DESIGN 4IMPACT

A Guide for Innovators and Changemakers in Health and Social Care

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MOHT
MOH OFFICE FOR HEALTHCARE TRANSFORMATION

NCSS
National Council of Social Service

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FOREWORD

Design4Impact (D4I) is a health-social-community design initiative that brings together like-minded social innovators to co-create community-owned solutions. It unites Singaporeans from all walks of life to innovate and find better ways to support vulnerable groups. I am privileged to have been part of this journey since 2021, when I accepted the role of D4I Champion and officiated at two Pitch Day Finals.

Over three design challenges, 26 teams have pitched their ideas, with nine emerging as winners and receiving seed grants to test out their solutions in pilot projects around Singapore. Some of these projects have now gone beyond the pilot phase to become meaningful mainstays within communities. One team from MINDS, for instance, observed that persons with

disabilities found it more difficult to find jobs through the conventional hiring process. The team received a seed grant in 2023 and successfully implemented its idea of introducing a "Reverse Job Fair", which showcased the résumés of jobseekers with disabilities to a pool of interested employers, so that employers who were keen and ready to support inclusive hiring could directly approach jobseekers based on their abilities. This is an example of how we can harness creativity and innovation for good.

I would like to congratulate MOH Office for Healthcare Transformation and the National Council of Social Service on the launch of this playbook. It will serve as a comprehensive resource, distilling the lessons learnt over the last five years and offering guidance to those who wish to step up and make a difference.

This is what the Forward Singapore movement is about: bringing Singaporeans together to refresh our social compact and come up with a collective roadmap for our way forward. All of us have a role to play in building up our community and society, to work together and address common challenges as one.

I hope that this playbook will inspire more of you to work closely with community leaders, social workers, healthcare workers and educators to implement and scale-up solutions. I trust that these stories will be the catalyst for a society where we can fully embrace innovation, and foster a culture where we dare to try, dare to fail, and dare to make a difference in the lives of others.

Mr Desmond Lee
Minister for National Development, and
Minister-in-Charge of Social Services Integration

MESSAGE

from the Executive Director of MOH Office for Healthcare Transformation

Since our inception in 2018, MOH Office for Healthcare Transformation (MOHT) has been interested in fostering community development and the prevention of disease before it even occurs, through local stakeholder-driven approaches. We believe that solutions developed from user-centric insights are inherently more attuned to the real-world needs of individuals and communities, while providing valuable learnings for proactive upstream care, community-based mental health support, and better care transitions across settings.

Our initiative began with a few collaborations. For example, with Alexandra Hospital and DesignSingapore Council (Dsg), our use case involved multidisciplinary teams of doctors, nurses, allied health professionals and volunteers building user-centred solutions for patients, caregivers and families. As another example, we partnered with Singapore Polytechnic on five editions of Transdisciplinary Innovation Projects that immersed students in healthcare-relevant transdisciplinary skillsets and design-led thinking. These early endeavours helped us describe and improve upon

our approach towards community-based participatory approaches.

In 2020, amidst the inter-agency response to the COVID-19 pandemic, MOHT and the National Council of Social Service (NCSS) co-founded the Design4Impact (D4I) initiative. D4I is a collaborative initiative that harnesses design thinking and community engagement to drive progress in addressing everyday health challenges. D4I's emergence represented a groundswell of interest across groups in forging sustainable in-community health interventions, especially those that concern the needs of vulnerable communities.

D4I has since grown into a whole-of-society movement at our adopted neighbourhoods. Through the years, stakeholders from different backgrounds have come together to learn from one another and try out new ideas. This has shaped a core network of passionate and committed individuals that we call the D4I Community of Practice, within which D4I alumni interact with industry players from healthcare and social services and participate in different aspects of solution implementation. D4I also features an Incubation Programme to guide new seed grant awardees through a structured framework to implement and scale their pilots.

At its heart, D4I is about empathy in action, empowering people to step forward, network and make a difference in the lives of others through fun, innovation and collective effort. To date, nine winning teams have been awarded implementation funding, with projects in various stages of incubation, piloting and scaling, examining health and social issues that include social isolation, access to care in the community, mental health and the needs of vulnerable families.

D4I's story is one of community empowerment, with residents, healthcare professionals and local enterprises coming together to improve care in the community. We believe that D4I's participatory approach can continue to strengthen the community foundations that are so critical for developing and deploying proactive, data-informed and scalable care models.

Mr Lim Cher Wee
Executive Director,
MOH Office for Healthcare Transformation

MESSAGE

from the Chief Executive Officer of National Council of Social Service

The National Council of Social Service (NCSS) is delighted to have partnered MOHT since 2020 in organising Design4Impact (D4I), to empower citizens to develop solutions collaboratively for positive social impact.

NCSS has long recognised the importance of design thinking for the social service sector. With an emphasis on being empathetic and human-centred, design thinking can bring about innovative solutions that better meet the needs and aspirations of our social service users.

Since 2015, NCSS has been encouraging the use of design thinking within the sector, with initiatives such as *Who Cares?*, a design ethnography study on the needs of caregivers, and *The Path to... Better Life by Design*. The insights from both

projects informed the recommendations of the Enabling Masterplan (2017–2021) and helped catalyse change to address the needs of caregivers and persons with disabilities in our society.

Recognising that social and health issues are interrelated, NCSS partnered MOHT to organise D4I to bridge the health and social care sectors, facilitating the sharing of domain expertise, and creating opportunities for more holistic solutions to be developed. We have seen solutions created through the D4I platform being adopted and implemented on a larger scale by key stakeholders, demonstrating their potential and long-term viability. The Garden2Gather initiative, for instance, demonstrated improvements in seniors' social and well-being indicators and is still being used by Boon Lay Zone C Residents' Network. Similarly, Dad's Awesome Camp evolved from a D4I project into a programme offered by MINDS, effectively empowering fathers of children with special needs in their caregiving journey. The success of D4I over the years has exemplified the importance of catalysing innovation and encouraging collaboration in addressing social-health concerns.

As a sector developer, NCSS is committed to enabling strong partnerships among our people, private and public stakeholders to create greater impact. We hope that the learnings and ideas in this playbook will inspire everyone with an interest in social innovation to take the first step to share their ideas and work with one another, so that together, we can strengthen Singapore's social compact.

Ms Tan Li San
Chief Executive Officer,
National Council of Social Service

Minister Desmond Lee, participants, judges and supporters at Design4Impact 2023

Introduction to Design4Impact

Design4Impact (D4I) is a joint initiative addressing societal challenges through collaboration. Led by MOHT, NCSS, DesignSingapore Council (Dsg) and the Institute of Systems Science at NUS (NUS-ISS), D4I unites socially conscious individuals and groups, providing design thinking training, pilot funding and strategic partnerships to create sustainable, community-focused solutions.

How it began

In 2020, the COVID-19 pandemic ignited a surge of civic consciousness in Singapore, with many keen to support fellow citizens. However, beyond frontline healthcare professionals, many well-intentioned individuals faced two key barriers: a lack of expertise in developing effective solutions and limited networks to bring their ideas to life.

D4I emerged as a response, bridging this critical gap by connecting and empowering individuals from diverse backgrounds to co-create innovative solutions for vulnerable groups. Individuals or groups with the interest and desire to contribute to community causes could collaborate with government and industry partners to create impactful solutions. Through interactive sessions, virtual workshops and hands-on prototyping, participants developed practical, effective and scalable solutions. What began as a targeted initiative evolved into a nationwide movement.

Within five years, D4I has:

- Completed three successful design challenges
- Developed and implemented nine community pilots ready for further implementation and scaling
- Equipped over 500 participants with design thinking capabilities
- Convened a network of partners, experts and facilitators
- Sparked a whole-of-society movement to address the health and social needs of citizens, with an impact that has extended beyond the COVID-19 pandemic

The inaugural run of D4I in 2020 focused on challenges related to COVID-19, such as social isolation and accessibility of care. Due to the pandemic, social distancing measures posed a challenge for empathy mapping and human-centred design activities. Undeterred, participants adapted by conducting remote user research through mobile phone "live-streaming", attending virtual lessons via Zoom and utilising Miro collaboration boards. To replicate the in-person experience, Dsg created a physical toolkit, enabling participants to build prototypes from home.

In 2021, the second edition of D4I looked at ways of facilitating the mental health and well-being of seniors, working adults and youths during the pandemic. The third run of D4I in 2023, themed "Uplifting Vulnerable Families in Singapore", studied how we might create an enabling environment to help less privileged individuals and families through supportive networks.

Building a thriving ecosystem of social innovators

The D4I initiative was made possible thanks to a wealth of contributions from diverse parties. MOHT and NCSS provided the domain expertise in healthcare and social services. NCSS was able to draw on its past experience running the Sector Design Challenge — a collaborative innovation platform that builds human-centred design skillsets in the social sector and transforms innovative ideas into impactful solutions. Dsg and NUS-ISS came up with the curriculum and pedagogy to impart design thinking knowledge, with an online repository of learning resources.

D4I also benefitted from enthusiastic support across Singapore's public, private and people sectors. Various government agencies, private sector organisations and community groups generously offered their expertise, time and networks to support the initiative. Trained designers from the Government Technology Agency of Singapore (GovTech), MOHT and Dsg served as design thinking facilitators. Officers from the healthcare clusters, social service agencies, the Agency for Integrated Care (AIC) and the Health Promotion Board (HPB), along with other partners like Sport Singapore (SportSG), shared their domain knowledge and expertise to guide participants towards feasible and implementable solutions. Grassroots organisations from Boon Lay, Jurong and Yuhua provided implementation sites, with community volunteers pitching in to develop and scale solutions. Prudential Singapore and CapitaLand Hope Foundation provided seed funding for winning projects to pilot their solutions.

The growth of a critical mass of vested individuals from the government, academia and community sparked the creation of the D4I Community of Practice (COP), uniting individuals passionate about community-driven initiatives at the health-social intersection.

The COP was set up to:

- Leverage partner resources, toolkits and frameworks
- Create original content from pilot project experiences
- Provide mentorship from industry experts
- Foster self-sustainability and community responsiveness

Led by past D4I participants, the COP ensures continuity and relevance.

Building on three successful iterations, the organising committee introduced the D4I Incubation Programme, which supports winning teams in refining and scaling their solutions through:

- Structured frameworks for implementation and scaling
- Application of the Whole Product Concept
- Stakeholder mapping
- Sustainable business model development
- Start-up protocols (intellectual property protection, financing, and commercialisation)

The Design4Impact innovation guide

To celebrate five years of transformative impact, MOHT and NCSS proudly present *Design4Impact — A Guide for Innovators and Changemakers in Health and Social Care*.

This guide distils the collective knowledge and experiences of our participants, judges, advisors, facilitators and volunteers, and provides actionable steps for Singaporeans who want to drive positive change. Through a combination of instructional literature and inspiring stories, the playbook will cover D4I's methodology, tools and case studies, serving as a valuable resource on a community-based approach to designing solutions in health and social care.

Six teams — two from NCSS's Sector Design Challenge and four from D4I — open up about their trailblazing experiences. While some of the solutions have evolved into sustainable community programmes, their stories demonstrate that success rarely follows a smooth path. Yet, they unanimously agree that the resilience built, insights gained and meaningful connections formed have made their journeys truly rewarding.

Drawing on the insights and lessons learnt from D4I, we envision an ecosystem that continues to expand in purpose and impact, driving meaningful benefits for society.

Join us in shaping a brighter future for all.

Designing Effective Health and Social Care Solutions

When designing solutions at the socio-health-community intersection, it is important to recognise the complex interplay of social, behavioural and environmental factors that shape one's health and well-being. Our genetic makeup, environment, socio-economic status, education, relationships and living conditions have a deep impact on our health, often outweighing the influence of healthcare alone.

D4I designs care services with a community-first mindset, combining care delivery with community resources and support. This integrated approach addresses individual needs while accounting for the broader factors that impact health and social outcomes.

D4I also applies design thinking to address these health and social challenges. With a focus on understanding citizens' experiences, needs and relationships, this human-centred methodology prioritises their perspectives to co-create effective interventions and deliver meaningful solutions.

The design thinking process is well suited for both the health and social care sectors. It employs ethnographic user research to build empathy and engagement with end users. It also utilises rapid prototyping, ideation and testing, helping design teams apply and adapt new skills and tools to complex sector or community settings.

D4I innovations have demonstrated that technology works best when paired with human-centred approaches. Ideas from previous challenges include easy-to-use care navigation apps for seniors, targeted at supporting patients, and data-sharing platforms to facilitate seamless care transitions, targeted at supporting care providers.

The next section introduces the design methodology that D4I has adopted: the Double Diamond framework by the UK Design Council. It will guide you on the methods and objectives for each step of the design process: Discover, Define, Develop and Deliver.

As design thinking is not merely an implementation of methods but a practice of thoughtful problem-solving, eight essential mindsets are highlighted to illustrate the thought process behind various stages of the design process. These mindsets will empower you to deepen your understanding, envision new possibilities, and arrive at practical solutions with impactful outcomes.

The Double Diamond Framework

The UK Design Council's Double Diamond framework offers a comprehensive approach to the design process, illustrating the phases common to all design projects, irrespective of the methods used:

DISCOVER *(pages 24–53)*

In this phase, immerse yourself in the users' world, uncovering needs, motivations and challenges through research and observation.

DEFINE *(pages 54–69)*

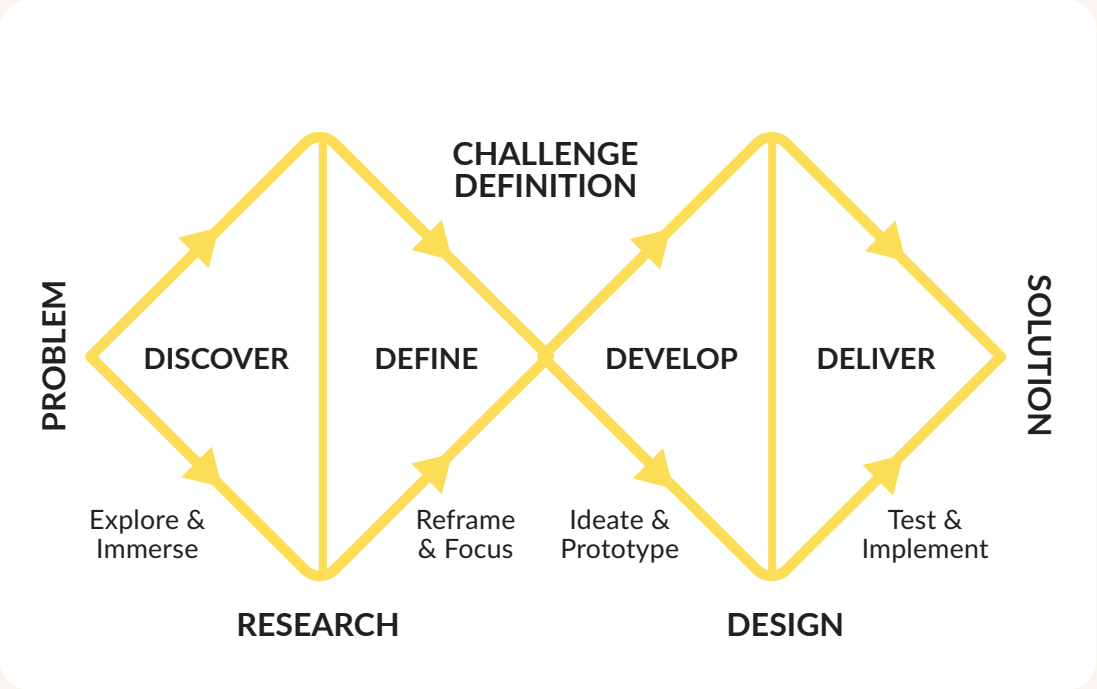
Here, synthesise gathered insights to clearly articulate the problem, defining a focused and actionable design challenge based on the users' needs.

DEVELOP *(pages 70–97)*

Ideation and prototyping take centre stage. Generate a range of creative solutions and tangible prototypes for testing and iteration.

DELIVER *(pages 98–133)*

The final phase involves implementing refined solutions and sustaining them, ensuring that the solutions create a meaningful impact within the community.



Created by modifying "The Double Diamond" © The Design Council (Licensed under CC BY 4.0) https://creativecommons.org/licenses/by/4.0/

Not a linear process

Although presented in four consecutive phases, it is important to note that design is an iterative process; these phases are not meant to be rigid and restrictive. When necessary, there is flexibility to take two steps back to conduct additional research or two steps forward to quickly test concepts.

Embrace the unknown

When tackling problems that no one has a solution for yet, we step into the unknown. Expect ambiguity, especially at the start of your journey. Rather than being frustrated, take the opportunity to explore and learn as much as you can. Trust the process and stay resilient — you can be assured that things will become clearer in time. The tips and hacks offered in this book should help you navigate some of these inevitable hurdles.

Divergent and convergent thinking

The Double Diamond framework brings two different modes of thinking together. Discover and Develop are divergent phases, where we break from conventional thinking and brainstorm as many ideas as possible, without concern for feasibility. Define and Deliver are convergent phases, where we rationalise, prioritise and experiment to hone in on a feasible and effective solution.

Mindsets

Key perspectives for thoughtful problem-solving and impactful solutions

Optimistic

Optimism is not about ignoring facts or denying harsh realities. It is a forward-looking perspective that sees opportunities in difficulties and fosters a sense of hope despite knowing the worst. Even in the face of seemingly insurmountable obstacles, optimism motivates action. It is the essential force that propels us forward, inspiring the belief that solutions exist.

Creative

Creativity is an aptitude that can be improved with deliberate practice. By engaging in divergent thinking, seeking inspiration from diverse sources, and connecting the dots to see new possibilities, individuals can strengthen their creative muscles. Creativity is having the courage to let go of what constrains us, an openness to exploring new perspectives, and the audacity to experiment with what has not been done before.

Holistic

A holistic mindset recognises individuals as integral parts of their communities and that interventions reverberate throughout the broader ecosystem. A systemic perspective enables you to grasp the interconnected nature of diverse elements in the social fabric. This ensures that your solution harmonises with the entire contextual landscape and truly addresses the intricate web of social challenges.

Empathetic

Immerse yourself in the lived experiences of those you are designing for. Actively listen, practise compassion, and acknowledge individual experiences. Being empathetic allows you to gain a deep appreciation and understanding of the intricate contexts and complexities of people's lives. Designing through this lens helps you create solutions that authentically resonate with real needs and aspirations.

Visual

With their ability to convey complex information quickly and effectively, visuals can present the intricacies of social issues and health experiences in easily understandable and relatable ways. Being visually attuned helps us to break down complexities, illuminate opportunities, foster collaboration and stimulate creative thinking, ultimately leading to more impactful and person-centred solutions.

Iterative

Getting things perfect on the first try is uncommon. That's why we iterate. An iterative mindset involves learning, adapting and refining solutions based on feedback and real world experiences. By progressively refining your initial idea through prototyping, testing and iterating, you remain adaptable, responsive and able to move towards the best solution.

Collaborative

Recognising that social issues are multifaceted and inherently interconnected, social innovators who embrace collaboration are better positioned to leverage collective wisdom, resources and networks. Being collaborative, you are more likely to form partnerships and co-create solutions with the community you are designing for. This not only empowers the community to participate actively but also enhances the sustainability of your solution.

Resilient

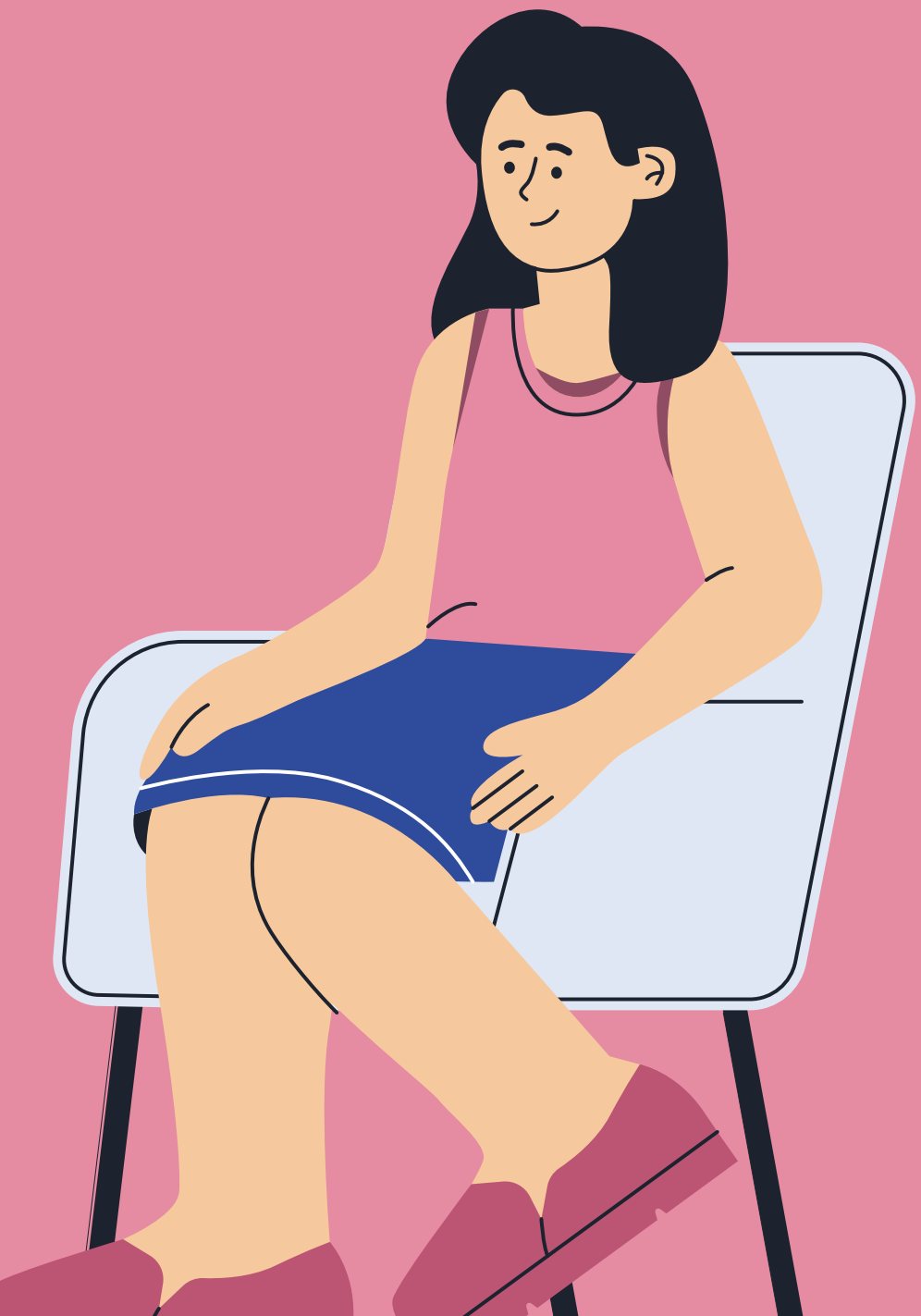
Innovation requires us to venture into the unknown, and changemaking demands that we go up against established systems. In all this, resilience is vital: for recovering from failures, adapting amid changing circumstances, sustaining a strong sense of purpose and commitment, and learning and growing stronger through adversity.

