projector and HYGER infrared sensor in the base work with speakers and a haptic motor in the doughnut to deliver immersive experiences to the user through multiple senses. Holograms for visuals, speakers for audio and haptics for touch.

The two future-centric technologies used in SOL are a holographic projector and HYGER infrared sensor.

Holographics are best suited for a "Work From Anywhere" situation as its projects' visuals do not rely on surfaces or surface treatments; this allows SOL to deliver an excellent visual

experience in any space. A combination of projection mapping over existing physical objects and walls and simple projection in 3d space will be used depending on the function that SOL carries out.

HYGER is an infrared sensing technology developed by ATTRACT that is more affordable, faster and more accurate than commercially available in 2023. SOL can scan its surroundings, mapping the room in 3D spaces. SOL can then decide how best to deliver visuals and optimise the soundscape in any environment. best to deliver visuals and optimise the soundscape in any environment.

- ① Speaker
- ② Haptic Motor
- ③ Volume Control
- ④ Mute
- ⑤ Holographic Projector
- ⑥ HYGER Sensor
- ⑦ Charging port



For who and where?

By 2030, we expect the work landscape to be dominated by work-from-anywhere environments.

Where a flexible approach combining remote work and collaboration becomes the new norm. In this evolving work environment, our target users are forward-thinking professionals who seek to embrace this flexible approach and leverage technological advancements to enhance their work experience.

Our solution, SOL, is designed to cater to the needs of these individuals working in various environments, whether from their homes, coworking spaces, or traditional offices.

Furthermore, SOL's versatility allows it to accommodate the needs of individuals who prefer a hybrid working style, combining remote work and in-person collaboration. It empowers professionals to work from anywhere and seamlessly transition between different work settings, leveraging the capabilities of SOL to create a productive and conducive work environment.

Design behind SOL



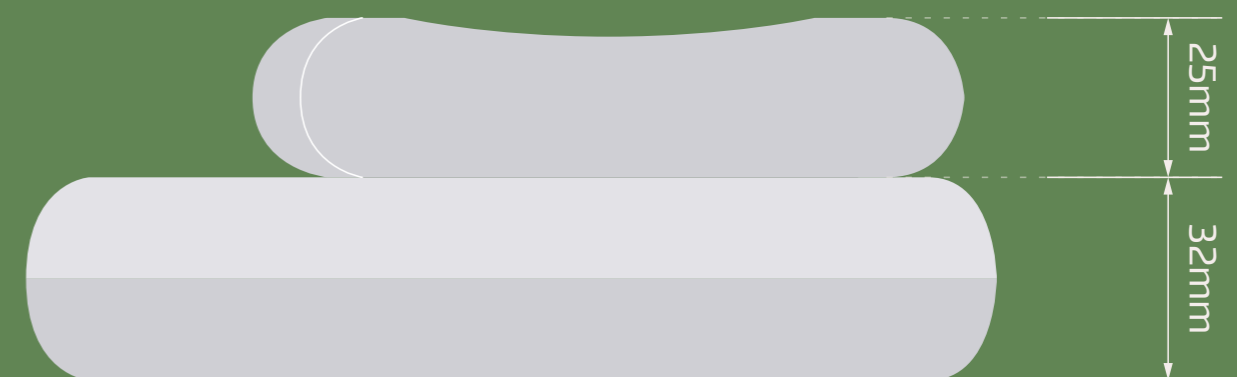
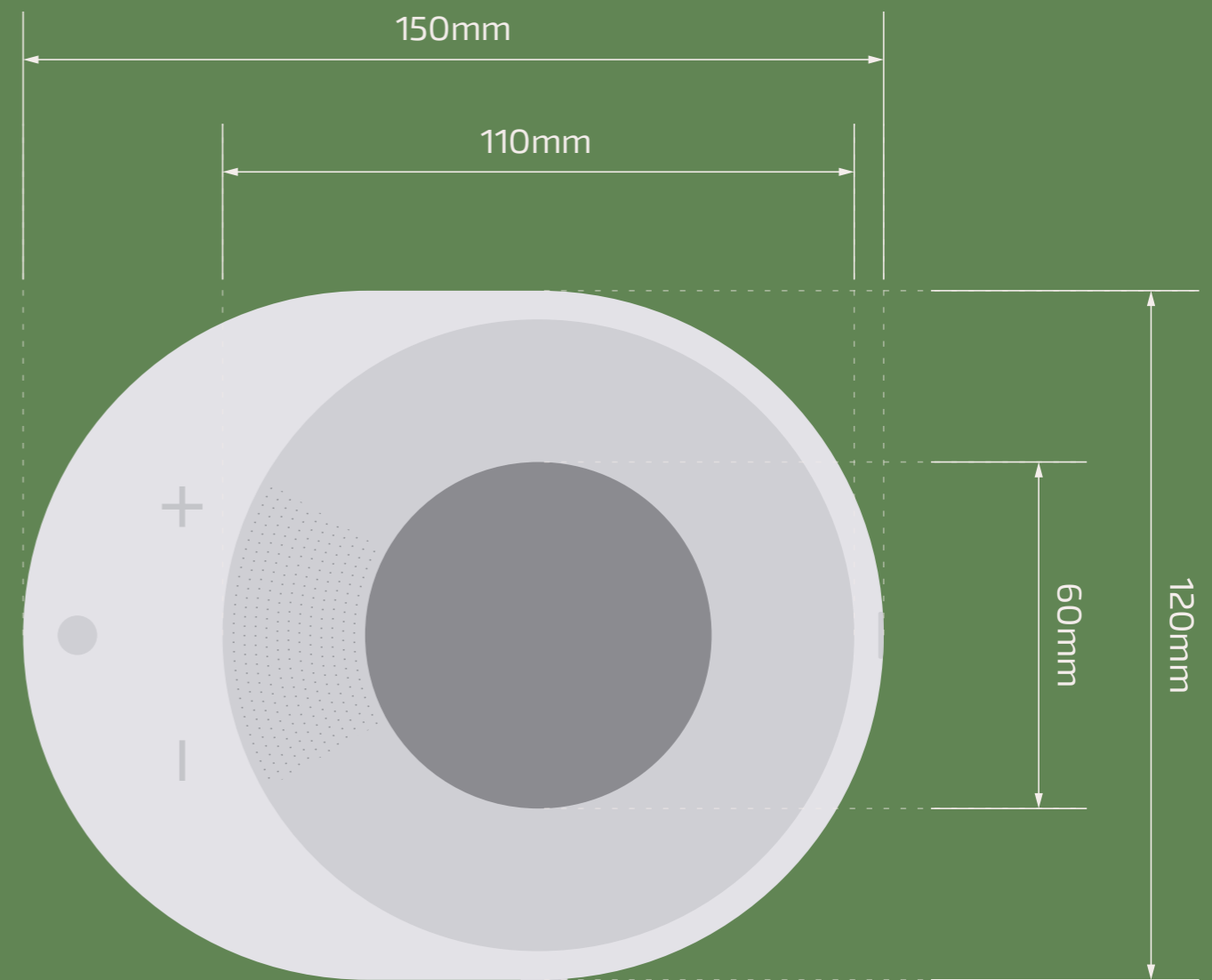
Scale, Form, Aesthetic & Dimensions

SOL's design considers the future landscape of "Work From Anywhere." It incorporates a sculpted soft-touch case encompassing all the components for seamless operation. The dimensions of SOL have been carefully considered to strike a balance between portability and ergonomic comfort. Through an iterative design process, we explored various options using clay models and sketches to refine the final form of SOL.

SOL is designed to be compact and lightweight to ensure ease of transportation, allowing users to carry it effortlessly between different work environments. At the same time, the doughnut-

shaped component of SOL has been thoughtfully sized to provide a pleasant and ergonomic grip, ensuring a comfortable user experience.

In addition to focusing on the functional aspects of SOL's design, we drew inspiration from retro products to infuse a tactile quality into the device. This deliberate design choice enhances the overall aesthetic appeal of the device, making it visually captivating and inviting to use as we head into a very virtual future.