Methods and Tools

Content sourced from active design thinking practitioners and published sources

Methods and Tools

Discover



Problems often occur because of limited information. For this reason, solving problems as they initially appear may not lead us to the most effective solutions.

In this phase, we encourage divergent exploration, gathering as many perspectives as possible and evaluating our assumptions.

By immersing ourselves in the context of the problem, we build empathy and a deep understanding of the problem and the people whom we serve.

In doing so, we hope to uncover insights that could give us the edge we need to create impactful solutions.

Objectives

1. Connect with people through their lived experiences to gather diverse perspectives
2. Explore and be immersed in the context and conditions of individual experiences
3. Build a genuine understanding of the emotions, needs and priorities of individuals
4. Understand how various contributing factors interact and perpetuate the issue over time
5. Revisit what has been done before and what we can learn from it
6. Understand how different stakeholders define and measure success

1.1 SECONDARY RESEARCH

Where to Begin

Before we dive into research and start designing solutions, we must first have clarity and consensus on the problem we would like to solve.

By collectively defining a problem, we align our understanding and concerns regarding the issue we aim to solve, providing a focal point for the team. Clarity about the problem helps us define the scope and boundaries of our challenge. This definition is a work in progress, to be moulded and shaped through our research and design process. Through regular discussions, we ascertain our understanding of the challenge at hand, uncovering knowledge gaps to prioritise for subsequent research and investigations.

Desk Research

Desk research helps to fill the gaps in the team's collective knowledge and get us acquainted with the context surrounding the challenge.

Desk research involves the analysis and synthesis of existing information, data and literature relevant to the challenge. It paints a fuller picture of the prevalence of the issue by building a comprehensive understanding of the subject. It also helps define the scope of the design challenge by shedding light on the current landscape and service gaps. This body of knowledge serves as a foundation that can then be supplemented by primary research, user interviews, observations and surveys to validate and enrich findings. In addition, desk research informs the design process by identifying current local and global efforts, to build upon the insights others have uncovered.

Linked methods:

- Interviews (p. 30)
- Surveys (p. 34)

Netnography

Netnography is a qualitative research methodology used to study online communities, behaviours and cultures. It is a form of ethnography (the study of human cultures and behaviours), adapted for the online environment.

In today's digital era, the Internet serves as an important node in the exchange of information. What sets netnography apart from regular desk research is its focus on online patterns and organic, real-time interactions within online communities. Netnography involves observing, participating in, and analysing online interactions, through channels like social media platforms, online forums, blogs, chatrooms and virtual communities.

The extensive data available enables us to study and analyse mindsets and attitudes, while gleaning useful insights into how people navigate, cope with or solve problems. Given the constant evolution of online communities, this approach allows us to stay abreast of changes and identify emerging trends.

For further information on the methods within this section, scan here:

1.2 QUALITATIVE METHODS

Interviews

Engaging in deep conversations with our users enables us to explore personal experiences, perspectives and emotions, uncovering rich insights into pertinent issues.

We conduct interviews to uncover the views, motivations and pain points of those we hope to serve. Interviews help us build empathy and see through our users' lens, allowing us to frame problem statements and design solutions with our users at the core of our decision-making. They can be supplemented with quantitative data, surveys and observations to validate findings and ensure a well-rounded perspective. Desk research is best done before interviews to establish a baseline understanding of the issue.

Linked methods:

- Desk Research (p. 29)
- Field Ethnography (p. 32)
- Surveys (p. 34)
- Journey Map (p. 58)
- Persona (p. 59)

> The ability to hold space for the people we serve or work with will be as important as — if not more important than — any innovation we can ever come up with. Our ability to create change lies in our ability to see the world through the other person's eyes and not simply our own, because all of us have very different perspectives ... The more we take the effort to listen, to empathise, to appreciate the other person's world, point of view or even simply preferences, the more we can create change in a meaningful way.
>
> *Martin Tan*
> *CEO, The Majurity Trust,*
> *on the importance of embracing a mindset of empathy in designing solutions*

Method-in-Focus

Before delving into interviews with key stakeholders, it is essential to cultivate empathy for them, because our solution is designed precisely for them. One tool to help participants develop deep empathy is the Eye-Hand-Heart method, which highlights three aspects of developing empathy:

Eye

Participants should observe individuals discreetly without disrupting their flow, taking note of their activities, surroundings, interactions and touchpoints throughout their journey. Recognising patterns, irregularities, moods and frustrations is crucial during this phase.

Hand

Next, participants ought to immerse themselves in the activity to gain first-hand experience, simulating the user's perspective. For instance, to understand the experience of someone who is paralysed from the waist down, a common method is to hit the streets in a wheelchair to appreciate how tough it can be to navigate simple experiences that we take for granted.

Heart

Participants are encouraged to engage directly with primary and secondary users, possibly through multiple interactions or over time. They need to envision themselves in their users' shoes, contemplating their actions and feeling their emotions to gain insight into their motivations and experiences.

Beyond the direct users of the service or product, it is also advisable to speak to relevant indirect users, particularly those in specialised fields.

> Indirect users can come in many forms, such as stakeholders or subject matter experts, who may influence the user experience or possess valuable insights. We can learn from their experiences, whether successes or failures, to avoid repeating the same mistakes.
>
> *Quentin Quek Chun Beng*
> *Founder & Creative Director, Design Insight,*
> *on how speaking to indirect users with empathy can enrich research*

Field Ethnography

This is an immersive study of human values, culture and social behaviour through participation and close observation within real-world settings.

Field ethnography is an approach to gaining a deep understanding of our users' daily experiences, needs and challenges. This is particularly valuable in uncovering underlying needs, behaviours and cultural nuances which might otherwise not be articulated. Field ethnography can be carried out through observations, participation and informal conversations. It may also be supplemented by interviews, gathering of documents and artefacts, and community asset mapping. Integrating these approaches provides a holistic view and a more comprehensive first-hand understanding of the users and their community, leading to solutions that are highly attuned to their context.

Linked methods:

- Interviews (p. 30)
- Community Asset Mapping (p. 36)

Service Safari

By exploring the service ourselves, we can step into the shoes of our users and understand their thoughts, frustrations and concerns as we move through each service point.

Service Safari is a design research methodology where we immerse ourselves in the user's environment to observe their experiences in real-world settings — much like a visitor in a safari. It involves observing how users interact with a service or product in their natural environment; taking note of pain points, moments of satisfaction and areas for improvement; gathering deeper insights from users through interviews or informal conversations; and documenting findings through photos, videos or written notes.

The goal here is to gain a deeper understanding of the user's needs, behaviours and motivations. This empathy-driven approach helps us design more user-centred and effective solutions. It also helps us understand why certain envisioned solutions don't work, allowing us to pivot and explore workarounds based on the new evidence gathered.

Linked methods:

- Interviews (p. 30)
- Field Ethnography (p. 32)
- Surveys (p. 34)
- Journey Map (p. 58)

Shadowing

By unobtrusively observing individuals amidst service journeys and life experiences, we discover behavioural insights and identify pivotal moments that are most significant to them.

Interviews and surveys are limited by what people can remember and are willing to share. Direct observations enable us to uncover needs, pain points and challenges faced in real-world settings. Shadowing is a form of direct observation where we follow individuals through an experience or service journey, allowing us to capture raw, unfiltered emotions and behaviours as they unfold. This allows us to pinpoint the moments that matter most to them. Similar to all observational methods, we need to be mindful of and minimise the Hawthorne Effect — the tendency for people to act differently when they know they are being observed.

Linked methods:

- Interviews (p. 30)
- Field Ethnography (p. 32)
- Journey Map (p. 58)

Journals

Information can be gathered by getting users to record entries on a particular activity or experience, helping us to understand their behaviours, motivations and attitudes.

We cannot be present at every moment to observe people, especially when they are in the confines of their homes or if the experience of interest spans across time. In such cases, we may choose to enrol key users as research participants and have them jot down their thoughts, observations and reflections in a journal over time or as they experience the existing service interactions. A semi-structured journal can prompt participants to reflect and provide needed responses, accompanied by photos or videos by the participant that capture key moments — thus obtaining otherwise inaccessible data. Journals can also be supplemented by interviews and surveys to deepen insights.

Linked methods:

- Interviews (p. 30)
- Surveys (p. 34)

For further information on the methods within this section, scan here:

1.3 QUANTITATIVE METHODS

Surveys

One of the most commonly used research methods, surveys yield large amounts of data quickly but should be used with caution.

As a primary research tool, surveys offer several advantages, including reaching a wide audience quickly and collecting quantitative data to identify trends or patterns. However, surveys have their limitations. Without prior qualitative research to understand the problem and users' needs, there is a risk of asking the wrong questions, yielding shallow insights that lack context or depth. This can lead to misinterpretations and flawed conclusions. To prevent this, surveys should be designed based on preliminary findings obtained through qualitative research methods, such as interviews or shadowing.

Linked methods:

- Interviews (p. 30)
- Field Ethnography (p. 32)
- Shadowing (p. 33)

> In human-centred design, we need to see beyond the immediate, and understand interdependencies that underpin the issue at hand. It's about crafting solutions that not only address the issue but also fit neatly into the broader human and environmental ecosystem.
>
> ***Lim Cher Wee***
> *Executive Director, MOH Office for Healthcare Transformation, on the importance of holistic research in solution design*

For further information on the methods within this section, scan here:

1.4 LANDSCAPE MAPPING

Community Asset Mapping

This tool is targeted at identifying and mobilising the strengths and assets within the community.

In community asset mapping, individuals from the community actively participate in identifying their assets, which may include people, physical spaces, businesses, organisations, public institutions, community nodes, skills and other strengths. The process not only reveals unmet needs along with service overlaps or gaps — it also redirects the focus from challenges to strengths, empowering communities to harness their internal capabilities for positive change. This is especially beneficial when designing initiatives that capitalise on local strengths and encourage community-driven solutions.

Linked methods:

- Ecosystem Map (p. 36)

Ecosystem Map

This is a visual representation of the interconnected network of stakeholders, entities and factors that influence a system.

All of us — whether individuals, service bodies or government entities — exist within ecosystems. An ecosystem map illustrates the relationships, inter-dependencies and interactions among various components within this interconnected space, including individuals, organisations, resources, regulations and technologies. By visually illustrating these relationships and identifying strong dependencies within the ecosystem, we can appreciate the complexity of effecting systemic change, identify key players, anticipate the potential impacts of changes, and uncover opportunities for collaboration or intervention.

Linked methods:

- Desk Research (p. 29)
- Interviews (p. 30)

Stakeholder Map

Not all stakeholders require the same level of attention. We can prioritise and differentiate our engagement strategies based on the influence and impact of each stakeholder group.

Managing complex projects with diverse stakeholders requires us to prioritise based on influence and impact. Influence refers to the ability to sway decisions, opinions or actions within a project. Individuals with high influence can mobilise resources, alter perceptions or affect the behaviour of others involved. Impact, on the other hand, relates to the degree of effect on the project. Those with high positive impact can offer valuable support, resources or expertise. Since stakeholder dynamics are not static, strategies must continually be adapted to manage stakeholders effectively.

Linked methods:

- Ecosystem Map (p. 36)

See Team Story on p. 94

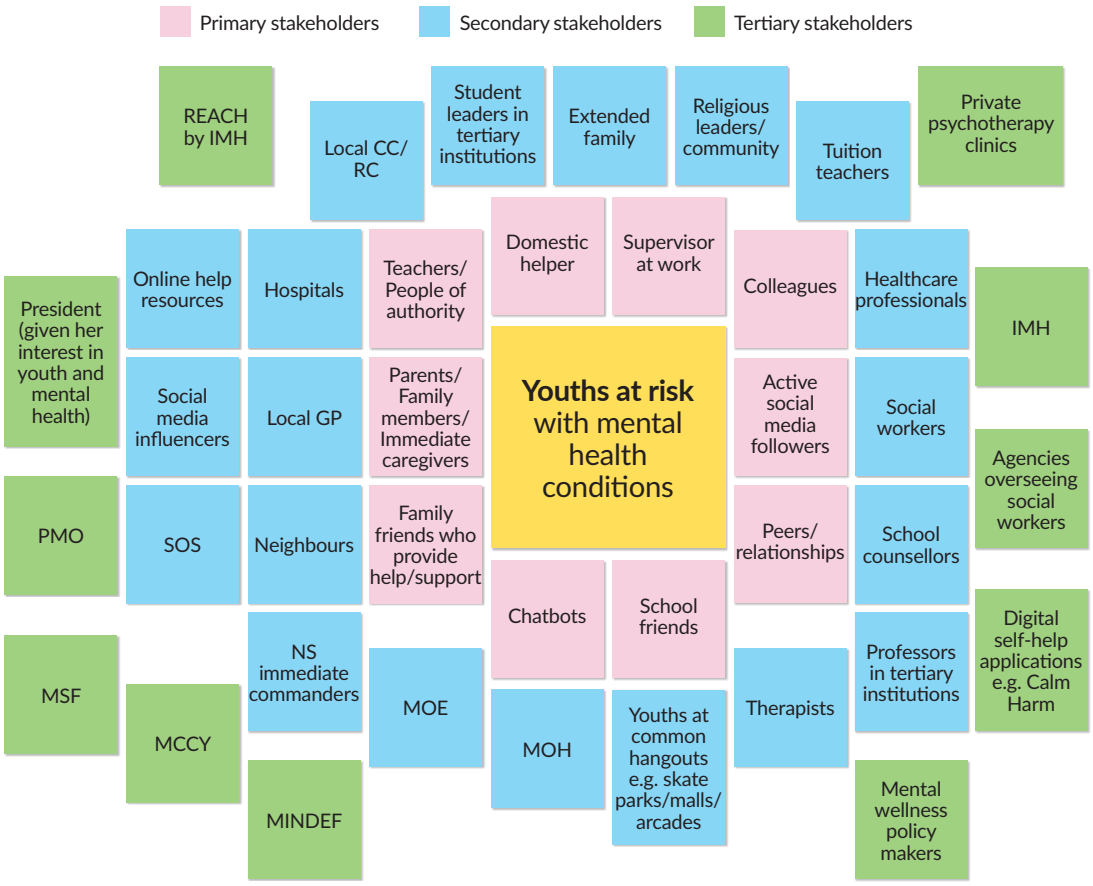
Method-in-Focus

Solution: Garden2Gather
Team members: Tan Yan Ling, Gigi Koh, Marc Yun, Loo Chuan Jie, Joanne Koh

Garden2Gather (G2G), one of the winners of Design4Impact 2021, aimed to alleviate the social isolation and loneliness experienced by seniors through building a sense of community via a shared hobby of gardening.

With Boon Lay offered as an implementation site, the team hoped to foster self-sustaining home gardening communities within local neighbourhoods. The endeavour would not only increase seniors' social contact points but also empower them to take up a hobby and care for one another, bringing some comfort and purpose to their lives.

G2G used an asset-based community development approach that identified and harnessed the capabilities, interests, strengths and assets of Boon Lay residents. This model empowered participants to become 'community leaders' who would take charge of growing and sustaining the community. Referencing the idea that gift economies can create a social bond between gift givers and recipients, gardening workshops were designed to encourage the exchange of gifts and resources, as well as social interaction, among the participants. A series of follow-up activities led by the 'community leaders' was also planned, to encourage participants to meet up outside of designated workshops, fostering ownership of a community space.



Ecosystem map of Guys, Keep It Real

> Design4Impact social innovators are actually social entrepreneurs. The ingredients of a business entrepreneur overlap significantly with a social entrepreneur ... Both hold a holistic mindset, brainstorming solutions that account for the interplay of various societal factors. The main difference is the goal: social entrepreneurs have nobler, timeless goals — social good, which is worth many times more than mere profits and IPOs.
>
> ***Professor Gerald Koh***
> *Head and Clinical Director of the Future Primary Care programme,*
> *MOH Office for Healthcare Transformation,*
> *on the need for a holistic mindset that considers wider societal factors surrounding an issue*

Solution: Guys, Keep It Real
Team members: Kester Tay, Kavitha Shekar, Alan Anand Selvin, James Lim, Ryan Lee, Ang Cheah Whee, Toh Zi Kit

One of the winners of Design4Impact 2021, Guys, Keep It Real, sought to support the mental health of male youths through conscious conversations that would unearth the challenges they typically face and their help-seeking behaviours.

To achieve this, the team examined the various layers of stakeholders, beginning with the primary stakeholders exerting the most influence on male youths, followed by secondary and tertiary stakeholders with decreasing impact.

Interviews with male youths revealed that instead of finding support from their immediate family members during tough times, they often face dismissiveness and social stigma towards mental health issues. Consequently, male youths seek solace in their peers and partners. Understanding these relationship dynamics informed the team's approach to its solution.

The team came up with an activity-based intervention in the form of "Keep It Real" game cards — a conversation starter that addresses common challenges faced by male youths and helps them gain awareness of their mental and emotional needs. The card game creates a safe environment for male youths to share their struggles openly, challenging toxic masculinity norms.

Beyond primary stakeholders, the team also considered the perspectives of and interconnections with secondary and tertiary stakeholders, such as neighbours and community providers. Despite their smaller degree of influence, it is pertinent to monitor any changes in policy or external factors that could potentially impact the proposed solution.

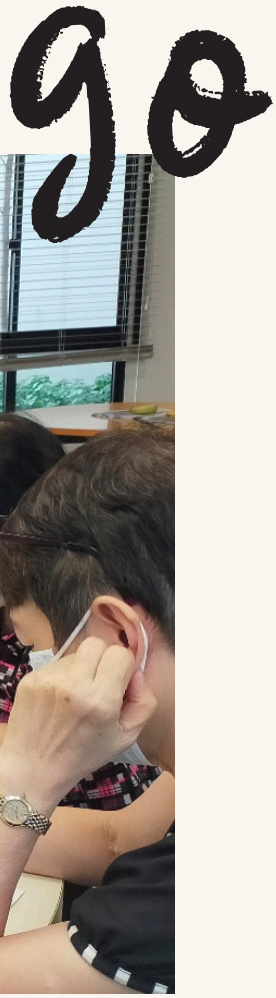
For further information on the methods within this section, scan here:

Block Us Block Bin

Team Members

Yong Limin, Tan Chang Tat, Kelly Kua, Seah Jia Neng, Etinne Tan, Yeo Bee Lian, Lim Jie Ying, Carrie Teo

How might we leverage the power of the community to motivate HDB residents to develop healthy lifestyle habits?



Premise

Movement restrictions during the COVID-19 pandemic caused disruptions in lifestyles. Singaporeans — particularly seniors, low-income households, caregivers and persons with disabilities — became increasingly sedentary, due to the lack of opportunities to adopt and practise healthy habits.

Where It Began

Social distancing measures imposed during the COVID-19 pandemic limited interactions and community gatherings, resulting in a decline in mental and physical health. This was reflected in the National Population Health Survey, which reported decreased physical activity and a rise in chronic diseases in 2020.

A diverse group of design engineers, a social worker and a physiotherapist came together during Design4Impact 2020 to address this issue through a blend of gamification and community activation.

The idea? To pit the residents of two HDB blocks against each other in a series of challenges that involved teamwork and physical activity. Ultimately, the goal was to inspire residents, their families and neighbours to pursue a healthier lifestyle.

Insights from Research

To familiarise themselves with the community while adhering to COVID-19 restrictions, team members conducted field research through phone interviews and text messages with six HDB flat dwellers. These conversations provided valuable insights into residents' motivations, perceptions, concerns and challenges related to health-seeking behaviours.