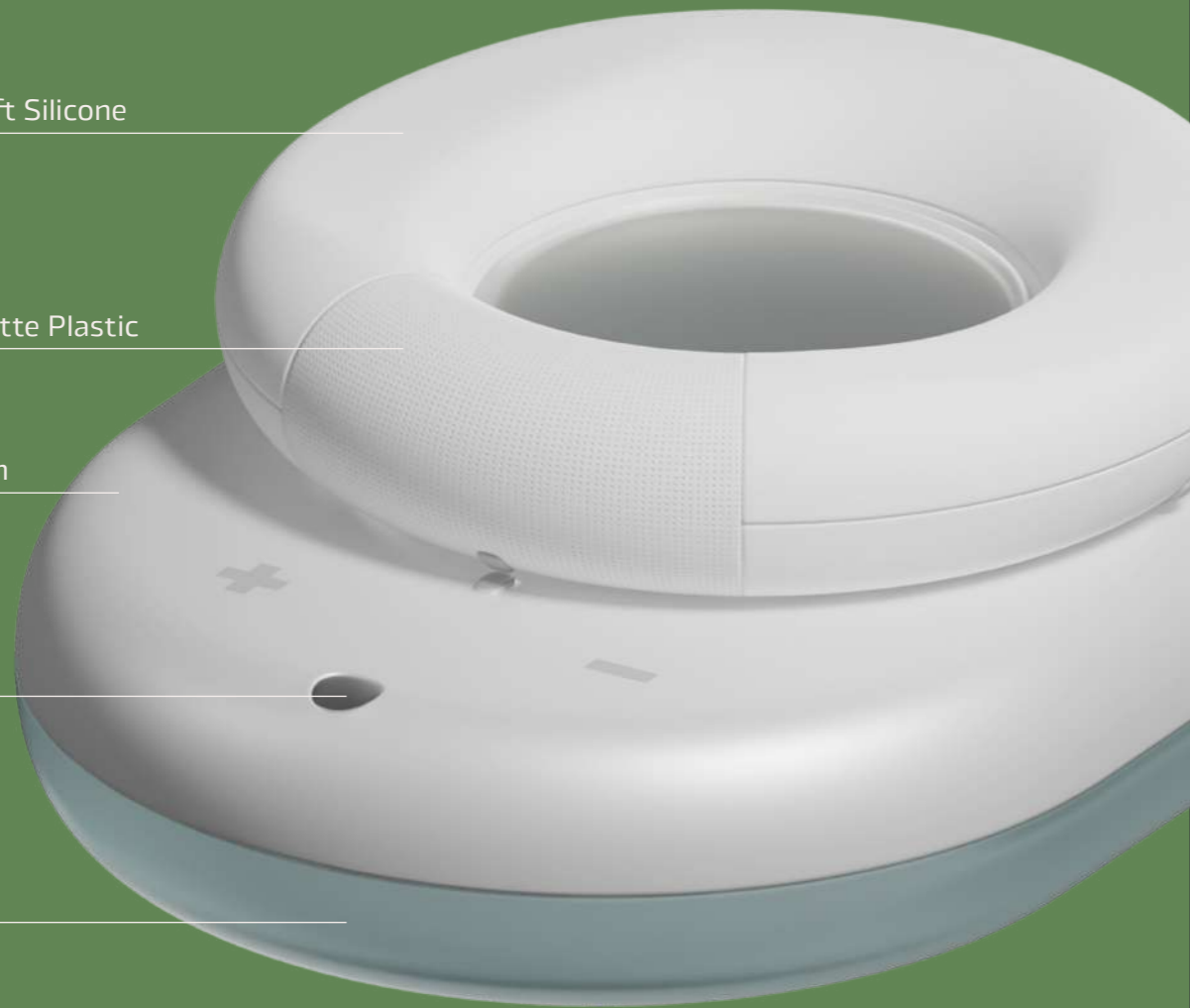
Soft Silicone

Matte Plastic

Anodised Aluminium

Tinted Glass

Frosted Glass



Materials

SOL has been designed with a strong emphasis on sustainability and durability. We have carefully selected materials uniquely suited to each part's function, aiming to minimise environmental impact while ensuring the device's longevity.

The casing of the doughnut part is crafted from recycled ocean plastics, which are eco-friendly and contribute to addressing the issue of plastic waste in our oceans. These recycled plastics are injection moulded to minimise waste and cost further, allowing for efficient production with minimal material wastage. For the top casing of the base, we have opted for a 100% recycled aluminium alloy sourced from post-industrial and post-consumer recycled sources. This decision reduces the reliance on newly mined resources and

promotes the circular economy by repurposing existing materials. Furthermore, in line with our sustainability goals, the manufacturing processes involved in creating each SOL recover aluminium alloy unit ensure that no additional resources are wasted.