Two key insights emerged: First, people often adopt behaviours observed in their social circles to avoid being left out. Second, individuals often prioritise and feel a strong sense of responsibility towards the health and well-being of their family and friends, and hence motivate their family and friends to adopt healthier lifestyles.

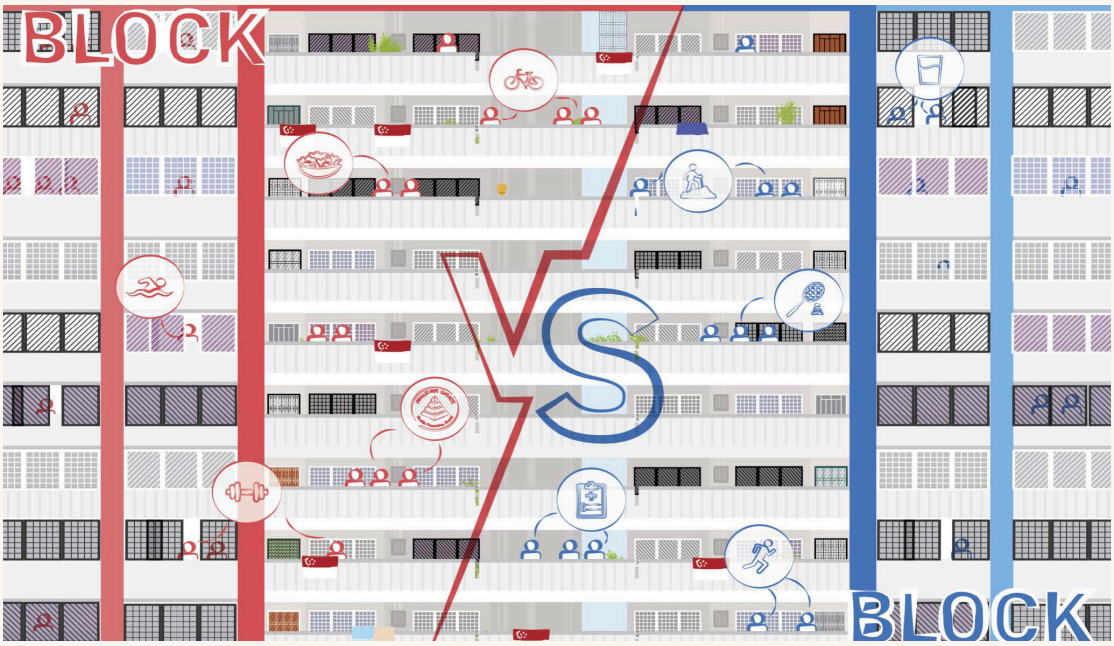
Solution

The team partnered with Jurong Central Zone A Residents' Committee (RC) and selected HDB Blocks 485 and 478 in Jurong Central to participate in a 21-day Block vs Block Bingo challenge. Residents had to team up with family members and neighbours to complete sports and wellness tasks in exchange for prizes.

Bingo cards were distributed to every household. Every card comprised nine tiles, each featuring a health-promoting activity. Households that completed a line of tiles stood to win grocery vouchers.

Due to the evolving COVID-19 restrictions, the team had to adapt the challenge into a hybrid version — incorporating online health and nutrition talks, virtual and in-person low-impact workouts, healthy eating quizzes and specified physical activities.

As challenges required residents to team up to achieve collective goals, the activities also strengthened family bonds and fostered neighbourliness.



Block vs Block Bingo poster

Obstacles

As the team comprised different individuals who were not part of the same organisation, all the original members of Block vs Block Bingo returned to their "day jobs" after the Design4Impact challenge, except Yong Limin, who was then Head of Allied Health at Methodist Welfare Services (MWS).

"While this is not unexpected given the nature of such designathons, it was still very tough for me, as the only remaining member, to consider if I wanted to quit or to carry on," recalled Limin. Determined not to give up on the cause and encouraged by the support of implementation partner Jurong Central Zone A RC, Limin decided to press on, even as it was going to be a solo effort.

"I'm grateful to the D4I Organising Committee who never gave up on us, and innovated ways to help," she added. One of these ways was to work with funders to offer flexibility to use the seed grant for manpower hiring. With that, Limin was able to enlist her colleagues from MWS, Lim Jie Ying and Carrie Teo, as new project team members.

The pilot — which ran from 1 to 21 December 2021 — was beset with challenges.

Even as the world ventured cautiously into post-COVID norms, residents were reluctant to meet in person, affecting the attendance of planned activities. A largely senior demographic also meant a low take-up rate for online activities. Several residents provided feedback that they were not aware of the pilot, citing insufficient publicity; others who declined to participate commented that the $15 vouchers were "not attractive enough" prizes.

The pilot concluded with activities of varying attendances, with just one resident completing her bingo board, winning fruit vouchers for her entire block.

Key Learnings

- ### Overcome unexpected challenges by adapting quickly

To raise awareness and participation among the two identified HDB blocks, the team distributed pamphlets door-to-door, put up posters in lift lobbies, and launched a website with additional information. Despite these efforts, only one resident signed up for the online talk on healthy lifestyle tips. To boost the sign-up rate, the team extended invitations to all residents within the Jurong Central Zone A precinct. The RC also assisted by sharing personalised publicity messages through various WhatsApp chat groups. However, when the sign-up rate remained low, the team explored other strategies to boost participation, such as updating poster designs with timely progress updates and tapping on the RC's Facebook page for publicity.

- ### Thorough field research is essential

Together with the RC members and staff from MOHT, the team conducted a post-project door-to-door survey to gather feedback from residents on how the project could be improved. Key insights from the survey included making prizes more attractive; focusing on activities that address the daily needs of residents, such as affordable healthy food choices; simplifying publicity messages; and conducting more on-site events for seniors who may not be tech-savvy.

"If we had had the opportunity for face-to-face interviews, we believe we could have gathered more insightful information. This might perhaps have led to a different version of our solution," Limin reflected. "Post-pilot implementation, we recognised that Block vs Block Bingo wasn't as feasible as we'd anticipated. Given a chance to redo it, we would allocate more time for thorough field research, and perhaps a longer duration for the pilot."

> Given a chance to redo it, we would allocate more time for thorough field research, and perhaps a longer duration for the pilot.
>
> ***Yong Limin,***
> *Block vs Block Bingo team member*

- ### Leverage active community networks and partners

The team was able to tap on the RC's support to increase publicity and boost participation. In addition, one key insight from the post-project door-to-door survey was the need to utilise active community groups, like those formed around group buying, to engage residents.

- ### The importance of team composition

The team comprised members from diverse backgrounds, which brought interesting perspectives from various industries. However, its diversity was also a double-edged sword, as competing priorities and commitments meant that members of the original team had to exit the project post-challenge.

- *Resilience is vital for recovering from setbacks and adapting to change*

After the departure of her original team members, Limin sought support from her own organisation, MWS, to host the initiative; she also recruited new team members from MWS.

Additionally, Block vs Block Bingo faced persistent challenges in garnering participation among the community. Nevertheless, the team remained committed to the project and persevered, viewing setbacks as opportunities for growth. Its resilience resulted in the evolution of Block vs Block Bingo into the Activity Bingo Challenge: Version 2.0 of Block vs Block Bingo, which expands the gamified initiative to the wider community.

Next Steps

Driven by her passion for Asset-Based Community Development (an approach to sustainable community-driven development that identifies and mobilises existing but often unrecognised assets), Limin launched the second phase of the Block vs Block Bingo initiative within the MWS ecosystem. Recognising the gap in health literacy among seniors and the growing focus on active ageing programmes within the Community Care sector, she envisioned Block vs Block Bingo as a way to educate people about healthy eating and incentivise healthy behaviours.

To fund this pilot, the team applied for the Community Silver Trust Fund — a matching grant provided by the government for social service agencies — through MWS. With these funds, the team is now implementing the Activity Bingo Challenge.

Seniors have responded positively to the Activity Bingo Challenge, which is currently available in English and Chinese. The gamification element attracts seniors to the Active Ageing Centres, encouraging interaction and engagement. The team recognises the broader potential of gamification to promote healthy lifestyles among seniors, and plans to eventually scale the pilot to all seven Active Ageing Centres under MWS.

Final Thoughts

Jie Ying shared candidly, “We asked the organisers: Did the pilot fail? But we discussed and agreed that even though we didn’t get the results we had hypothesised, we learnt many important lessons, such as people’s motivations, behaviours and health-seeking appetites during a pandemic, and the extent that gamification and incentive-based health activation can work.”

Despite the initial challenges it faced, the team remains committed to leveraging gamification to promote healthy lifestyles and foster community engagement. It plans to refine the model and expand its reach to create a healthier and more connected community.

Dad's Awesome Camp

*Faces blurred to maintain anonymity

Team Members

Althea Rae Chan, Annie Lee, Julia Ng, Kerris Loh, Ong Lay Hoon, Sandra Tan, Abigail Gabriel Elizabeth, Chew Kah Rui, Goh Yee Ching, Insyira Binti Rosly, Khor Hao Yu, Lio Shoo Wan, Ng Jia Xin

How might we encourage fathers of children with special needs to be more involved in caregiving and contribute to the family's overall well-being?

Premise

Statistics provided by the Movement for the Intellectually Disabled of Singapore (MINDS) show that mothers are shouldering 90% of caregiving responsibilities for Persons with Intellectual Disability (PWIDs), leaving fathers feeling disconnected and uncertain about how to contribute.

Where It Began

Dad's Awesome Camp was conceived during Design4Impact 2021 by six colleagues from MINDS who regularly interacted with PWIDs. This engagement had given them the opportunity to communicate with the fathers of children with special needs and gain a deeper understanding of their needs and challenges — leading them to discover that fathers have less robust social networks than mothers and lack father-focused support when they face challenges.

Hence, the team developed Dad's Awesome Camp: a programme for fathers of children with special needs, which includes outings, virtual workshops and in-person camps, designed to promote bonding and confidence-building.

Insights from Research

From interviews, the team discovered that fathers of children with special needs aspire to be more involved in caregiving; however, they lose touch and confidence in caring for their children over time as mothers often take on the role of the primary caregiver.

A focus group discussion conducted by the team with another group of fathers of PWIDs confirmed this. As team member Julia Ng put it, "We realised that it is not that fathers don't want to partake in caregiving; rather, they don't know how and where to start."

Fathers acknowledged that bonding with their children is a process that takes time. They expressed a desire to gain confidence as the primary alternative caregiver once they become a trusted figure to their children. They also noted that actively participating in addressing their children's daily needs, such as eating, sleeping and showering, helps boost their confidence.

The team then brainstormed and curated a series of activities for a solution called "Dad's Awesome Camp", and conducted user testing with the group of fathers to assess the viability of the idea. It received positive feedback, with fathers expressing enthusiasm and sharing a short wishlist of activities they would like to do with their children — mainly sports and other physical activities.

> We realised that it is not that fathers don't want to partake in caregiving; rather, they don't know how and where to start.
>
> *Julia Ng,*
> *Dad's Awesome Camp team member*

Solution

Dad's Awesome Camp is a programme that aims to forge meaningful connections between fathers and their children with special needs, while fostering a supportive community among these fathers. It comprises in-person camps with inclusive activities through which fathers can uncover their children's talents and potential; workshops that provide fathers with resources and professional caregiver training; and outings where fathers can share candidly about their experiences and challenges in fatherhood. At the same time, the mothers gain some respite from caregiving and time to themselves. Overall, Dad's Awesome Camp contributes to the well-being of families caring for children with special needs.

After a pre-camp talk in January 2023, the team piloted the first Dad's Awesome Camp, which was a four-hour activity for fathers to bond with their children, instead of an overnight camp. While the camps were initially scheduled for the school holidays, fathers provided feedback that the three-month gap between camps was too protracted for them to maintain and strengthen the connections forged. The team therefore adjusted its approach, organising dads' outings alongside virtual sessions to equip fathers with the knowledge to support and engage with their children, all before the second iteration of Dad's Awesome Camp.

To ensure long-term sustainability, the team integrated a blend of virtual support group sessions and additional dads' outings into its original series of camps.

Father-child bonding at the Singapore Discovery Centre during Dad's Awesome Camp 2

Evaluation

Since developing its implementation plan, the team has successfully piloted two virtual support group sessions, three dads' outings, and four father-child camps, with one being an overnight camp at D'Resort @ Downtown East. The pilot in 2023 achieved several outcomes.

First, it increased the fathers' confidence in caregiving, as measured by a qualitative survey.

Second, it built stronger bonds between fathers and their children with special needs, as measured by a qualitative survey.

Third, it expanded the fathers' social networks and increased their social support, as measured on the De Jong Gierveld Loneliness Scale.

Participants in Dad's Awesome Camp shared that they were glad to have had "the chance to know people with similar life experiences" and were looking forward to future sessions. They also found it insightful to discuss the various roles fathers play — as caregivers, mentors, husbands, individuals, leaders, and members of a community.

"Not only did the team create a bond with the dads as a whole; the dads also created bonds among themselves," team member Althea Chan recalled. "For instance, it was heartening to hear the dads inviting each other to go out over the Christmas season."

Fathers and children with SingaPaw at the Singapore Discovery Centre during Dad's Awesome Camp

Key Learnings

- ### Understand and meet your users' needs

From their regular interactions with PWIDs and caregivers in their work at MINDS, it was natural that the team had formed assumptions and stereotypes about what their beneficiaries were going through and what their needs were.

"Going through the design thinking process allowed us to look past our assumptions and take a fresh look at what fathers of children with special needs are facing at this point, and not just during the time we worked with them previously," team member Goh Yee Ching reflected. "We should ask ourselves if there are other obstacles these fathers face that we have never noticed before, or may have neglected while focusing on other issues."

Fellow team member Julia concurred: "It was a good experience to continuously listen to and learn from our users. This ensures that our solutions are relevant, meaningful, and impactful."

- ### Be aligned on the team's vision

At the start of the pilot phase for Dad's Awesome Camp, the team experienced major staff movements due to an internal reorganisation at MINDS. Some team members changed departments and left, while new colleagues joined, with the support of the MINDS management team. Nevertheless, the new team quickly aligned with the project's objectives and fully embraced the task at hand. Synergy was established swiftly as members leveraged each other's strengths effectively to get things done.

> If the need is unclear, you might become lost or demotivated. Having that focus helps; it's something you can always fall back on to keep you going.
>
> ***Khor Hao Yu,***
> *Dad's Awesome Camp team member*

Yee Ching, one of the new team members, reflected on what helped her come on board: "Ploughing through the pitch deck and video helped me grasp what this project is all about, but the interviews were what provided a deeper understanding of the original team's goals and their thought processes."

Clarity on the project's driving purpose is vital, team member Khor Hao Yu agreed: "If the need is unclear, you might become lost or demotivated. Having that focus helps; it's something you can always fall back on to keep you going."

- ***Be open-minded***

The team highlighted that delivering Dad's Awesome Camp was an enjoyable experience because members remained open to each other's ideas. Althea emphasised the importance of flexibility when team members had differing perspectives on the programme. Yee Ching echoed Althea's sentiments: "Always discuss with the team to see what is feasible — sometimes, a crazy idea can turn into something useful when you embrace it."

The first Dad's Awesome outing

Next Steps

In 2024, the team went on to conduct a series of support group sessions and family outings for another group of fathers of children with special needs. It will continue to evaluate the effectiveness of the programme and look into the long-term sustainability of Dad's Awesome Camp.

The team aspires to empower fathers of children with special needs to become leaders who volunteer to support future camps. It is also looking to galvanise a community of father-caregivers to advocate for themselves and share their knowledge. Finally, the team hopes to celebrate and recognise these fathers for their contributions and achievements, raising awareness in the process.

"For continuity, there needs to be a level of initiative and sense of group identity," Hao Yu pointed out. "If it is always the team organising, Dad's Awesome Camp is not going to be sustainable. I think if they can reach a point of continued relationship, then it is considered successful."

Final Thoughts

When asked to sum up the experience, Hao Yu thought of a moment that inspired him most: "One of my fondest memories is of the organic, unfacilitated conversations that took place among the fathers. Before the event started, the fathers came in, interacted and talked about how each of them was doing. Witnessing this was very motivating and made me feel like Dad's Awesome Camp had met its objectives."

Methods and Tools

Define

To distil information into actionable insights, we go through a process of sense-making, where we connect the dots to see the complete picture. Using design tools and methods, we identify the moments that matter most to people. Reframing the problem based on research insights sets us in the right direction, helping us to craft a design challenge focused on person-centred outcomes.

Objectives

1. Share the information gathered to build a cohesive worldview
2. Leverage diverse perspectives to uncover patterns and new insights
3. Apply design tools and methods to focus on people and the moments that matter most to them
4. Validate insights with stakeholders
5. Reframe the problem into a design challenge

Journey Map

Creating a tangible map of an experience allows us to examine actions, emotions and interactions, bringing to light the key moments where people actively seek solutions or cope with challenges.

A journey map turns intangible experiences into concrete insights, uncovering key details, pain points and opportunities. It also serves as a communication tool to align objectives and enhance collaboration.

A journey map illustrates a shared experience of the target group, and is hence commonly used in conjunction with personas. It is important that ample research be conducted to ensure the journey map accurately represents the target group.

Besides charting current experiences, a journey map can also be used as a planning tool to design future experiences.

Linked methods:

- Interviews (p. 30)
- Field Ethnography (p. 32)
- Shadowing (p. 33)

Method-in-Focus

Solution: Pillowpal
Team members: Julia Foo, Jacky Tan, Loh Shu Ting, Niki Lim, Denise Eng, Helen Chong

At the height of the COVID-19 pandemic, a group of participants in Design4Impact 2020 recognised the need to design a solution for socially isolated seniors who were particularly vulnerable to home emergencies. By interviewing these seniors and describing their experiences using a journey map, the team discovered the seniors' sense of insecurity and the challenges they faced in the event of health crises, such as a fall or a sudden deterioration of their medical condition. The team also realised that delays in receiving timely medical support could further endanger the lives of these seniors.

Guided by these insights, the team developed Pillowpal: a trusty companion in the form of a pillow that, when squeezed for three seconds or more, would alert the senior's caregiver or a 24-hour healthcare provider to check on the senior immediately. While help was on its way, Pillowpal would play soft, calming music. Whether they are alone at night, enjoying a meal or watching television in the living room, Pillowpal offers peace of mind to seniors navigating the uncertainties of ageing alone.

Persona

Personas embody the needs, motivations, behaviours and attitudes of real individuals, helping us to keep the design process grounded in human experience.

Personas are fictional yet research-based representations of the people we aim to support — such as caregivers or seniors — and encapsulate key human characteristics contextually important to the design challenge. Integrating personas effectively throughout the design process keeps us attuned to human needs, ensuring solutions are person-centred and aligned with people's values, needs and preferences.

It is important to undergo a rigorous research process before constructing personas. Immersing ourselves in the lived experiences of users helps to not only dispel biases but also identify any significant factors that shape their decisions.

Linked methods:

- Interviews (p. 30)
- Field Ethnography (p. 32)

See Team Story on p. 67

Scenario:
Mdm Rosmah, a 70-year-old living alone, experienced a bad headache while in the toilet on a Friday night.

Needs and Goals:
- To be able to seek help at any time when needed
- To stay healthy both physically and mentally

Stages	Major medical episode at night	Seeking help	Diagnosis & treatment	Discharge & back in community
Actions	Could not locate my phone Wanted to use the alarm system but it was too far away	Got up from the toilet floor after 1.5 hours Crawled slowly to the phone to call 995	Discussed with medical team about condition and plans for discharge Recuperated with medication and physiotherapy	Learnt to identify when unwell and seek medical attention if needed Attempted to ask neighbours if they are able to help in emergencies
Thoughts/ Feelings	Worried I might die alone since nobody is able to help me Need to muster the strength to call 995 for help	It would have been helpful if someone detected my fall and assisted me immediately It was so exhausting and I am worried the delay affected my health	I know I am well taken care of by the hospital team I look forward to going home	Who can help me if something happens to me again at night? I feel like I am imposing on my neighbours when I ask them for help
Emotions	Fear	Exhaustion	Relief	Caution
Pain Points/ Opportunities	Assist Mdm Rosmah in getting help and access to medical attention immediately Help Mdm Rosmah calm down when trying to seek help **An alert to indicate Mdm Rosmah is in an emergency**		Help Mdm Rosmah identify that she needs medical attention early before it escalates Enable greater awareness of medication needs and control over her health **24-hour access to medical help**	

Iceberg Model

The Iceberg Model uncovers the underlying factors that drive human challenges, helping us to understand the issue more deeply and develop more effective solutions.

The Iceberg Model illustrates that there's often more to a situation than what's visible on the surface. The visible part of the iceberg represents the obvious aspects of a problem — what is often easily observable and receives the most attention. The submerged part of the iceberg symbolises the underlying factors that contribute to the problem, which are often hidden, complex and more challenging to address.

When applied in a design process, product features are categorised into four levels from the user's point of view, namely:

- Events are surface-level manifestations of a problem, often appearing as symptoms of deeper issues.
- Patterns emerge through analysis, revealing recurring behaviours and relationships.
- Persistent Patterns are maintained by Systemic Structures: interconnected elements and relationships within a system.
- Systemic Structures are perpetuated by Mental Models: beliefs, attitudes and cognitive frameworks shaped by individual experiences.

By exploring below the surface, we can address root causes rather than merely reacting to symptoms, paving the way for sustainable and impactful solutions.