To maintain a premium appearance and to accommodate manufacturing tolerances, the bottom of the base is made from recycled untinted glass. In addition, we have chosen to incorporate a frosted finish, which adds a touch of elegance and allows for more flexibility in the manufacturing process without compromising the overall aesthetics.

Improving Life

SOL brings immense societal value by addressing the needs of both individual users and society.

For users, SOL introduces a range of features that actively contribute to easing disconnection from work and establishing better work-life boundaries, particularly in work-from-anywhere situations.

Furthermore, SOL's passive signalling capabilities are crucial in maintaining users' autonomy while promoting self-care. The device subtly signals the need for breaks, allowing individuals to prioritise their mental and physical health without feeling overwhelmed or pressured. This passive approach empowers users to take ownership of their well-being, fostering a sense of control and agency in their work routines.

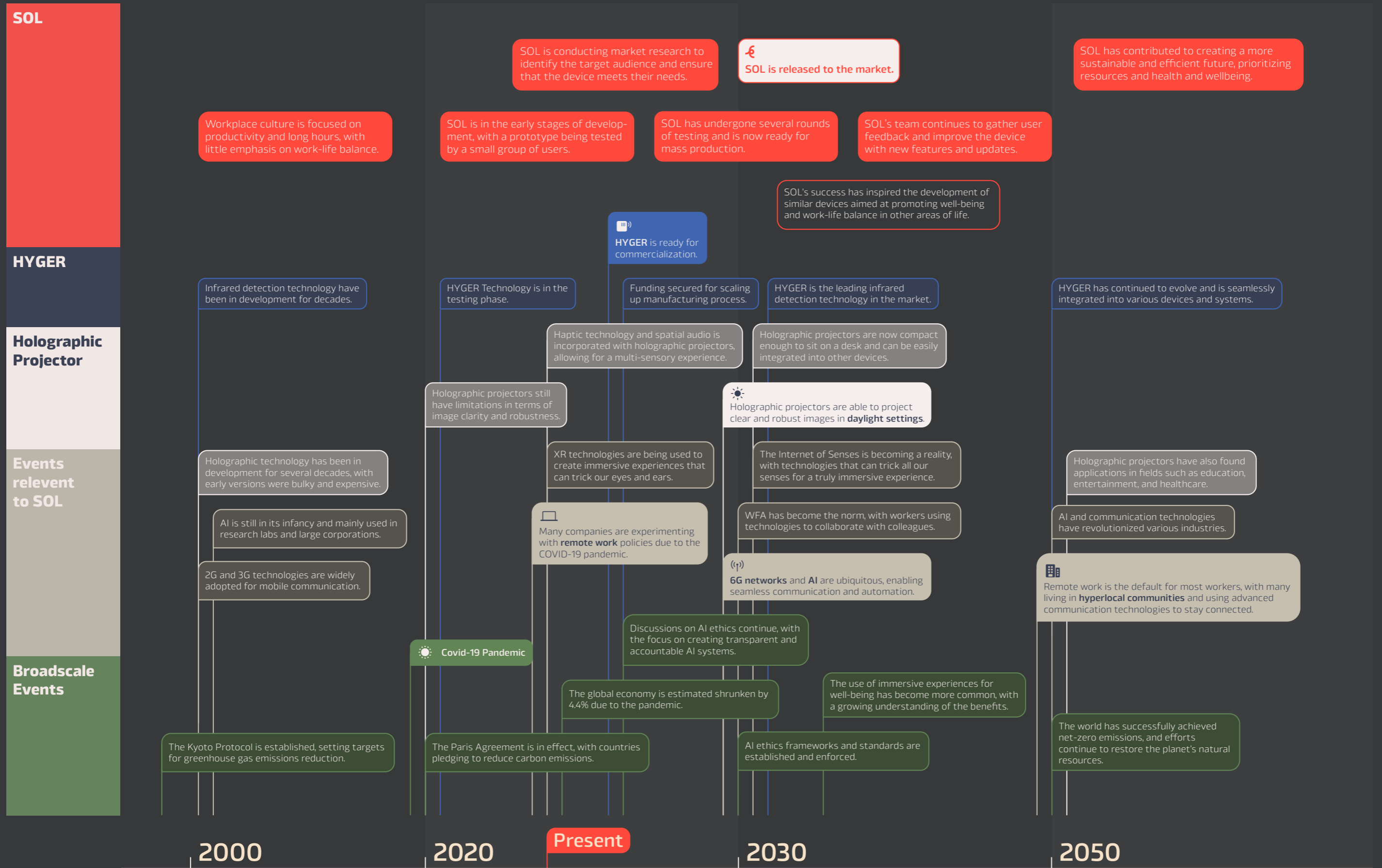
SOL helps society tackle the challenges of moving away from traditional offices. It offers a helpful tool for people to create a productive work environment wherever they are. This

helps reduce the transition's impact and makes it easier to work from anywhere.