Reframe

Reframing our challenge before developing solutions helps us to focus on what matters and ensure that solutions align with real needs.

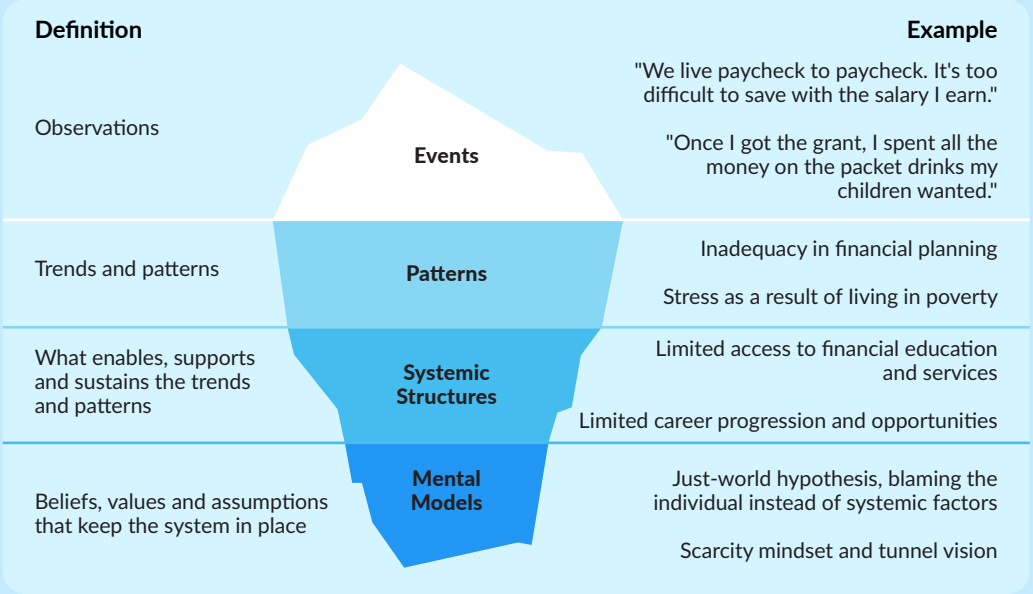
All our research, empathetic exploration and insights synthesis boil down to this: framing and reframing challenges. How we articulate our challenge frames our perspective, guiding our attention and shaping our approach to finding solutions. This is why we pay close attention to how we structure and articulate our challenges. In fact, the process of discovery never truly ends — we must remain open to reframing our perspectives when new insights emerge.

For further information on the methods within this section, scan here:

Method-in-Focus

Below is an application of the Iceberg Model that explores the layers of complexity surrounding poverty and social mobility. Starting with Events, we analyse research, observation notes and interview transcripts to identify data points and direct quotes that highlight the challenges or behaviours of people living in poverty.

Identifying recurring Patterns within Events helps us uncover plausible underlying causes and relationships that can be further investigated. For example, some living in poverty may consistently spend beyond their means shortly after receiving financial support. This behaviour might stem from various factors, such as the constant stress of poverty that hinders long-term financial planning, and the cyclical nature of poverty, where individuals lack the means to break free from their circumstances.



For every Pattern identified, we can examine the Systemic Structures that perpetuate them. A Systemic Structure that perpetuates the cyclical nature of poverty could be the limited access to mainstream banking services. Those living in poverty may lack the necessary documentation or collateral to access financial products like bank accounts or loans. Without access to basic banking services, they may rely on cash transactions or alternative financial services, which often mean higher fees and limited consumer protections.

Finally, we can uncover the Mental Models undergirding each Pattern and Systemic Structure identified. For instance, people living in poverty may fear taking on debt and financial obligations due to unfamiliarity with banking products, exacerbated by a poor command of language or a lack of formal education. These barriers may prevent them from accessing essential financial products and breaking the cycle of poverty.

Understanding these layers of complexity helps us distinguish root causes from symptoms, enabling us to formulate more holistic and targeted solutions while minimising unintended consequences.

SAFSG

Team Members

Tan Hwee Xian, Glenda Yeo, Naomi Toh, Oh Peng Ho, Ethan Lim, Sim Hao Jie (left to right)

How might we help seniors overcome the inertia to stay active socially and physically, and discover the value they can bring to society?

Premise

Singapore's population is ageing rapidly, with projections that one in four Singaporeans will be aged 65 and above by 2030. This shift presents significant challenges, including the social isolation of seniors, often exacerbated by stereotypes of them as passive beneficiaries rather than active contributors. Seniors themselves often feel disconnected from their families and communities, perceiving themselves as less valuable due to age or health constraints.

Where It Began

Recognising the concerns posed by Singapore's ageing population and the rising number of seniors living alone or feeling lonely, six friends came together during NCSS's Sector Design Challenge in 2019 to address the issue of social isolation among seniors. Drawing inspiration from the Singapore Armed Forces, they came up with Senior Active Force Singapore (SAFSG). Through gamified activities and a digital platform, the initiative aims to reignite seniors' motivation to remain active, fostering a sense of purpose and belonging in the process.

The team envisioned SAFSG to be a sustainable system where seniors who become experienced in specific activities are empowered to teach and support others entering the programme. This approach would encourage seniors to stay active, connected and motivated to make an impact, while helping them rediscover the value they bring to society.

Insights from Research

Before launching SAFSG, the team conducted comprehensive research, interviewed seniors and mapped out user journeys to better understand their needs, motivations and priorities. It gleaned several key insights:

- ### Seniors' perceptions of self-worth

Many seniors felt they had little to offer to society, often describing themselves as "burdens" rather than contributors. This perception was shaped by societal stereotypes and the limited opportunities for seniors to leverage their skills and experience.

- ### Interest in digital games

Having observed a significant number of seniors showing interest in the popular game *Pokémon GO*, the team was inspired to further explore aspects of the game that appealed to seniors and how these aspects could motivate them to engage in physical activity.

- ### Motivators for participation

Seniors were drawn to activities with tangible benefits, as well as meaningful experiences that provide a variety of opportunities for them to contribute as volunteers and learn new skills. Gamification — activities in which they could earn points and progress in ranks — was not the primary attraction as the team had presumed.

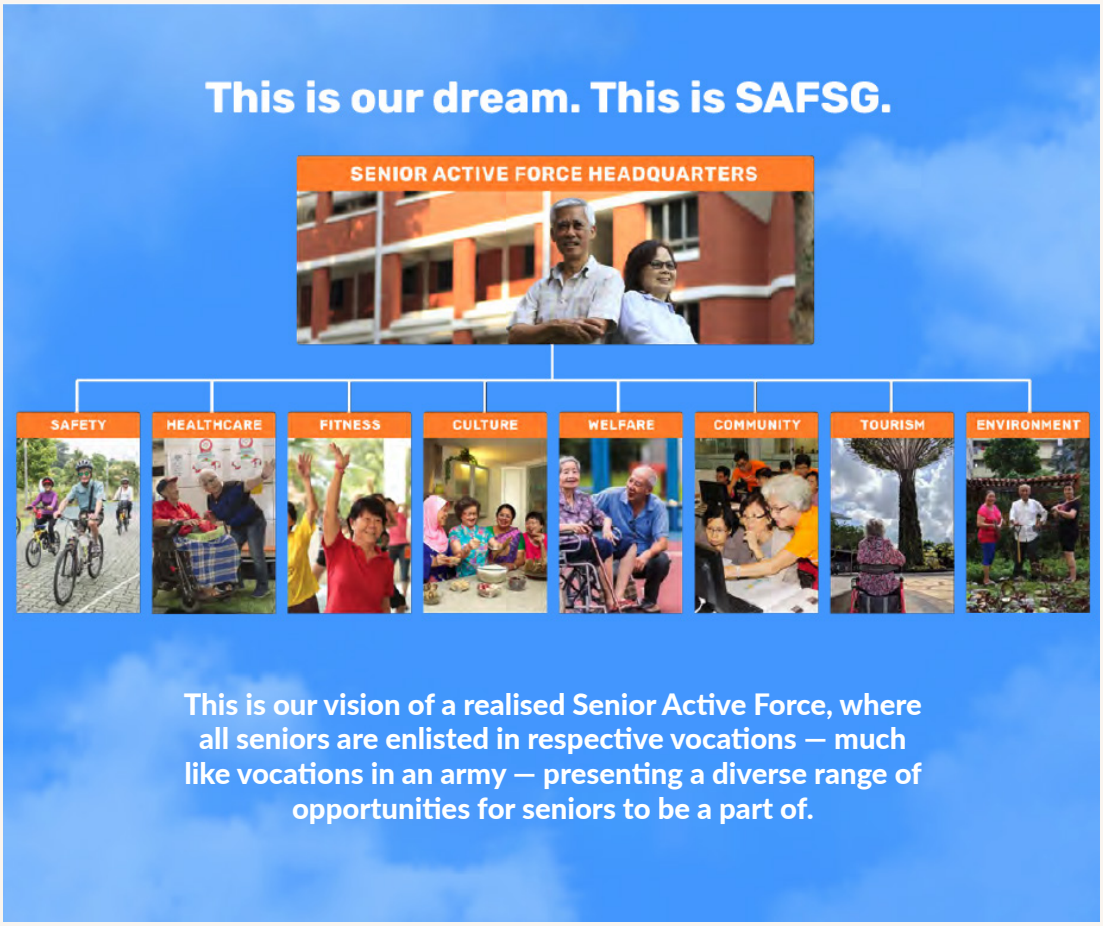
Solution

SAFSG is a web application that brings seniors on unique journeys to explore activities that help them stay fit, build friendships and make an impact on society in the process.

Inspired by the pillars of Total Defence in Singapore, SAFSG features meaningful activities across diverse aspects of life in Singapore, including Safety, Healthcare, Fitness, Culture, Welfare, Community, Tourism and Environment. In line with Healthier SG — a national initiative focused on preventive healthcare and improving Singaporeans' well-being through personalised health plans — SAFSG addresses the multifaceted demands of ageing, where a healthy population rests on a confluence of healthcare, social support systems and societal habits.

Activities were carefully curated by the team in collaboration with its community partners and various organisations. Seniors could choose activities that best aligned with their interests and passion. Upon completing an activity, they will receive points and rewards, allowing them to progress in 'rank' through a cumulative points system. Through these engaging experiences, SAFSG sought to enhance seniors' well-being and fitness, reduce social isolation, and empower seniors to contribute meaningfully to society.

The hierarchy of senior needs which SAFSG aims to fulfil



SAFSG's 'organisational chart'

Evaluation

The team conducted two pilot programmes with two community partners: REACH Community Services and Cornerstone Senior Centre. Each pilot tested different components of the solution, from its concepts, hypotheses and web app platform to the integration of SAFSG's workflow with those of the community partners.

Based on its Theory of Change, the team outlined five main hypotheses to validate whether SAFSG had achieved its intended outcomes:

- ### Hypothesis 1: SAFSG strengthens seniors' sense of belonging in a tech-driven society

Seniors showed increased confidence in learning new things, embracing the use of technology such as smartphones. They were also able to sign up for activities easily through the SAFSG platform, where they looked forward to new activities weekly.

- ### Hypothesis 2: SAFSG boosts seniors' sense of fulfilment and meaning in life

SAFSG's survey revealed that seniors felt a sense of achievement as they progressed in their volunteering journey, driven by primarily intrinsic motivation and non-monetary incentives, like free workshops.

- ### Hypothesis 3: SAFSG empowers seniors to grow and influence their social circles

Based on qualitative interviews and survey data, the SAFSG platform showed potential to encourage self-initiated sharing among seniors. However, it was a challenge to effectively measure seniors' levels of connectedness and influence in encouraging others to participate. In hindsight, the team realised it could have designed more effective nudges to motivate seniors to expand their social networks. For instance, a friend referral feature could encourage seniors to increase their connections on the digital platform.

- ### Hypothesis 4: SAFSG increases seniors' involvement in society

SAFSG has enhanced the accessibility and visibility of activities, demonstrating the platform's potential to drive engagement as seniors ventured into new activites. Dr Helen Ko, an Associate Professor of Gerontology at the Singapore University of Social Sciences and one of five professionals SAFSG connected with for advice, commended the team for "branding seniors in a different light where they can still contribute with personal agency and be viewed with dignity".

- ### Hypothesis 5: SAFSG improves the ecosystem of activities for seniors

SAFSG has successfully onboarded two community partners with more than 10 activities. However, the challenge in scaling the pilot to more communities lies in finding an efficient way to adapt and host a spectrum of activities. To this end, the team will continue to develop solutions, such as an administrative dashboard and automated workflows.

While there were small successes, the team recognised the need to continue collecting insights and analysing the behavioural patterns of seniors, so as to further refine and scale the initiative.

Key Learnings

- *Personas help to ensure user-centred solutions*

The team conducted in-depth interviews with 30 seniors, surveyed 302 seniors online, and conducted four focus group workshops with community partners. Using this research, it developed four unique senior personas — each representing a distinct set of mindsets and behaviours that influence their lifestyle decisions, preferred modes of engagement and what seniors find most meaningful in their golden years.

These well-crafted personas helped the team choose the right intervention for its target audience, while also serving as a communication tool for interacting with seniors and community partners. (For more information on personas, refer to page 59.)

- *Storyboarding can be an impactful communication tool*

The team created a comic strip to explain its challenge statement, its solution, and the eventual outcomes it aimed to achieve. The comic strip presented the solution in a format that was easy to understand and resonate with. (For more information on storyboards, refer to page 86.)

Self-oriented

- I am more focused on my needs.
- I feel rewarded when I achieve my personal goals.
- I enjoy being alone.

Proactive

- I am active in seeking out new activities or things I want to do.
- I often take action to achieve what I want.
- I enjoy being challenged.

Content

- I am satisfied with my life and I stick with the things I usually do.
- I tend to go with the flow.
- I seek comfort in the things I choose to do.

Others-oriented

- I am more focused on the needs of others.
- I feel rewarded when I help others.
- I enjoy being in a group.

Personas developed by Team SAFSG

Storyboard developed by Team SAFSG to illustrate its solution

- *The benefits of a committed, well-rounded team*

When the six friends first came together with the common goal of tackling social isolation among seniors, they did not know where to start and the role each of them would play. They began by mapping out their skills, interests, strengths and experiences, which enabled them to delegate different aspects of the project to one another, leveraging each of their strengths and connections. For example, some team members had prior experience working with the elderly, while others had technical knowledge in web development. This approach also allowed them to identify knowledge gaps and look for suitable experts and volunteers in these areas. "It is important to leverage networks and our community," team member Ethan Lim remarked. "The ability to commit should also be considered carefully. Sometimes less is more — trying to do too much might create more stress."

- *Constant engagement with your target audience is vital*

Before building the SAFSG web app, the team engaged 10 seniors to understand their motivations and test early concepts. While testing the digital platform, the team engaged the seniors both individually and in focus group discussions, collecting feedback and continuously refining the concepts. "The evolution of SAFSG was like a crystallisation process, where we developed a deeper understanding that seniors were at the centre of our design," reflected team member Oh Peng Ho. "It was 'by seniors, for seniors'."

Next Steps

After the two pilots had been completed, SAFSG managed to garner financial support from the Good Design Research initiative by the DesignSingapore Council. The team utilised the funds to conduct further research on motivating seniors to lead active lifestyles, create four unique senior personas and publish the SAFSG framework in 2022. It has since participated in various fairs and festivals to promote the SAFSG framework.

Final Thoughts

"We learnt to do just enough to test if something works, instead of trying to do it perfectly from the start," team member Glenda Yeo reflected. "There are so many positive developments in the social sector, and as the needs of the sector evolve over time, SAFSG's role and the ways we can contribute change too. We learnt to identify unique contributions we can make — and hopefully, these little contributions will spark many ripples!"

The journey of changemaking is ongoing, and the team hopes that its learnings will prove useful for others. Interested parties can leverage SAFSG's open-source materials (available at https://safsg.me/) to continue bringing its vision to life in the community.

Methods and Tools

Develop

The process of innovation requires us to push past established limits and imagine fresh, unprecedented solutions that yield transformative results. To ensure that our solutions are feasible, implementable and valuable to our target audience, we develop prototypes that help us communicate, test and iterate our solutions, bringing abstract ideas to life.

Objectives

1. Generate as many ideas as possible
2. Synthesise ideas to create solution concepts
3. Create prototypes to make abstract ideas tangible
4. Test solution concepts with people to gather feedback
5. Iterate prototypes to create more mature solutions

3.1 Generation of Ideas

Brainstorming

This is an idea-generating technique where team members can contribute and collaborate freely to come up with innovative solutions.

We often find ourselves trapped in an existing, fixed frame of mind. Brainstorming, a method of facilitated, collaborative ideation, helps individuals break free from mental barriers and generate innovative ideas. By creating a supportive and non-judgemental environment, brainstorming encourages participants to explore unconventional ideas and perspectives, momentarily putting aside concerns of feasibility and allowing creativity to take centre stage.

The key objective of brainstorming is to generate a wide range of ideas, with the expectation that several valuable ones will eventually emerge. Effective brainstorming sessions often benefit from having ground rules or a facilitator to guide the process, and ideally involve participants with varied experiences and perspectives.

Linked methods:

- Creating Solution Concepts (p. 77)
- Dot Voting (p. 78)

Method-in-Focus

Before starting the brainstorming process, it is crucial to prime participants to be more open-minded and creative. One way to catalyse imaginative thinking is with a light-hearted "What If" exercise. For example, imagine a man named Mr Lim, who frequently misplaces his reading glasses and spends considerable time searching for them each morning. What if his glasses could respond to his call? What if they could autonomously return to their default location after use? By encouraging participants to envision outlandish scenarios, even the most serious among them can loosen up and unleash their creativity. The more unconventional or audacious the scenarios, the better. Once participants are warmed up, the focus shifts to the actual topic.

Some participants may possess prior knowledge or experiences related to the topic. This is where they should be encouraged to set aside any constraints, preconceptions or judgements, paving the way for an open-ended exploration of possibilities without fixating on solutions. Quantity outweighs quality at this stage — the more ideas we generate, the more content we can work with.

The identified problem may be too vast and complex to tackle all at once. The team is advised to break down the topic into smaller components and identify opportunities to scale or transfer ideas across different contexts.

After numerous ideas have been generated, the team will work together to cluster them based on context. This involves identifying connections between ideas that can be applied to other areas. Every team member is encouraged to contribute, while ensuring that no one member dominates the discussion. It is crucial to emphasise that all ideas are valid at this stage, and the team is to refrain from judgement. To ensure that all ideas are considered equally, uniformly coloured Post-it notes are used.

Following the initial round of ideation, the ideas generated will be categorised based on their relevance and influence. The team will explore opportunities for cross-pollination or deeper problem-solving. This leads to another round of ideation and discussion, culminating in the ranking of ideas based on their potential impact and ease of implementation.

It is important to note that the selected idea is not definitive — after all, design thinking is an iterative and non-linear process. Teams are encouraged to iterate or pivot to alternative ideas as needed.

Crazy-Eights

In this design sprint method, eight distinct ideas are sketched in eight minutes.

Crazy-Eights is another ideation tool designed to generate ideas within a short time frame. The focus is not on crafting "perfect" solutions but on garnering a variety of ideas. By limiting the amount of time given, this fast-paced technique prevents you from second-guessing your idea and silences your inner critic. The ideas are presented as simple sketches and need not be polished, so long as they effectively convey the concept. This method encourages divergent thinking — an essential creative process in the ideation phase that generates multiple unique solutions to a problem by exploring a wide range of possibilities. At the same time, it also allows team members to build on each other's ideas.

> Being creative requires curiosity and courage. You need to challenge your assumptions and explore unknown possibilities intentionally. You must possess the bravery to think the impossible, deliberately and bravely pushing against the norms that tell us how things ought to be done, if you are to unlock innovative new possibilities. The more you relish in pushing your creative boundaries, veering into what might seem ridiculous, the more you open up your mind to discovering serendipitous treasures along the way.
>
> ***Tamsin Greulich-Smith***
> *Director, School of X, DesignSingapore Council, on what exercising a creative mindset involves*

Creating Solution Concepts

When we group similar ideas together, they spark new and innovative solutions.

From ideation activities like brainstorming and Crazy-Eights, you would have gathered a handful of ideas. The next step is to group similar or related ideas together — a method known as Affinity Clustering — effectively bringing order to the creative chaos of the ideation phase. For ideas that may seem far-fetched, distilling their essence and reframing them can help unearth hidden gems. For ideas that are overly ambitious, discuss how they can be broken down to make them feasible. As you organise and cluster ideas, explore how different ideas can come together and synergise to create new and innovative solution concepts.

Linked methods:

- Brainstorming (p. 74)
- Crazy-Eights (p. 76)

For further information on the methods within this section, scan here:

3.2 Synthesis and Selection of Ideas

Dot Voting

Narrow down options, prioritise ideas and identify the most popular choice through this quick and easy decision-making process.

In your design process, your team may face the challenge of making decisions among numerous options. An efficient way to ensure everyone has a say in the decision-making process is through dot voting. First, inform the team of the selection criteria and the problem statement. Each team member then gets to vote on the options provided using their allocated dot stickers. The option with the most dot stickers emerges as the "winner". This method enhances engagement and reduces the likelihood of group disagreements.

Service Blueprint

Every user interaction is an opportunity to create value. A service blueprint helps identify and design processes that shape these experiences.

A service blueprint is a visual tool that systematically maps out the end-to-end service delivery process. It highlights key points of interaction and details how front stage and backstage processes work together to create value and enhance the service experience. (In service design, the front stage refers to the visible interactions and touchpoints that users directly experience, while the backstage encompasses the behind-the-scenes processes and systems that support service delivery.)

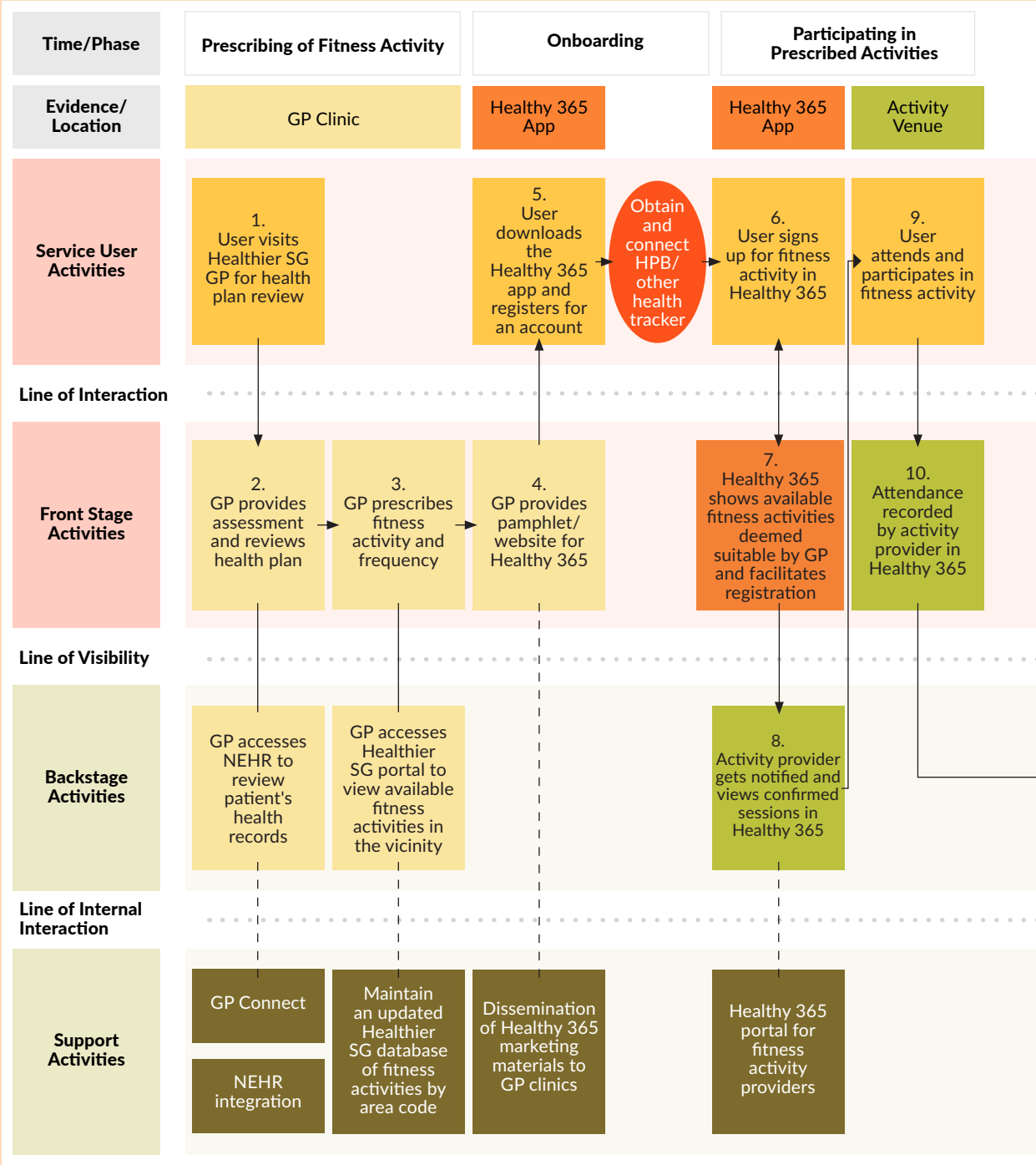
As a planning tool, it provides a comprehensive overview, prioritises interaction points for design and development, and identifies potential service gaps for improvement. The blueprint serves as a shared reference for cross-functional collaboration, aligning stakeholders and guiding the development of seamless and user-centric services.

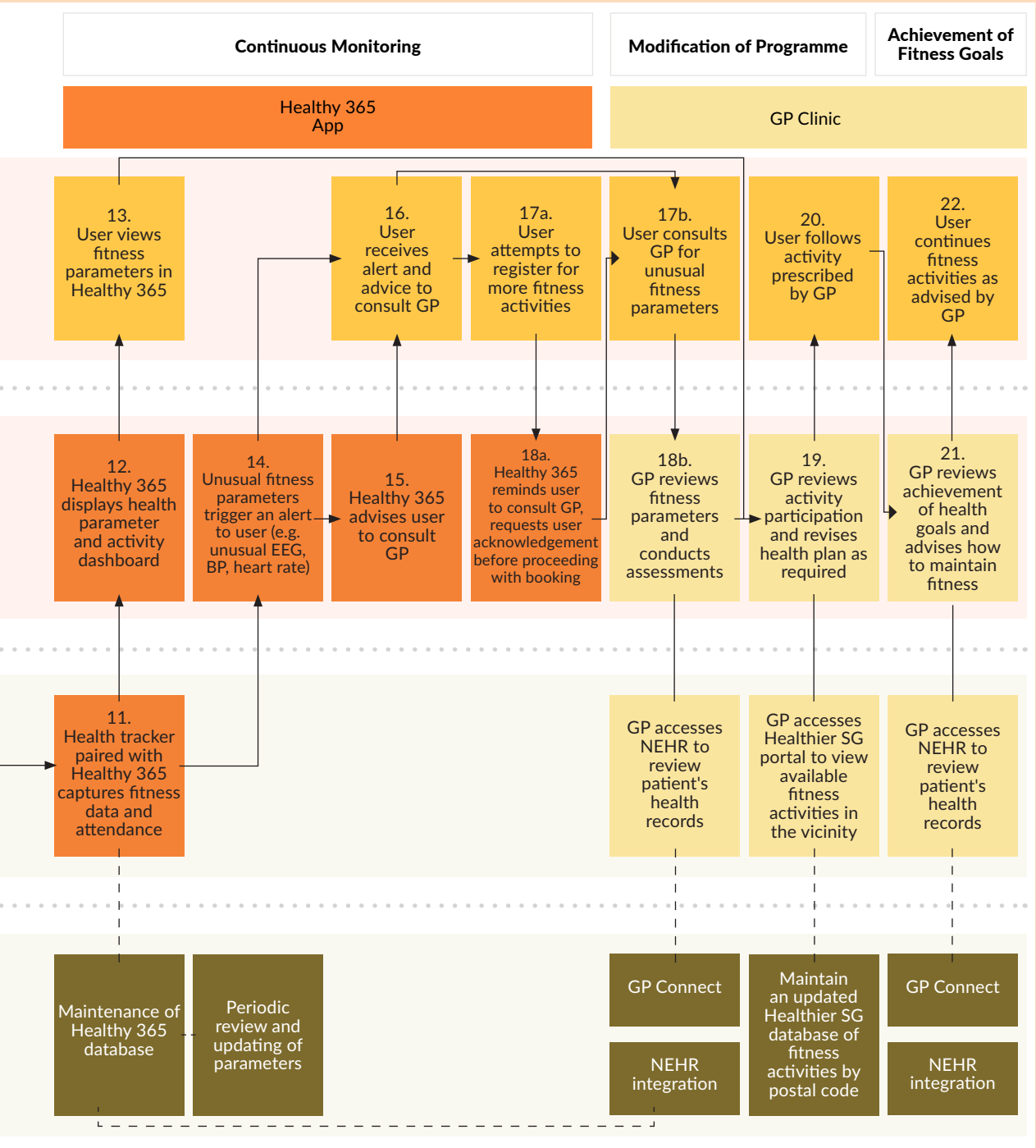
> A collaborative mindset towards a common social good brings forth a convergence of ideas and perspectives, creating practical solutions that echo the collective heartbeat of positive change.
>
> ***Dr Terence Yow***
> *Divisional Director, Care and Integration, Allkin Singapore Ltd,*
> *on the importance of a collaborative mindset in turning ideas into effective solutions*

For further information on the methods within this section, scan here:

Method-in-Focus

Service blueprints visualise both front stage and backstage activities and interactions. When mapped out in detail, like in the following example, they can be used to orchestrate multiple stakeholders as well as align and deliver service offerings, enhancing the user experience and operational efficiency.




Continuous Monitoring
Modification of Programme
Achievement of Fitness Goals
Healthy 365 App
GP Clinic
13. User views fitness parameters in Healthy 365
16. User receives alert and advice to consult GP
17a. User attempts to register for more fitness activities
17b. User consults GP for unusual fitness parameters
20. User follows activity prescribed by GP
22. User continues fitness activities as advised by GP
12. Healthy 365 displays health parameter and activity dashboard
14. Unusual fitness parameters trigger an alert to user (e.g. unusual EEG, BP, heart rate)
15. Healthy 365 advises user to consult GP
18a. Healthy 365 reminds user to consult GP, requests user acknowledgement before proceeding with booking
18b. GP reviews fitness parameters and conducts assessments
19. GP reviews activity participation and revises health plan as required
21. GP reviews achievement of health goals and advises how to maintain fitness
11. Health tracker paired with Healthy 365 captures fitness data and attendance
GP accesses NEHR to review patient's health records
GP accesses Healthier SG portal to view available fitness activities in the vicinity
GP accesses NEHR to review patient's health records
Maintenance of Healthy 365 database
Periodic review and updating of parameters
GP Connect
NEHR integration
Maintain an updated Healthier SG database of fitness activities by postal code
GP Connect
NEHR integration

3.3 Prototyping

Low- to High-Fidelity Prototyping

As an idea progresses, transitioning from low- to high-fidelity prototypes helps to mitigate risks and develop compelling solutions.

During the early stages of development, it is advisable to employ rapid prototyping, using low-fidelity methods for quick testing and iteration. (In design, "low fidelity" refers to a rough, simplified or basic representation of a product, service or idea in its preliminary stage.) By materialising ideas, you learn through hands-on experience and gather quick feedback from the target audience. Techniques like paper prototyping (sketching service props and screen interactions on paper) offer a cost-effective approach for swift idea assessment. As the team grows more confident in its solution, transitioning to high-fidelity prototypes helps develop more realistic experiences, allowing it to gather the more robust feedback it needs to refine its product.

Method-in-Focus

Solution: Guys, Keep It Real
Team members: Kester Tay, Kavitha Shekar, Alan Anand Selvin, James Lim, Ryan Lee, Ang Cheah Whee, Toh Zi Kit

Guys, Keep It Real, one of the seed grant awardees from Design4Impact 2021, sought to promote mental and emotional well-being among male youths aged 15 to 21 in Singapore. Its initial solution comprised a five-week activity-based programme and a card game to help male youths feel safe in expressing their emotions, seeking help when needed, and prioritising their mental wellness.

After speaking to stakeholders, the team decided to focus its pilot tests on the card game. The main objectives for the pilots were to (a) assess the effectiveness of the card game, and (b) gather feedback on the card game in terms of its usability, clarity of instructions, appropriateness of the content, and the overall look and feel of the cards.

As the project was in its early stages, the team opted to design and print the card game in-house. This enabled team members to collect feedback and swiftly make changes to the card designs. After conducting the first two pilot tests and gathering sufficient consistent feedback, the team then engaged professionals to design its card game, refining the prototype into a higher-fidelity version for its final pilot.

Initial design:

Design at final pilot:

Spatial Prototyping

Space plays a pivotal role in shaping the emotions and behaviours of individuals. Intentional, well-designed spaces can profoundly enhance experiences and service outcomes.

From first impressions to the nuanced interactions that unfold as people navigate your service, spaces shape emotions and interactions, facilitating the creation of experience and service outcomes.

Spatial prototyping is done by augmenting an existing space using materials like cardboard or foam. This allows you to physically immerse yourself in a scenario to examine and test layouts for improved usability, efficiency and the overall experience, helping to develop physical environments that align with users' needs and expectations.

Linked methods:

- Desktop Walkthrough (p. 84)
- Roleplay (p. 88)

Desktop Walkthrough

Desktop walkthroughs narrate the anticipated user experience step-by-step through a 3D tabletop mock-up, visualising interactions and uncovering potential issues.

As a form of rapid prototyping, a desktop walkthrough involves creating a 3D tabletop mock-up of a service delivery area using materials like cardboard or Lego blocks. This allows us to explore the spatial orientation of a service and the flow of people through the space. By narrating various service scenarios within the 3D mock-up, we can analyse how different users interact with elements in the space and uncover insights to enhance the overall user experience.

Linked methods:

- Journey Map (p. 58)
- Persona (p. 59)
- Service Blueprint (p. 79)
- Storyboard (p. 86)

> Social issues are frequently multifaceted and complex, with no clear-cut solutions. Iteratively validating ideas and possible solutions with users, finding out what works and what doesn't, and continuously refining is the way to go. However, it is important to set the expectation that failure is part of this process. Some solutions will be good and form the base to be built upon, while many will end up being thrown away. But all of them will be a valuable source of learning that brings us closer to addressing real needs.
>
> ***Pink Lim***
> *Deputy Director of Government Digital Transformation, GovTech, and D4I facilitator, on the importance of an iterative mindset for designing good solutions*

For further information on the methods within this section, scan here:

3.4 Testing and Gathering of Feedback

Storyboard

Visual narratives can bring new solution concepts to life, illustrating the experiences and interactions that create value for people.

See Team Story on p. 68

Adapted from the cinematic industry, a storyboard combines illustrations and narratives to depict key scenes where a product or service generates value for individuals. Creating a storyboard as a prototype demands critical reflection on our solution's end-to-end experience, processes, and nuances of service delivery. It is an effective communication tool that enables us to gather feedback for future iterations.

> Most children pick up a pencil to draw before knowing how to write. Similarly, communicating an idea through visuals can be more pragmatic than using words.
>
> *Nicky Goh*
> *Vice President (Strategic Innovation), Frasers Property Limited, and D4I facilitator, on the importance of a visual mindset for powerful and intuitive communication*

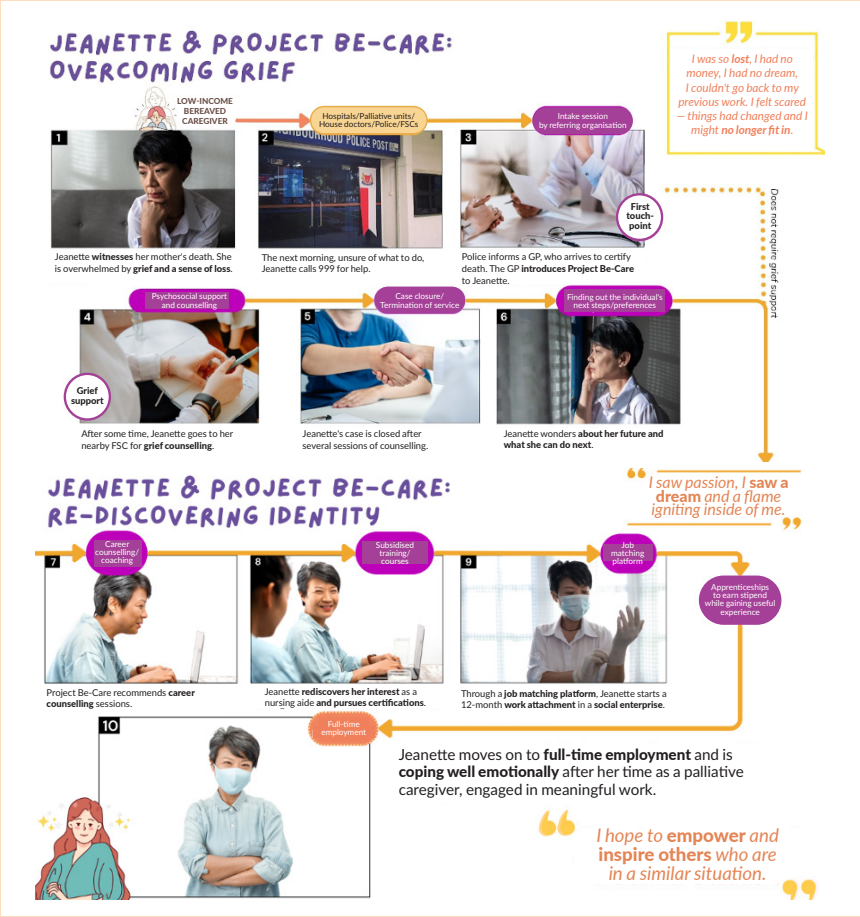
Method-in-Focus

Solution: Be-Care
Team members: Mandy Lim, Pang Jin Xian, Sandra Yeo, Miguel Joshua Tan

Be-Care, one of the winners from Design4Impact 2023, is a pilot programme aimed at helping bereaved caregivers to rediscover their identity and sense of purpose, while providing essential grief support. The team created a storyboard to articulate its challenge statement, the essence of its solution, and the eventual outcomes it hoped to achieve.

Using a persona (in this case, a 50-year-old low-income bereaved caregiver named "Jeanette"), the storyboard painted a visual journey of how Jeanette traversed from a state of fresh bereavement, to learning to cope, and eventually to finding purpose by taking on a job that serves the community.

The storyboard highlighted the key touchpoints in Be-Care's user journey, including accessible and affordable grief counselling, career counselling, job matching, and employment. It also helped the team to note the location of these critical touchpoints, allowing it to reach out to relevant organisations for partnerships when its pilot implementation began.



Roleplay

Roleplaying puts you in the shoes of people in different roles related to the design problem. This simulation of real-life scenarios and user experiences allows you to explore the nuances of service delivery.

The success or failure of services often hinges on the quality of interactions with residents, patients or beneficiaries. This can be especially challenging for sensitive areas in health and social care. Acting out scenarios allows you to confirm or challenge your understanding of users in a controlled way, revealing pain points in the user experience. Through roleplaying, you can gain deeper empathy and understanding of the user perspective — enabling you to design better service experiences and outcomes.

Pitching Your Idea

As you move from concept to reality, the unique value proposition of your solution must be communicated compellingly, in order to rally support for your cause.

Having undergone rigorous research, prototyping and user testing, your solution is finally ready to meet the world. Your users, funders and stakeholders need to know what your solution is all about — which is why you need to create a compelling and persuasive pitch to get their buy-in. A pitch effectively communicates the problem being addressed, its solution and whom it will benefit. How it is communicated to your audience is just as important as the solution itself.

To deliver an effective pitch, start by distilling your concept into a clear message and understanding your audience's needs and pain points. Prepare supporting materials like presentation slides or prototypes. During the pitch, make a strong first impression, establish your credibility, and clearly define the problem and your solution's key benefits and market potential. Conclude with a compelling call to action, stating what you're asking for, whether funding, support or feedback. All throughout, communicate with passion and confidence. Stay focused on your key message, using simple language and keeping it concise to respect your audience's time.

Once you have pitched your idea, it is crucial to incorporate the feedback received to refine and iterate the design concept.

Linked methods:

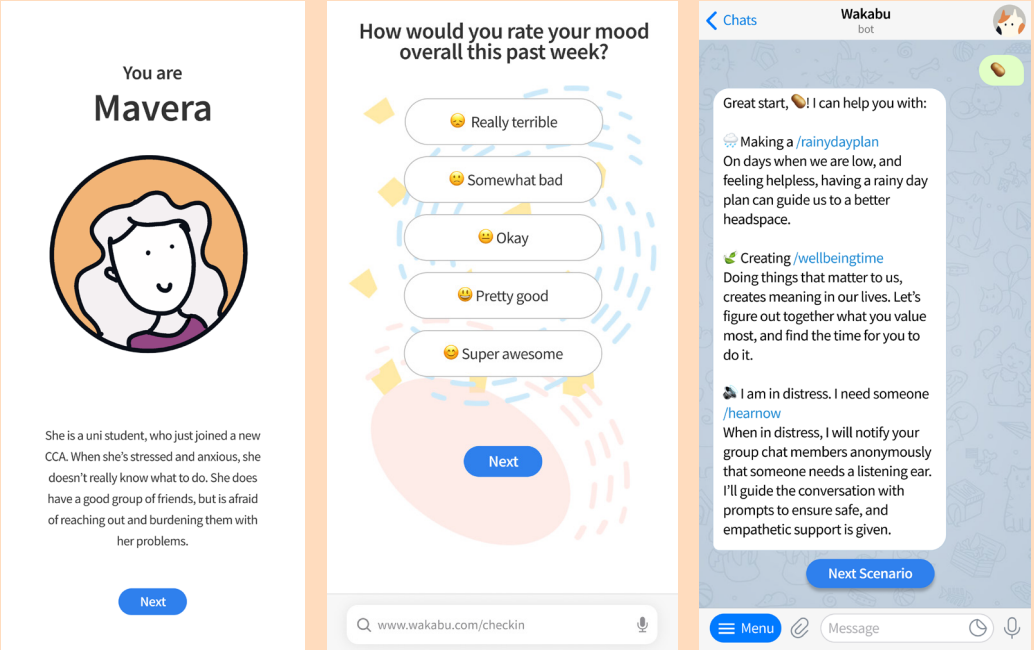
Endgame (p. 103)

For further information on the methods within this section, scan here:

Method-in-Focus

Solution: Wakabu
Team members: Nikita Rane, Caitlin Yeo, Audrina Aziz, Veronica Lee, Roby Tanama, Leonard Ma

The best ideas often remain confined to our minds or Post-it notes unless they are clearly understood, appreciated and put into action. After putting in the hard work of going through the design process, participants frequently overlook the crucial aspect of effective pitching. While charts, diagrams and content play a part, capturing the audience's attention and helping them to understand your project and develop an interest within a short time is of utmost importance. Therefore, teams should make their presentations as engaging and visually interesting as possible. All participants have the potential to achieve this — they need not be trained designers to craft compelling storylines or beautiful presentations.