Moreover, SOL's focus on workplace well-being contributes to a healthier and more satisfied workforce, ultimately weakening the effects of the "Great Resignation" phenomenon (The Future, 2021). By providing users with the tools to achieve work-life balance and prioritise their health, SOL fosters a positive work environment that encourages employee retention and loyalty.

In alignment with the United Nations Sustainable Development Goal 3: Good Health and Well-being, by addressing the challenges of disconnection, stress, and work-life balance, SOL contributes to creating a healthier and more sustainable work culture, enhancing overall workplace well-being, and fostering a society that values the health and happiness of its members.

Implementation roadmap



Towards 2030

The implementation roadmap for SOL involves integrating HYGGER and holographic technologies, leveraging advancements in AI and the Internet of Senses.

Conducting market research to ensure that SOL meets the needs of its target audience. After testing and refinement, SOL is released to the market, supported by secured funding and efficient manufacturing.

By aligning with Sustainable Development Goals, SOL reduces greenhouse gas emissions in production and addresses workplace culture challenges. The goal is to transform the work landscape, promoting well-being and connectivity in a changing world.

Beyond 2050

In 2050 our society will prioritise sustainability, well-being, and resource efficiency.

The convergence of artificial intelligence and communication technologies has further transformed various industries, enabling ground-breaking advancements and unprecedented connectivity.

With remote work becoming the default for most workers, many have chosen to reside in hyperlocal communities.

These communities, born out of necessity due to the changing landscape of work, self-isolate and define themselves around specific value systems and lifestyles. They have become self-contained and entirely self-sufficient, drawing local resources and reducing reliance on external supply chains.

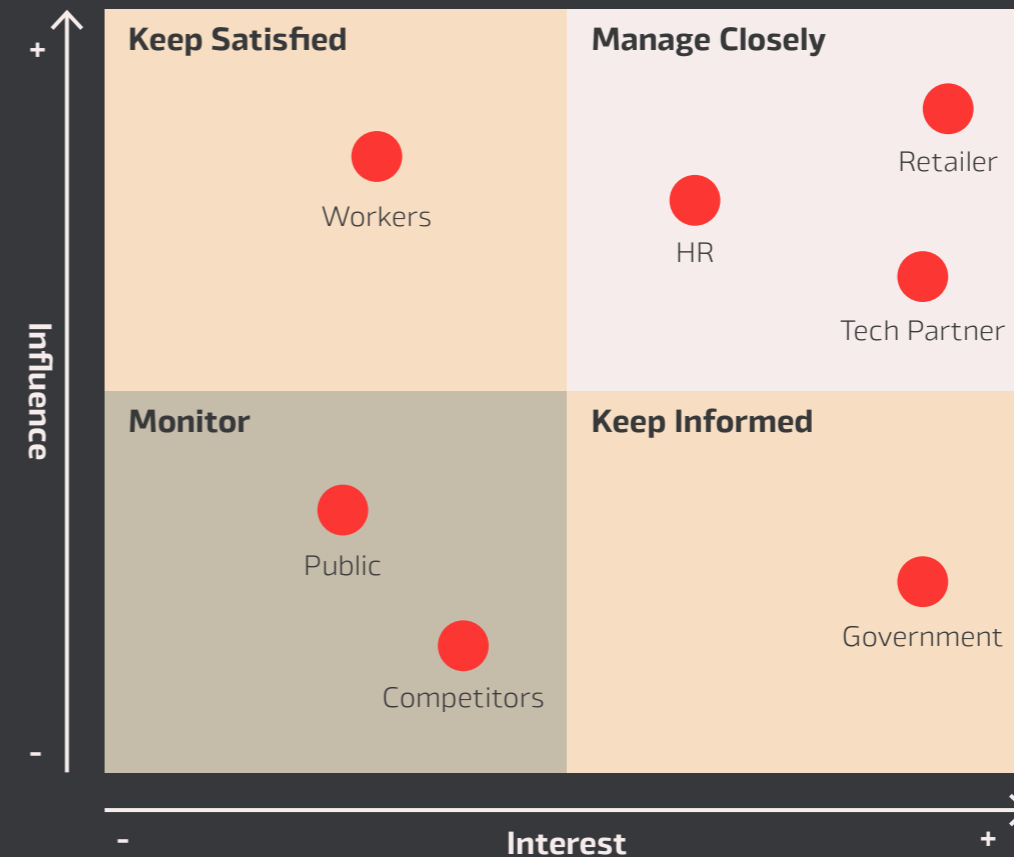
Hyperlocal communities have seen a unique adaptation of vacant buildings within their domains.