Team Wakabu's bot demo

A prime example can be found in Team Wakabu, one of the finalists of Design4Impact 2021, which sought to facilitate help-seeking behaviour among youths to enhance their mental health and well-being. Its solution involved creating a Telegram bot that enables youths in distress to perform a well-being check-in, addressing their emotional coping and daily functioning needs.

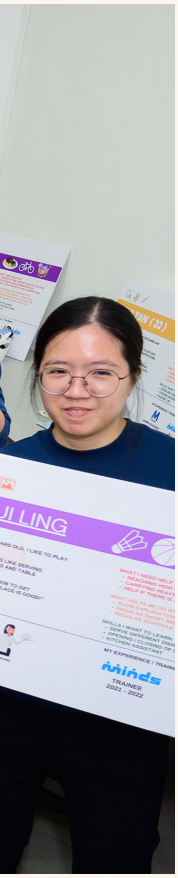
However, without the help of visual aids, individuals receiving this information might form their own interpretation of what the solution entails, potentially leading to misunderstandings. To mitigate this, Team Wakabu developed a demo bot as part of its prototype. This demonstration proved effective in giving the audience a clearer understanding of the solution.

Reverse Job Fair

Team Members

Ariel Gwee, Johnathan Tey, Johnathan Ng, Tan Peisi, Goh Yee Ching

How might we assist Persons with Intellectual Disability (PWIDs) and companies in making effective connections for sustainable employment?



Premise

PWIDs face significant employment hurdles. In Singapore, only 32.7% of working-age individuals with disabilities were employed in 2022 and 2023.

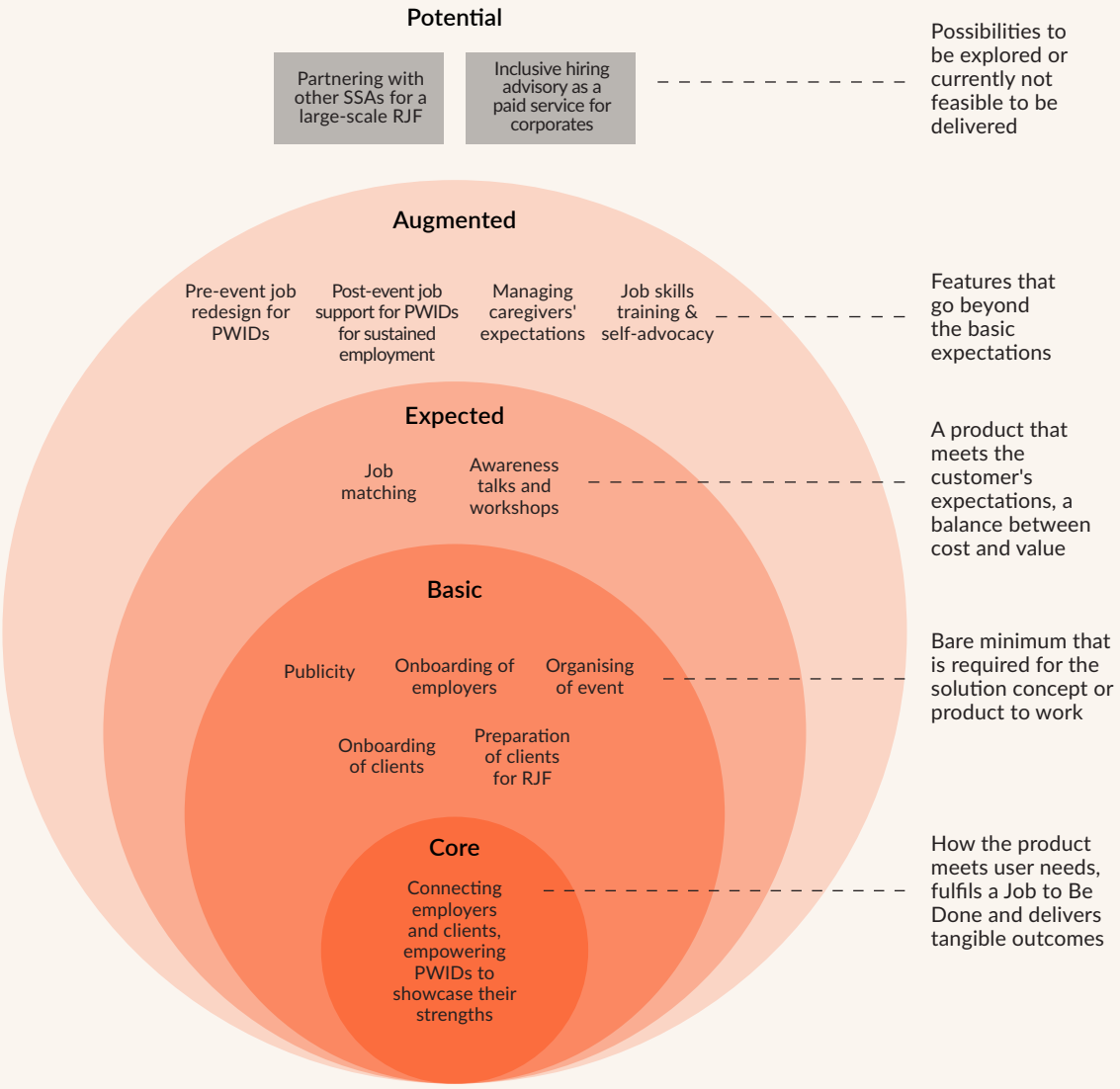
Where It Began

Recognising the employment challenges faced by PWIDs, five dedicated staff from the Movement for the Intellectually Disabled of Singapore (MINDS) embarked on a mission to address this gap. Their goal was to help PWIDs find meaningful work that aligns with their strengths and interests, while promoting inclusive hiring practices among companies. And so a creative solution was born during Design4Impact 2023: the “Reverse Job Fair”. Unlike traditional job fairs where job seekers approach employers, the Reverse Job Fair would allow PWIDs to take centre stage, showcasing their talents, abilities and interests while employers approach them with job opportunities.

Insights from Research

From the outset, the MINDS team focused on creating a level playing field for PWIDs. Its research revealed that PWIDs value financial independence and desire more inclusive employment opportunities.

To prioritise the work needed for its pilot implementation, the team applied the Whole Product Concept, mapping out all the features of the Reverse Job Fair. Applying this framework also sparked conversations around what lay beyond the pilot, allowing the team to identify service elements that could elevate the Reverse Job Fair, such as tailoring job roles to maximise the benefits for PWIDs and employers, and providing support to help PWIDs maintain long-term employment. (For more information on the Whole Product Concept, refer to page 108.)



Team Reverse Job Fair's Whole Product Concept

Overcoming Challenges

- ### Ensuring client-centred design

Since the team's design challenge was closely related to its daily work with PWIDs, it had the advantage of easy access to clients and research. However, this familiarity also meant that personal biases could potentially shape the team's approach. "Since all of us work in the field, we've internalised certain opinions we assume to be facts when they're just our assumptions," explained team member Johnathan Tey.

Recognising this risk, the team relied on interviews as its primary method of engaging PWIDs directly, to ensure that it captured first-hand insights and genuine perspectives rather than depending on prior assumptions or second-hand information. After all, engaging with PWIDs requires a nuanced approach, given that behavioural cues might not fully capture the thoughts of PWIDs, especially for those with more severe intellectual disabilities. This emphasis on dialogue, rather than observation alone, helped to draw constructive responses from PWIDs. "Despite having been in the field for a while, I realised there are still many new insights that can be gleaned through our clients' lens," team member Ariel Gwee reflected.

- ### Adapting research for diverse abilities among PWIDs

Working with PWIDs required the team to modify its approach according to each client's abilities. For example, low- to mid-functioning individuals needed multiple engagement sessions, while higher-functioning individuals could provide insights more efficiently. Given time constraints, the team focused primarily on high-functioning individuals, defining the project scope accordingly.

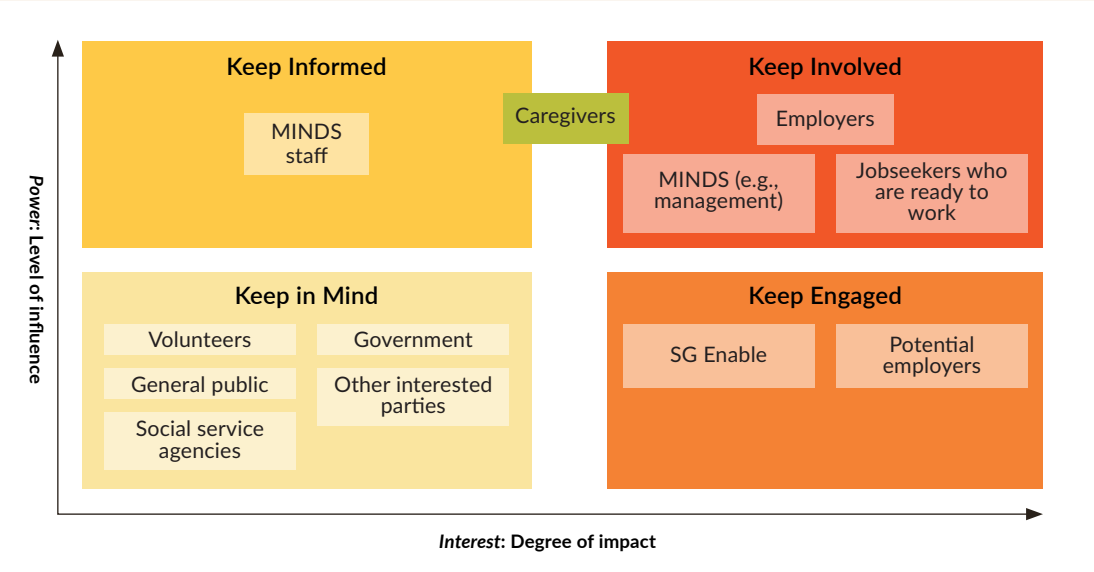
By tailoring research methods to fit the functional abilities of Reverse Job Fair participants, the team was able to gather usable data within the time constraints while maintaining empathy and respect for their clients' needs.

- ### Balancing organisational constraints

The team's research revealed that both clients and caregivers preferred incremental enhancements to existing services over entirely new solutions. Additionally, since MINDS had its own corporate priorities, the team had to ensure its solution would fit within those parameters.

Hence, the team focused on optimising MINDS' current services rather than creating something completely new. It adopted a collaborative approach, incorporating feedback from both clients and internal stakeholders to design a solution in alignment with MINDS' mission and resources.

To this end, it generated a Stakeholder Map to identify primary and secondary stakeholders, differentiating them based on their level of influence and impact. In view of the limited time and resources, the team prioritised key stakeholders and kept them involved, given their potential to sway decisions, opinions and actions as well as offer valuable support, resources and expertise. These key stakeholders included employers who were open to hiring PWIDs, PWID job seekers, and MINDS' management team. By managing stakeholders according to their varying levels of influence and impact, the team ensured an efficient use of its resources. (For more on Stakeholder Maps, refer to page 37.)



Team Reverse Job Fair's Stakeholder Map

Solution

In October 2023, at the launch of MINDS Hub @ Bukit Batok, five colleagues from MINDS introduced the idea of swapping the roles of employer and employee within traditional hiring processes.

Before the event, the team piloted an employment preparation programme designed to equip PWIDs with the skills and confidence needed to engage with potential employers. The team also prototyped various tools to support PWIDs in their employment journey:

- ### Profile boards

These boards were designed to allow PWIDs to showcase their skills and experiences to prospective employers at the job fair. Simple and informative, they provided a confidence boost for PWIDs while offering employers a quick overview of the candidates.

- ### Employment self-help guide

Titled *My Guidebook for Employment Readiness*, this guide was co-developed by PWIDs with minimal guidance from MINDS. It outlines five key steps to help PWIDs explore job options, assess their capabilities, obtain family support, acquire essential skills and build a résumé. The booklet is visually engaging and easy to understand, offering practical guidance in an accessible format.

- ### Conversation cards

Recognising that PWIDs may struggle with expressing themselves, the team developed conversation cards to guide interactions. These cards helped job seekers prepare responses in advance, building confidence and facilitating engaging conversations.

- ### Reverse Job Fair website and video résumés

The team created an event website with the profiles and video résumés of job seekers, giving employers insights into the talents and interests of potential candidates before the fair.

The fair not only enabled PWIDs to shine but also encouraged employers to embrace inclusive hiring practices. The event featured awareness talks and workshops to familiarise employers with the abilities of PWIDs and inspire greater involvement in building a more equitable workplace.

Evaluation

The team received overwhelmingly positive feedback from participants, employers and job seekers at the inaugural Reverse Job Fair in October 2023. Employers were able to engage with PWIDs in a setting that highlighted their strengths, while PWIDs reported increased confidence in their employment prospects. With the key takeaways from the first fair, the MINDS team is actively gathering insights to enhance future iterations, focusing on creating a more curated experience for employers and helping them explore job role customisation for PWIDs.

PWID job seekers having conversations with prospective employers at the inaugural Reverse Job Fair

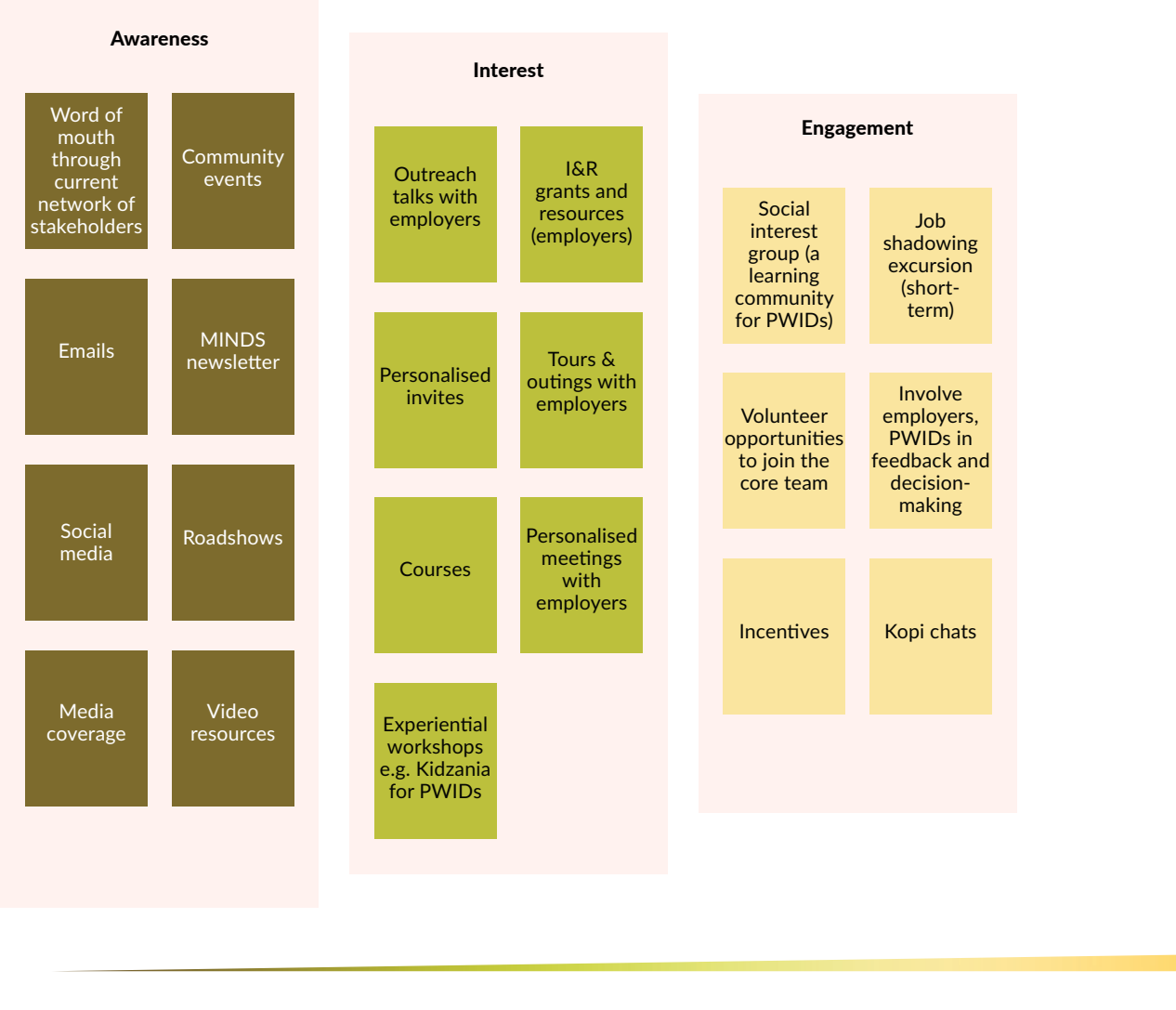
Key Learnings

- ### The benefits of a User Acquisition Funnel

The team utilised a User Acquisition Funnel to maintain a continuous pipeline of potential PWID job seekers and employers, carefully tailoring the engagement channels and frequency of communication to each user segment at every stage of the funnel. (For more information on the User Acquisition Funnel, refer to page 111.)

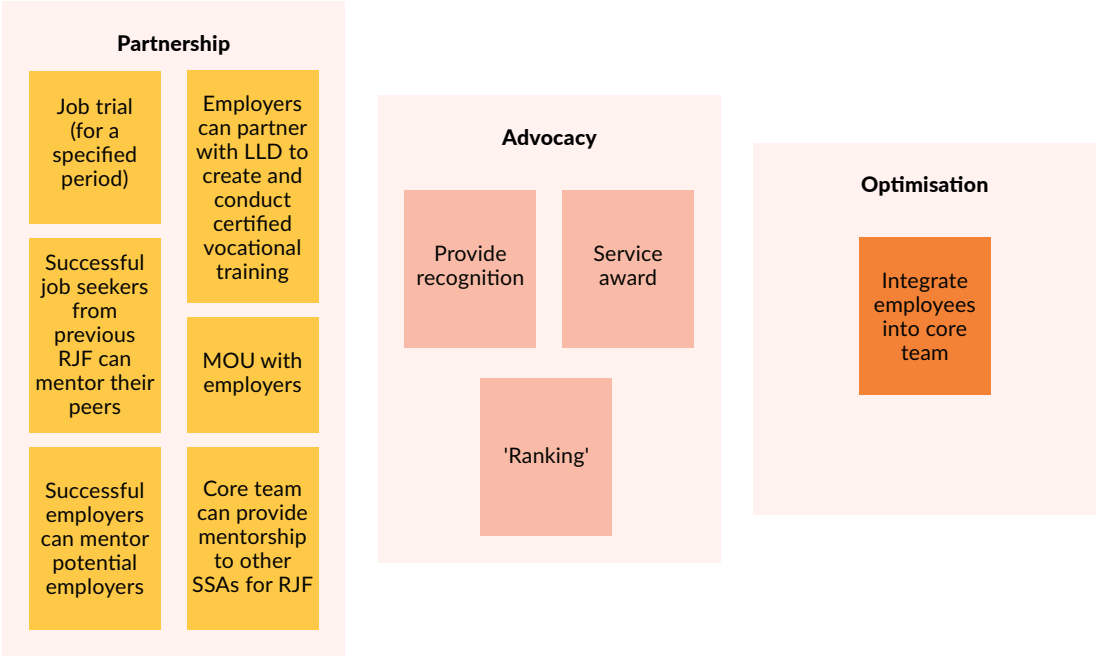
- ### The value of iteration

The team found the design thinking framework particularly useful, as it encouraged open exploration while providing a structure. Through the brainstorming process, the team realised that an effective solution would require more than just altruism; it needed to deliver tangible benefits for both clients and employers. By iterating through cycles of ideation and testing, the team was able to visualise potential outcomes and modify concepts as it gathered new insights into the complex challenges faced by PWIDs, potential employers and MINDS. This iterative flexibility allowed the team to adapt quickly, refine its ideas and incorporate emerging feedback, demonstrating the importance of agility and open-mindedness in social innovation work. The result was a practical solution that delivered better employment outcomes for PWIDs while supporting MINDS' organisational goals and the needs of employers.



Team Reverse Job Fair's User Acquisition Funnel

Building on the success of the first Reverse Job Fair, MINDS' Hi-Job! Job Placement Job Support department refined the model and ran the second edition in October 2024. This edition of the Reverse Job Fair, held at Enabling Village, featured additional partnerships, including the Heinemann Academy's certificate programme, which recognised PWIDs' completion of a module on customer centricity. This milestone underscored the event's growing impact and potential for replication across various locations.



Progressively greater degree of change, which requires a higher intensity of communication efforts and more human touch

Final Thoughts

The MINDS team is proud of the Reverse Job Fair's ability to shift perspectives on inclusive hiring and bridge connections between PWIDs and employers. Its members remain dedicated to enhancing the Reverse Job Fair model, transforming lives and advocating for a future where everyone has the opportunity to find meaningful work.

Reflecting on their journey, Johnathan Tey said, "In a team, everyone will have a different perspective of what is important. When we take a step back, we realise that all perspectives are essential in creating a cohesive solution. It's about bringing these viewpoints together and respecting diverse insights."

Methods and Tools

Deliver

To realise our goal of creating impact, we need to implement and sustain our solution within the community. This requires us to communicate our vision and value proposition clearly, collaborate with stakeholders, grow a community, as well as define operational processes and a sustainable business model. Methods employed during the delivery phase will serve as a scaffold for developing and maintaining lasting and impactful solutions.

Objectives

1. Define a clear vision and goal for the coming two to five years
2. Articulate clearly how the solution delivers promised outcomes
3. Identify which core features of the solution to prioritise for implementation
4. Find the right people and partners to support your implementation journey
5. Design processes that support the delivery of service outcomes
6. Develop a sustainable business model
7. Define measures and collect feedback to assess outcomes and impact

4.1 Vision and Goals

Vision Alignment

This process creates a shared vision of success among team members that undergirds the design process for an impactful outcome.

Vision alignment ensures that team members and collaborators share a common understanding of the project's goals and objectives. It involves clarifying and aligning everyone's perception of the project's vision and desired outcomes. This process is not only vital during the beginning stages to establish a shared purpose; it also requires periodic reassessment to accommodate evolving insights and changes as the project progresses. Reaffirming and realigning the team's vision helps maintain focus and coherence throughout the design process.

This is complemented by the iterative framing and reframing of the design challenge, as well as the co-development process of prototyping, testing the boundaries and rallying around a shared project vision.

Linked methods:

- Reframe (p. 60)
- Brainstorming (p. 74)
- Spatial Prototyping (p. 84)
- Endgame (p. 103)

Endgame

Design with an end in mind — a strategic approach to setting long-term goals and aligning efforts for a desired project outcome.

The Endgame approach, inspired by the Stanford Social Innovation Review's *What's Your Endgame?*, focuses on envisioning long-term project goals and sustainability. It guides decision-making and aligns team members throughout the pilot implementation process. An endgame provides a strategic direction for the final pilot design iteration. It is supplemented by stakeholder engagement, vision alignment, and iterative prototyping, ensuring design outcomes align with identified end goals.

Linked methods:

- Stakeholder Map (p. 37)
- Spatial Prototyping (p. 84)
- Vision Alignment (p. 102)

Method-in-Focus

Below are six Endgame approaches:

- Open source — Stored within a collaborative platform like GitHub, the solution is available for others to freely adopt and incorporate into their systems
- Replication — The solution is designed to be easily adopted and implemented in other locations, contexts or populations, achieving broader impact and reach
- Government adoption — The solution is seamlessly integrated into government service delivery processes
- Commercial adoption — The solution holds commercial value and can be delivered for profit
- Mission achievement — The solution successfully addresses the problem and no longer requires ongoing support or delivery from any organisation
- Sustained service — The solution is primarily delivered by one's own organisation, with a stable funding model, strong stakeholder support, and a clear plan for long-term maintenance

Beyond the scenarios outlined above, there may be instances where pilots may not progress the way we hope they would. Challenging scenarios include sunsetting (where the solution is phased out due to the completion of objectives, a lack of funding or a shift in priorities) or scaling back (where the scope of the project is reduced).

The above scenarios illustrate the diverse range of possible outcomes for a pilot. Effective planning, thorough research to understand the context and identify challenges, and strategic decision-making can help to navigate these scenarios and achieve the desired outcome.

Logic Model

This provides a step-by-step structure that helps teams turn their vision into measurable actions and outcomes.

See Team Story on p. 130

The Logic Model visually connects resources, activities, and outcomes to show how change happens. It consists of Inputs (resources like volunteers or funding), Activities (workshops or events), Outputs (number of sessions held), and Outcomes (changes in skills or attitudes). This structure helps members organise their project, set measurable goals, and track progress.

The Logic Model helps to articulate the team's Theory of Change: a guiding framework that charts how the team's actions lead to long-term social impact. The Theory of Change starts by defining the desired change and working backwards to identify the key conditions and steps needed to achieve it. It helps members clarify their purpose, map out what needs to happen, and recognise external factors that could influence success. By outlining the cause-and-effect relationships, the Theory of Change strengthens strategic alignment and fosters shared understanding and collaboration among stakeholders.

With this robust framework in place, the Logic Model not only supports planning and evaluation, but also builds confidence among stakeholders by demonstrating how each action contributes to long-term community well-being.

> As a society, we constantly adapt and adjust and evolve — therefore, change is the only constant. At D4I, our approach to creating effective and robust solutions is not very different. We encourage teams to proactively seek feedback in order to iterate — that is, to systematically adjust and fine-tune their solutions, so as to offer a better fit for the real world.
>
> *Kate Lazarenko*
> *Design Facilitator,*
> *highlighting the importance of iteration for creating effective solutions*

Project Charter

This dynamic document is used to define a project's purpose, scope and key parameters, facilitating effective planning and execution.

The Project Charter is a concise document outlining the project's objectives and scope, intended outcomes and measures of success, stakeholders and resources involved, and the project timeline. It acts as a roadmap for initiation, planning and execution.

This is best used at the project's initiation stage. It establishes a common understanding, setting the foundation for a well-mapped project by clarifying its purpose, scope and parameters. Serving as a reference point during planning, it informs decisions on scope, resources and timeline.

The Project Charter can be supplemented by the Ecosystem Map and the Stakeholder Map, to identify and involve stakeholders early in the design process. Prior to crafting the Project Charter, it is essential to conduct extensive research and have a clearly defined problem statement.

Linked methods:

- Ecosystem Map (p. 36)
- Stakeholder Map (p. 37)
- Business Model Canvas (p. 111)

Value Proposition Canvas

As a visual framework to identify gaps between service offerings and users' needs, the Value Proposition Canvas aids us in refining our service proposition.

A value proposition explains how a service fulfils a problem or need, outlining the benefits that users can expect and the key features that set it apart from others. Defining a clear value proposition helps to align the team, ensuring that we are addressing real needs. It also helps us articulate the impact of our solution, to better communicate with and engage stakeholders and potential users.

Linked methods:

- Persona (p. 59)
- Business Model Canvas (p. 111)

See Team Story on p. 118

For further information on the methods within this section, scan here:

4.2 Resource Mapping and Management

Team Composition

Convening a well-rounded team allows members to leverage diverse skills and experiences, to tackle complex design challenges collaboratively.

Whether we are assembling our own dream team, placed in a team of strangers as part of a design challenge, or regrouping during transitions, there is more to consider than just camaraderie. We should start by defining what needs to be done, the skill sets required, and key roles. This allows us to identify gaps in skills and resources, and bring on board implementation partners and funders who can help bridge those gaps. Team size also matters — too few members limit work capacities, whereas too many impedes coordination and decision-making.

While it is natural to gravitate towards those who are similar to us, diversity in knowledge, skills and experiences enhances our problem-solving perspectives. Consider distributing responsibilities based on skills and competencies, as having clearly defined roles improves efficiency. Lastly, forming a team whose interests and values are aligned can help to foster collaboration, along with a sense of belonging and shared purpose.

Linked methods:

- Vision Alignment (p. 102)

Resource Planning

To be agile in our resource planning, we need to prioritise developments, be mindful of budget constraints, and embrace an iterative approach.

Pilots go through iterative cycles and often encounter unforeseen challenges — yet, they must operate within the constraints of a seed fund and a timeline. This necessitates agility in planning resource utilisation and embracing iterative development.

To achieve this, we must prioritise essential features, to deliver a lean but functional service or product. We need to continuously assess our progress against goals, resource constraints and contingency planning, setting aside budget for unforeseen issues. When co-delivering a service with partners or the community, effective communication is essential to align goals and expectations, so that shared resources are used effectively.

Linked methods:

- Service Blueprint (p. 79)
- Minimum Viable Product (p. 109)
- Business Model Canvas (p. 111)

For further information on the methods within this section, scan here:

4.3 Implementation

Whole Product Concept

The Whole Product Concept helps us identify and prioritise features and supporting elements beyond our core product, to deliver a complete and satisfying solution.

See Team Story on p. 92

Product features are categorised into five levels from the user's point of view, namely:

- Core – The essence of the solution that helps people fulfil a need
- Basic – The bare minimum that is required for the product to work
- Expected – Attributes of the product that meet users' expectations
- Augmented – Features that elevate a product beyond users' expectations
- Potential – Possibilities to be explored in the future

This helps us to consider what services or supporting elements beyond the core solution are important in creating positive user experiences. At the same time, we prioritise these additional features and create a development road map accordingly, starting from the bare essentials.

Minimum Viable Product

The Minimum Viable Product helps to mitigate risks, shorten time-to-market and obtain early feedback for product iteration.

A Minimum Viable Product (MVP) is a scaled-down solution with the essential features for market entry. Transitioning from prototypes to an MVP involves moving from experimental design, to testing and refining features and interactions in a controlled environment, to a fully functional and deployable solution that is subjected to real-world challenges and market demands.

By focusing on core functionalities, an MVP allows for rapid testing, iteration and market validation. It serves as a strategic starting point, enabling teams to assess viability, minimise risks, shorten time-to-market and iteratively enhance the product based on evolving market requirements.

Linked methods:

- Whole Product Concept (p. 108)

Method-in-Focus

Solution: Silver Buddy
Team members: Edwin Lim, Samuel Chan, Fong Sin Dee, Lim Peng Peng, Arif Rachman, Francis Ho, Lim Zhiying, Matthew Chen

Silver Buddy emerged as one of the winners of Design4Impact 2020, with a solution to match trained volunteers to seniors for better care navigation during the post-discharge transition from hospital to home. However, the team was unable to proceed to the implementation stage, as five team members had other work commitments. The sole remaining member, Francis Ho, a Senior Consultant with the National University Cancer Institute, took the idea to the National University Hospital (NUH) and recruited his colleagues Lim Zhiying and Matthew Chen, both consultant geriatricians, to carry out a scaled-down pilot. The pilot focused on vulnerable seniors living alone, aged 65 years and above, who had been admitted to NUH under the Geriatric Medicine and General Medicine divisions.

The Silver Buddy solution initially had two components:

- Part 1 — Matching identified seniors discharged from hospital with trained volunteer befrienders, who would encourage and empower the seniors towards self-care over the next 30 days

- Part 2 — Developing a senior-friendly app to help seniors navigate care in the community post-discharge

Due to time and manpower constraints — as the pilot was carried out shortly after the COVID-19 pandemic broke out — the team aimed for a Minimum Viable Product: a service that has just enough features to satisfy early users and provide feedback for future development. It concentrated on Part 1, assessing patients' ability to self-manage with guidance from volunteers, while postponing Part 2 to a later date after the completion of Part 1.

The team also recruited volunteers with the help of NUS CareHub, and designed a curriculum to help volunteers engage with seniors under their charge. Finally, it hardcoded its learnings and training materials into a report, ready for use and adaptation by future social innovators.

User Acquisition Funnel

This refers to a strategic framework for attracting and converting individuals and organisations, from being interested in our product or service to becoming loyal users.

A User Acquisition Funnel (UAF) visually represents a potential user's journey from initial awareness to becoming an active user of a product or service, passing through stages of interest, conversion, retention and advocacy. A tailored engagement strategy is employed at each stage to cater to the needs and motivations of users, thereby enhancing their journey. Utilising the UAF during the design process makes the product more user-centric, as it aligns design decisions with users' needs.

The framework is complemented by user research, personas, and usability testing to refine design outcomes. Thorough user research and the creation of detailed user personas are needed to ensure that engagement strategies effectively resonate with the users. After implementation, continuous monitoring and adaptation based on user feedback and data analysis are crucial to keep optimising the product.

Linked methods:

- Interviews (p. 30)
- Field Ethnography (p. 32)
- Persona (p. 59)

See Team Story on p. 96

Business Model Canvas

This framework organises a sustainable operating model to create and deliver value, furthering our social mission of making a positive difference.

The Business Model Canvas (BMC) holistically and systematically addresses the core elements necessary to create a sustainable service delivery model. Beginning with the value proposition at its core, the framework looks into key user segments, envisioning a clear communication and engagement plan. Next, it examines the feasibility of the solution by identifying key activities, resources, and partnerships required to deliver the promised value. Lastly, the framework aims to balance resource input and service delivery costs, ensuring financial viability. As a live document, the BMC allows ongoing refinement and updates throughout the iterative design process.

Linked methods:

- Value Proposition Canvas (p. 105)

See Team Story on p. 122

Measuring Success

Continuously observing and analysing key metrics is key to understanding how well our product or service is meeting its objectives and user expectations.

Measuring success is not something we do only at the end; it should be done consistently and systematically throughout the entire pilot or implementation of the Minimum Viable Product. It serves the crucial purpose of ensuring alignment with users' needs, ascertaining the impact of implemented features, and guiding iterative improvements. By closely monitoring performance, teams can gain valuable insights into user behaviour, identify areas for improvement, and optimise the product to enhance user satisfaction and overall success in the market.

Linked methods:

- Logic Model (p. 104)

Project Management

A systematic process of planning, executing, tracking and completing a project ensures that resources are used efficiently while meeting project objectives.

Project management provides the scaffolding to manage all the moving parts of a project within constraints. Through well-organised and controlled workflows, it breaks down the design process into manageable tasks, allocates resources effectively and maintains a schedule for timely project completion. This is essential as social innovation projects are often riddled with complexities, involving multiple stakeholders, limited resources, tasks and dependencies.

Thorough planning, ecosystem mapping and problem identification are vital to lay the ground for effective project management. To align with the project's goals and users' needs, project management can be supplemented with a stakeholder map and user feedback.

Linked methods:

- Ecosystem Map (p. 36)
- Stakeholder Map (p. 37)

Social changemaking can be really tough, as we try to unravel complex and pernicious community issues. It's not uncommon to see some of these issues evolve, even during the course of your changemaking process. So arm yourself with lots of grit and an entrepreneurial mindset if you want to do social good! The more difficult it is to work through, the more meaningful the problem you're trying to resolve. Our work will never ever be fully done, but trust that the work — if done with the right intent — always adds positively to the ecosystem. Don't give up on your pursuits!

Ivy Tse
Chief Executive Officer, Halogen,
on the importance of a resilient mindset amidst the challenging but rewarding process of solution design

For further information on the methods within this section, scan here:

4.4 Sustainability

Funding

Financial support is often required to move an idea from conception to implementation.

Singapore offers a range of funding opportunities for innovators aiming to address health and social challenges. The government, for instance, offers grants alongside schemes and partnerships for commercial ideas, particularly in areas aligned with national priorities such as Healthier SG, social impact and sustainability. You can also seek funding support from the philanthropic and corporate sectors.

When applying for funding, it is important to have clarity on your project's objectives and boundaries, so you can decide if the funders are a good match or if adjustments should be made to meet their goals. Where your project is in its timeline can also affect whether it is suitable for various grants. Finally, funders will appreciate clearly defined outcomes and a path to self-sustainability.

When it comes to building a strong relationship with funders, transparent communication of developments is key, clearly demonstrating the progress and impact of your project. It is also crucial to deliver on your promises and ensure compliance and accountability, by aligning with the agreed budget and reporting guidelines. You can also foster a long-term relationship by sharing your vision for future phases of the project and how their continued support can amplify the impact of your project.

C IP Rights and Commercialisation

By providing a legal framework to protect creative works, intellectual property (IP) rights ensure that innovators receive recognition and financial support, enabling the growth of sustainable solutions that benefit society.

IP safeguards creative ideas and thus promotes sustainable solutions. This encompasses various components:

- Copyright safeguards creative works, including written, artistic, or digital assets produced through the course of a project
- Patents protect technical inventions such as mobile applications and digital tools
- Trademarks protect branding elements that help establish credibility and recognition, such as logos, names and taglines

Health and social design projects often require additional IP management considerations, particularly regarding shared copyright in collaborative settings. Such projects frequently involve partnerships across public, private and community sectors. Effective copyright management ensures that creative outputs are used ethically and sustainably while respecting the contributions of all parties involved. In this context, copyright management could involve clear definitions of ownership and usage rights, documentation and attribution, collaborative licenses and educational usage clauses.

Effective IP management ensures that creative solutions and IP assets are protected, shared responsibly, scaled sustainably, and commercialised strategically towards achieving maximised community reach and impact. This entails transforming research-based solutions into accessible services, products, or programmes. Some pathways to commercialisation include licensing agreements, public-private partnerships and revenue streams.

For further information on the methods within this section, scan here:

BlockBox

Team Members

Top row: Alden Tan, Koh Ying Ying, Caitlin O'Hara, Jaymee Justiniano
Bottom row: Sheikh Izzat, Ho Ding Heng

How might we improve support for isolated seniors with chronic diseases during the COVID-19 pandemic?

Premise

Seniors with chronic diseases need to adhere to specific lifestyle adjustments, including diet and exercise. Due to the COVID-19 pandemic, the need for social distancing disrupted their usual community activities, resulting in a lack of motivation and fewer avenues for seniors to manage their conditions.

Where It Began

During the COVID-19 pandemic, six friends from the National University of Singapore and Yale University witnessed how social distancing measures were leaving seniors displaced, isolated and struggling to manage their chronic conditions. Determined to make a difference, the medical, business and computer science students teamed up during Design4Impact 2020 to create an innovative solution: BlockBox.

The team envisioned a unique community space where seniors could reconnect and thrive. Hence, it transformed a void deck at Yuhua Senior Activity Centre (SAC) into an immersive, tech-free social hub, recreating the essence of social media in a physical setting.

Insights from Research

As part of its field research, the team interviewed individuals with chronic diseases. One interviewee, a diabetes remission coach named Peter Tan, highlighted the importance of online communities for him and other diabetics. He explained how the relationships formed within these communities not only offered support but also motivation and accountability in managing his condition. This resonated with the team members, as they had witnessed the power of community through their individual experiences volunteering for health causes and grassroots activities.

The team also noticed a growing trend of seniors embracing technology. Many of their parents and relatives have Facebook accounts where they are comfortable with maintaining an online profile, sharing opinions, and discussing their lives. This observation bolstered the

Product & Services

Blockboard (BB):
Tracks health goals in the community, with social media-inspired elements

Kitbox (KB):
Contains materials to encourage healthy behaviours, delivered monthly to residents

Volunteer Befrienders (VB):
Visit residents to facilitate the programme and use of BB and KB

Gain Creators

Sense of community through physical social media-like posts — BB KB

Accountability and motivation to make lifestyle changes — BB VB

Vouchers as incentive for seniors who participate in BlockBox activities and manage their condition — VB

Increase conscientiousness of one's condition through tracking and sharing with the community — BB VB

Pain Relievers

Does not require technology

Volunteer befrienders reduce social isolation and encourage healthy behaviours — VB

Safe social interaction through community space — BB

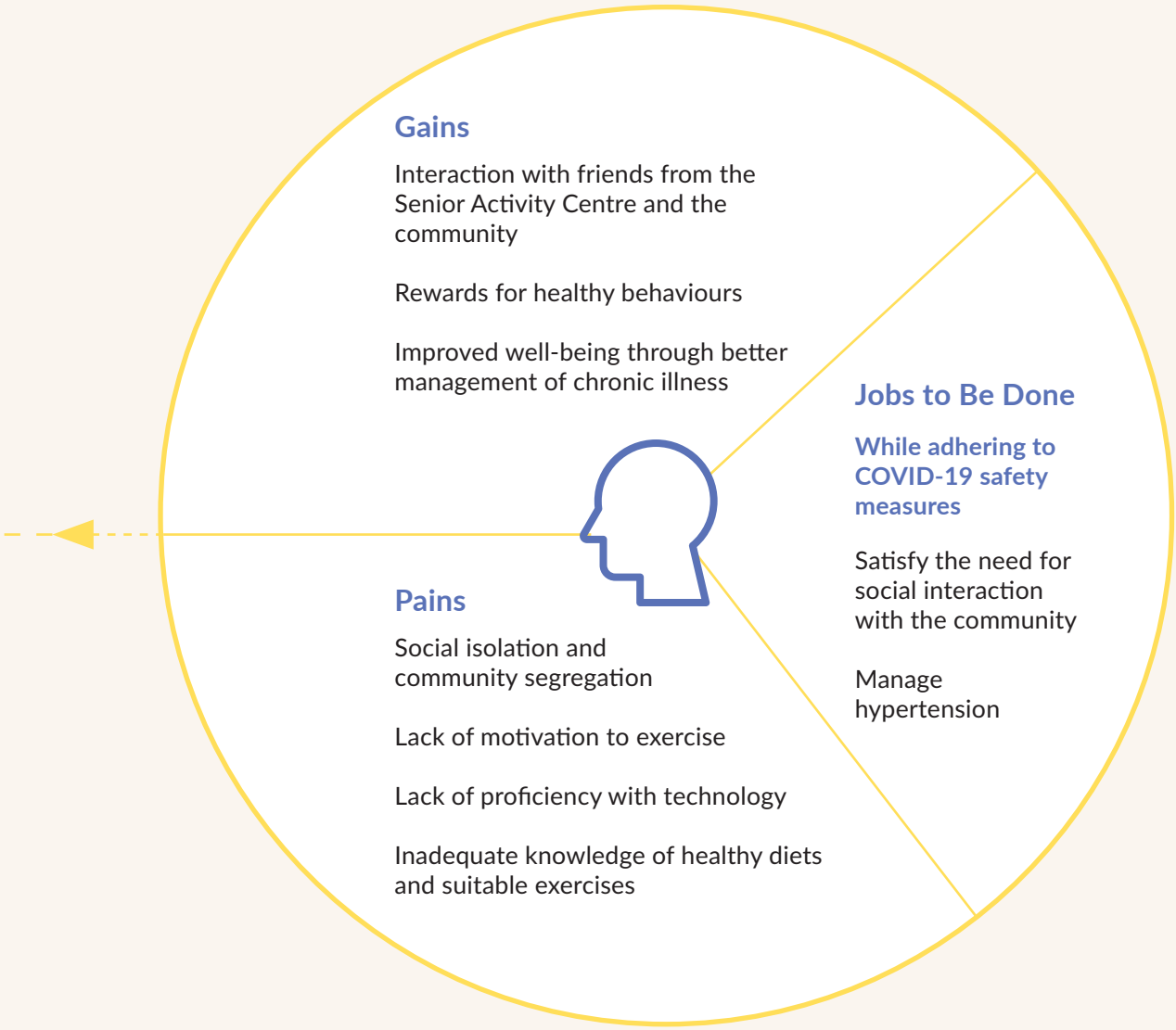
Activities and materials that promote healthy eating and exercise — KB

Team BlockBox's Value Proposition Canvas

team's confidence that other seniors who are less tech-savvy may also appreciate similar social interactions.