Notably, major hotel chains worldwide have repurposed their establishments into remote working hubs, catering to individuals seeking a professional and stimulating workspace. These

converted hotels provide a seamless blend of hotel amenities and office functionality, offering workers the best of both worlds. Equipped with SOL devices in each workroom, these hubs prioritise the well-being and productivity of individuals, enabling them to disconnect effectively, maintain focus, and enjoy sensory interludes for relaxation.

Our society achieved net-zero emissions. Efforts are ongoing to restore the planet's natural resources and ensure a sustainable future. Through collective action, technological advancements, and intentional living in hyperlocal communities, we have created a world that thrives on sustainability, connectivity, and the holistic well-being of its inhabitants. The vision of a future built on resource efficiency, health and well-being, advanced technologies, and a restored environment has become a reality.

Stakeholder Engagement



SOL emphasises the involvement of various stakeholders throughout the design and implementation process

This includes individuals working from anywhere, software engineers, government representatives, HR professionals from office workplaces, and tech stores. Each stakeholder has a unique role in the SOL ecosystem, contributing to its success.

SOL targets marketing campaigns towards individuals who work from anywhere, promoting the product's benefits regarding improved work-life boundaries and disconnection. The government's support and funding are crucial in promoting workplace well-being and projecting a positive image. Collaboration with HR professionals aims to enhance workplace cultures, productivity, and the HR-employee relationship.

Tech stores are vital partners, offering accessible and reliable avenues for purchasing SOL devices. In addition, regular communication and focus groups with stakeholders, including government representatives, HR departments, and tech stores, ensure alignment of values and continuous improvement.

SOL also values user feedback, employing a circular system where check-in teams collaborate with workplaces to gather insights and address user needs.



Conclusion

In a rapidly evolving work landscape, where individuals spend a significant portion of their lives at work, addressing challenges such as imposter syndrome, always-on culture, and blurred boundaries is crucial. In addition, as hybrid working styles become more prevalent, the need for solutions like SOL becomes increasingly apparent.

As a personal device, SOL is designed to empower workers with better work practices, enhance work-life boundaries, and facilitate effective disconnection from work. By embracing SOL, individuals can navigate the changing work environments, maintain their well-being, and achieve a healthier work-life balance.

Looking ahead, our vision for the future is one of sustainability, connectivity, and holistic well-being. We envision a society that works

to achieve net-zero emissions, restore the planet's natural resources, and foster sustainable living in hyperlocal communities. Through collective action and technological advancements, we have transformed this vision into a vibrant reality by the year 2050.

In the future, advanced technologies and a restored environment will support resource efficiency, health, and well-being. SOL represents a step forward in creating a world where individuals thrive in their work and personal lives, contributing to a sustainable and fulfilling future for all. By leveraging SOL and embracing this vision, individuals can navigate the changing work landscape, achieve work-life harmony, and contribute to a society that prioritises their well-being and the planet's well-being.



We are the **SQUID SQUAD**



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Laura is an emerging Industrial designer, she is currently in her last year of Industrial Design with a Bachelors Degree (Honours), her interests lie in innovative design and problem-solving strategies as well as research, concept development and getting hands-on. She is also particularly interested in creating sustainable furniture to help pave the way for our future.

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Haw Chien is a graphic designer with a Bachelor's degree in Visual Communication Design and currently pursuing a Master's in Design. He participated in CBI A³ project which focused on using design innovation to connect technology with societal needs. He is committed to creating design solutions that bring happiness and value to the end user.

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