"With COVID-19, much of Singaporeans' lives have moved online, with many turning to platforms like Facebook, Instagram and TikTok for social interactions. However, some were left behind. The less tech-savvy elderly did not have a virtual world where they could continue social interactions. Furthermore, on top of the acute health crisis from COVID-19, chronic diseases remained a significant threat," said team member Alden Tan. "If we could bring the social media experience to these seniors, offline, it could help them feel connected and motivated to monitor their health and keep fit together."

Using a Value Proposition Canvas, the team was able to map out its service offerings and how these were aligned with the needs and desires of its target users, as guided by insights from its user research. This process provided a clear perspective of how each aspect of its solution contributed to tangible outcomes, identified gaps and opportunities, and refined its value proposition. (For more information on the Value Proposition Canvas, refer to page 105.)



Solution

BlockBox is a two-pronged solution comprising the following:

- ### Blockboard

A community space is created for participating seniors to gather, engage in planned activities, as well as set up communal health progress boards and personalised display boards to track their health habits.

- ### Kitbox

A senior-friendly monthly health "survival kit" is delivered to the seniors' homes, containing emergency contacts, simple exercise equipment, healthy snacks and recipes, postcards, and art materials.

"For digitally estranged seniors, we wanted to offer the social media experience that us youths heavily rely on, to help them manage their health and harness the self-sustaining power of community," said team member Jaymee Justiniano.

In partnership with Yuhua SAC, the team recruited residents from Blk 318A Jurong East Ave 1. A total of 32 elderly participants were recruited, 18 of whom completed the three-month pilot programme from January to March 2021. The majority of participants either lived alone or with one other person. The participants were encouraged to visit the common area on Level 2 of the SAC weekly. However, seniors with limited mobility were given the option of hosting visits from volunteer befrienders at their homes instead.

With the guidance of medical practitioners, the team designed a programme comprising conversation guides, health tips and simple exercises. It also recruited and trained 16 student volunteers as befrienders and facilitators, with each monthly training session focused on one aspect of health and well-being: diet, exercise or mental wellness.

Madam Yeo Ah Huay, a participant in BlockBox, and her personalised health report board

The youth volunteers were paired with seniors with hypertension, and their roles included home visits and chaperoning seniors to the void deck community space for planned activities. Volunteers would encourage their charges to do up their personalised "health report" boards, which comprised daily records of their eating and exercise, along with their weight and blood pressure measurements. They would also help their senior buddies set simple and achievable health goals, such as cutting down on fried food or clocking steps.

Evaluation

Evaluation was done in the form of a survey comprising both quantitative ratings and open-ended questions. The team's evaluation showed that participants who completed the pilot programme saw improvements in managing their hypertension and health behaviours, such as diet, exercise, and medication compliance.

- ## Hypertension management

Among the participants, 81% experienced improved systolic blood pressure, with some showing a significant improvement of over 30mmHg. These findings suggest that the health programme and engagement had a positive impact on the seniors' hypertension control practices. Youth volunteer Ethan Young shared about his senior buddy Mak Mee Yoke, who is in her late 60s: "Madam Mak was highly motivated to use the activity cards to record her health behaviours, and observed that her blood pressure had been better controlled since the start of the programme."

- ## Exercise

As a result of the programme, the participants engaged in more frequent exercise, such as brisk walking, dancing, resistance band exercises and stretching. The Kitbox included instructions for simple stretching exercises and two types of resistance bands, and also promoted the Health Promotion Board's seven-step exercise. With encouragement from the volunteers, the percentage of participants who engaged in at least 100 minutes of exercise per week increased from 53% to 87% by the end of the programme.

- ## Diet

Surveys conducted before and after the intervention showed a decrease in fried food consumption, from a few times a week to just once or twice a month for most participants. Additionally, fruit consumption improved, with an increase from 33% to 53% of participants eating fruits daily. Similarly, 73% of participants had the recommended two servings of vegetables per day, compared to 47% pre-intervention.

- ## Medication compliance

A pillbox was provided to every participant. With the help of volunteers, seniors sorted their pills for ease of consumption. After the programme, all but one participant reported never missing a dose of medication since the start of the programme.

- ## Improved relationships

Genuine relationships were built through the programme. Martin Hoo, a participant in his 60s, is a particularly notable success story — he was so enthused about BlockBox, the team identified him as a potential "Block Champion" who could be nurtured to encourage his peers to adopt healthier habits, going forward.

- ## Mental health

The six-item De Jong Gierveld Loneliness Scale was used to quantify feelings of loneliness experienced by participants. The results were mixed — 40% of participants reported feeling less lonely, 13% experienced no change, while the remaining 47% reported feeling a greater sense of loneliness. This could be due to the effects of a protracted pandemic and its ongoing restrictions.

Key Learnings

- ### Have a Business Model Canvas

A Business Model Canvas creates a holistic view of the core elements needed for a sustainable service delivery model, such as key activities, resources and partnerships. It also seeks to balance resource input and service delivery costs, ensuring financial viability. In its Business Model Canvas, the team prioritised core elements such as a volunteer-guided programme to make its service delivery model sustainable. (For more information on the Business Model Canvas, refer to page 111.)

Business Model Canvas

Key partners 8

Who are the essential partners you need to involve?

- Senior Activity Centre (SAC)
- Elderly in the community
- Silver Generation Office (SGO)
- Town Council
- Community Health Centres

Key activities 6

What are the key activities and processes increasing value for your users?

- Adapting the built environment
- Creating an elderly-centric experience

Key resources 7

What resources do you need to implement your idea? What assets do you already own?

- Void deck spaces for interactive activities
- Senior Activity Centre
- Kitbox and supplies

Value propositions 2

What specific user pain points are you trying to solve? How is your solution better than the next alternative?

- Self-empowering — allows tracking of progress alongside community members
- Intuitive to use
- No steep digital learning curve
- Enhances social interaction and community identity
- Creates a sense of ownership

Cost structure 9

What are the costs involved in running this initiative? (One-time and recurrent expenditures)

Fixed Cost:	Boards			
Variable Cost:	Kitbox — design, preparation, delivery	Stickers	Verification system	Monthly prizes for winners

Team BlockBox's Business Model Canvas — numbers denote priorities and order of consideration, and while helpful, are not mandatory

- ### Seek help from domain experts

BlockBox benefitted from the wise counsel of various experts who contributed their time, knowledge and experience. These included art therapists, family medicine doctors, physiotherapists, officers from the Agency for Integrated Care (AIC) and the team from MOH Office for Healthcare Transformation's Primary Tech-Enhanced Care programme.

- ### Be adaptable and ready to pivot

Through the process of iterative refinement, the team learnt the importance of adapting to both the unpredictable nature of pandemic restrictions and the key needs of the elderly residents. By engaging with the participants, it realised that everyone had their unique needs and preferences, such as a preferred frequency or duration of volunteer visits. The team quickly learnt

User relationships 4

How can you nurture, build and grow these relationships?

Community building

Empowering — taps on their strengths

Channels 3

How are you reaching your users?

Existing senior-related organisations (SAC, SGO, etc.)

Display in void deck spaces

Interactive Kitbox

User segments 1

Who are the users of your service?

Elderly with chronic disease(s)

Elderly without chronic disease

Revenue streams/Tangible or intangible benefits 5

What are your revenue streams?
What value are you capturing from your activities?

Funding from healthcare funders — e.g. Tote Board Community Health Fund	Possible collaborations with schools to support manpower needs	Funding from community funders	Other funding options

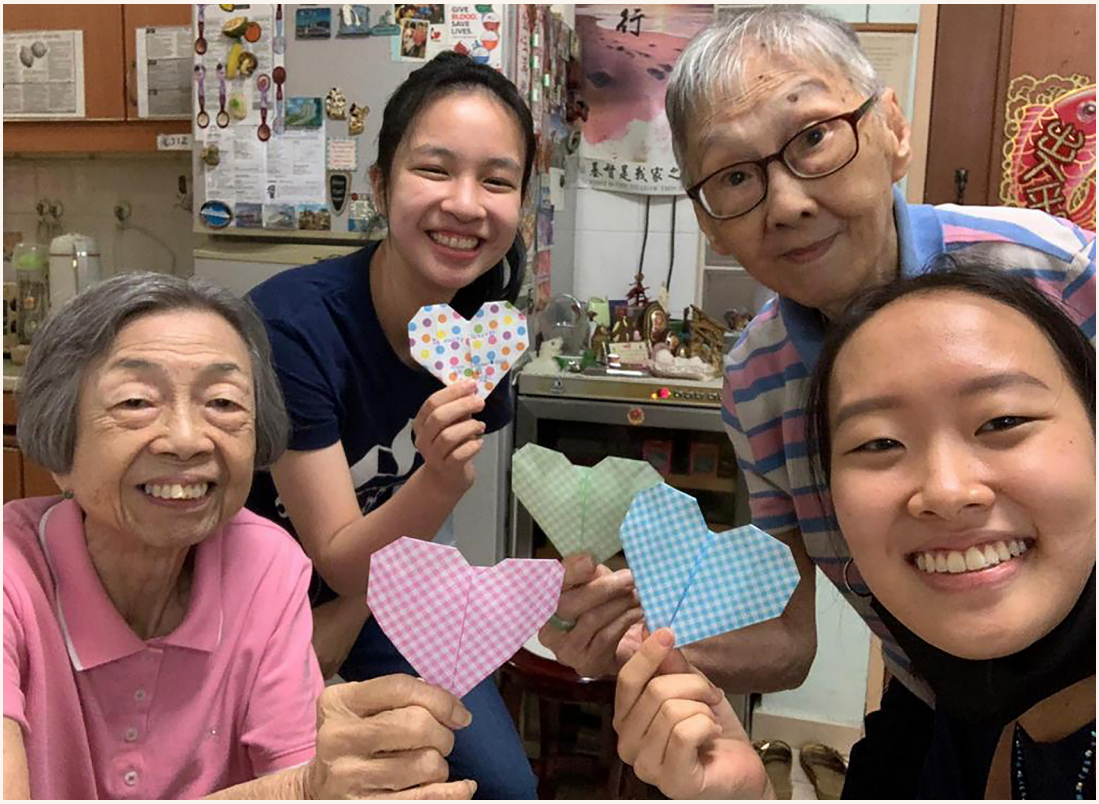
that a modular approach of adapting to each senior's preference could potentially lead to improved engagement, reduced drop-out rates, and better outcomes.

- ### Human connections are important

The team also learnt the value of personal connection. To comply with social distancing norms, it had initially envisioned a more remote approach. In reality, the elderly residents were a lot more engaged when there were volunteers involved in motivating and guiding them towards their health goals. Beyond enhanced mental well-being, these interactions helped to shape their health behaviours and improve the seniors' physical health.

- ### Have an implementation partner

The team was fortunate to have collaborated with Yuhua Constituency, having been linked up through MOHT's Healthy Precinct project. The partnership was instrumental in the pilot's success. Yuhua provided the implementation site and access to community spaces, such as the SAC and adjacent areas within the HDB block. The partnership with Yuhua also gave the pilot a sense of legitimacy among the elderly residents. By leveraging the existing positive relationship that participants had with Yuhua SAC, BlockBox was not perceived as a completely new initiative, but rather as an extension of the trusted community hub.



Volunteers with their senior buddies on a home visit

Members of Team BlockBox and MOHT staff, with Kitboxes and the communal health progress boards

Next Steps

At the end of the pilot in April 2021, the team hardcoded its learnings into an online toolkit, sharing it with Yuhua Constituency for future adaptation by the community. In the long run, the initiative is expected to result in better health outcomes, more health-seeking behaviours and improved self-management of chronic illnesses.

Final Thoughts

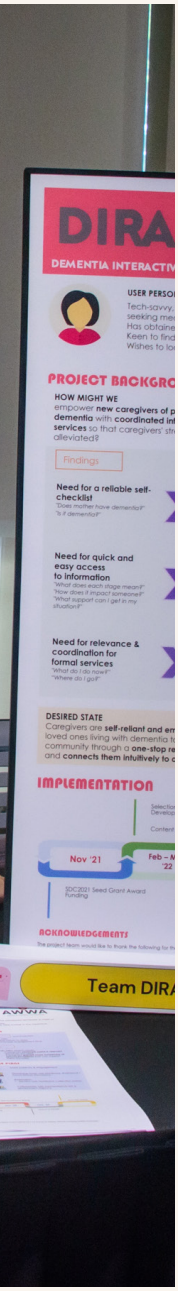
"Looking back at our journey, we're humbled by how a group of like-minded individuals could come together to create something that we never thought we would be able to come up with individually," team member Sheikh Izzat reflected. "We're happy that what we're doing can potentially have a wide impact."

DIRA

DIRA team members Teo Ying Ying and So Man Shan, at the Design4Impact 2023 Pitch & Community Day

Team Members

Alicia Lim, Grace Xu, Ibrahim Bin Rajab, So Man Shan, Teo Ying Ying, Rathi Devi



How might we alleviate the stress and anxiety felt by new caregivers of persons with dementia, who do not have relevant information and resources on dementia caregiving?

Premise

According to the Well-being of the Singapore Elderly (WiSE) study by the Institute of Mental Health, dementia presently affects one in 11 individuals aged 60 and above in Singapore, and presents complex challenges for caregivers. Beyond the emotional toll, caregivers often face difficulties navigating fragmented resources, leading to additional stress, frustration and delays in accessing appropriate support.

Where It Began

In February 2021, six colleagues from AWWA Ltd came together during NCSS's Sector Design Challenge, to address the growing needs of caregivers of persons living with dementia. Driven by the growing prevalence of dementia in Singapore and a team member's first-hand experience as a new caregiver for a family member with dementia, they aimed to bridge the gaps in Singapore's senior care sector where dementia is concerned.

The team resolved to develop a one-stop resource platform where caregivers could access information in a personalised and organised manner, according to their loved one's stage of dementia. Thus, the seeds were planted for Dementia Interactive Robo-Advisor (DIRA).

Insights from Research

To understand caregivers' struggles, the team conducted interviews and field research. It discovered that caregivers face these key challenges:

- ### Scattered and unverified information

With caregivers being younger and more digitally savvy, the internet has become the most natural source of information. However, though there is ample information available online, resources are dispersed and each written for a different target audience with varying focuses and intents. Caregivers must then determine for themselves if the information is relevant, verified and trustworthy. The profusion of resources has thus left caregivers feeling more confused and frustrated than supported.

- ### Uncertainty of diagnosis

Most individuals with dementia experience a gradual onset of the disease, which often leaves caregivers uncertain about whether their loved ones are truly suffering from dementia or age-related cognitive decline and impairment. In many cases, these individuals resist seeking professional medical diagnosis. This uncertainty leads to daily friction, frustration and misunderstandings, making it challenging for caregivers to provide adequate support — in turn causing delays in seeking professional care and treatment. Caregivers expressed that having a tool or checklist to self-administer would help inform or prompt them to take their loved ones for further medical assessment.

- ### Evolving caregiving needs

Given the progressive nature of dementia, caregivers encounter evolving challenges as the severity of the condition advances. This means they need sustained support and resources catered to the different stages of dementia throughout their caregiving journey.

Solution

Dementia Interactive Robo-Advisor (DIRA.sg) is an online one-stop portal that provides curated resources tailored to the unique needs of caregivers at every stage of their loved one's dementia journey. DIRA was designed with caregivers in mind, offering three core features:

- ### Self-screening tool

This is a quick self-administered checklist to help caregivers determine whether their loved one has dementia and the likely stage of their condition.

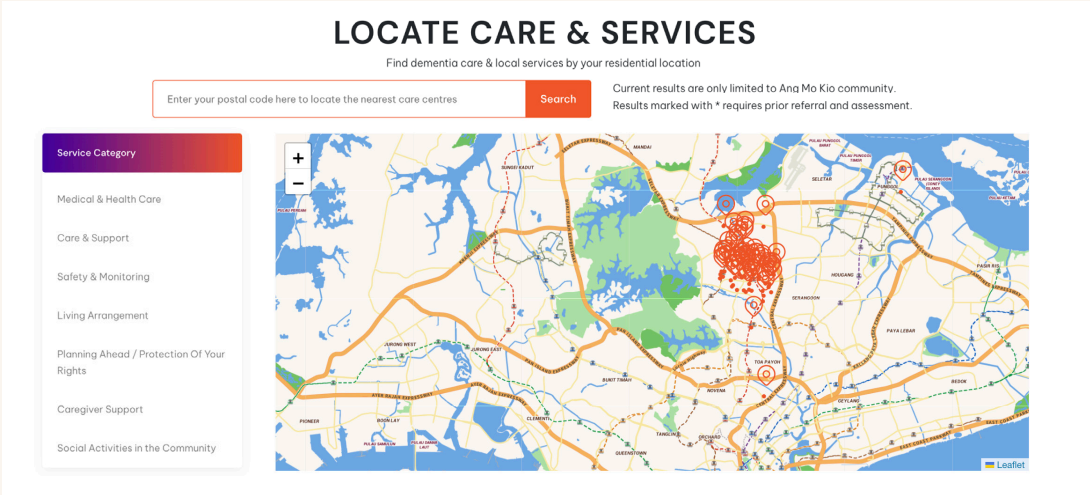
- ### Tailored resources

Articles and support materials are curated based on the assessed stage of dementia.

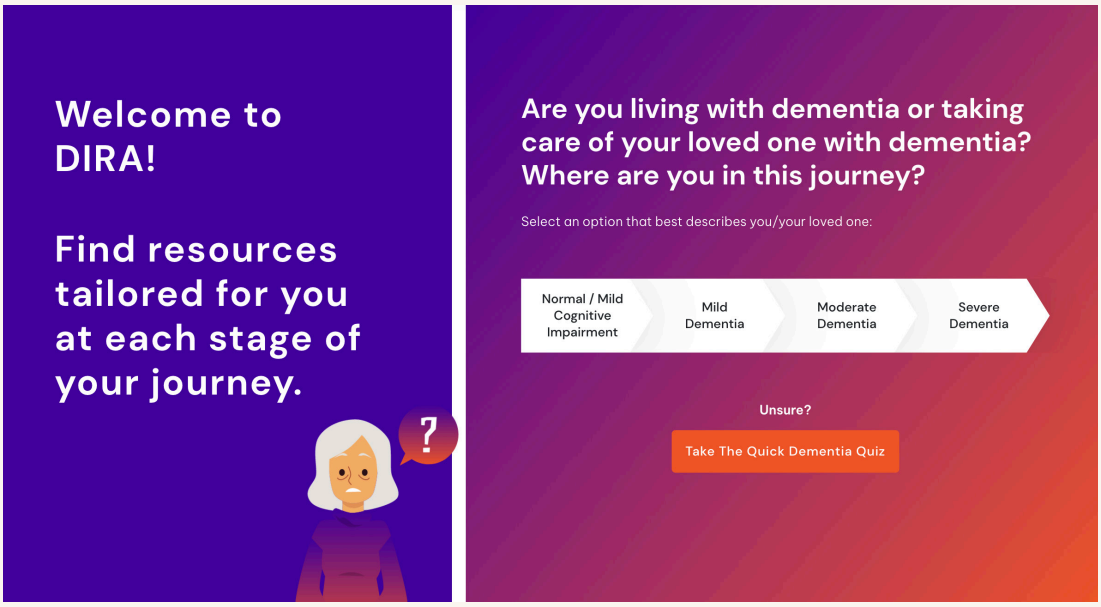
- ### Service locator

A search function enables caregivers to find nearby dementia care service providers using their postal code (limited to the Ang Mo Kio residential district during DIRA's pilot).

The DIRA website was launched on 22 February 2023, and recorded 2,800 site visits and 228 unique visitors by 30 April 2023. The most visited pages were those of the service locator, followed by the self-screening tool, suggesting that these are the most useful features for caregivers. Search results on the DIRA website showed that caregivers and the community obtained useful and relevant resources on dementia; they were also exposed to more resources that could provide support.



The interface of DIRA's service locator



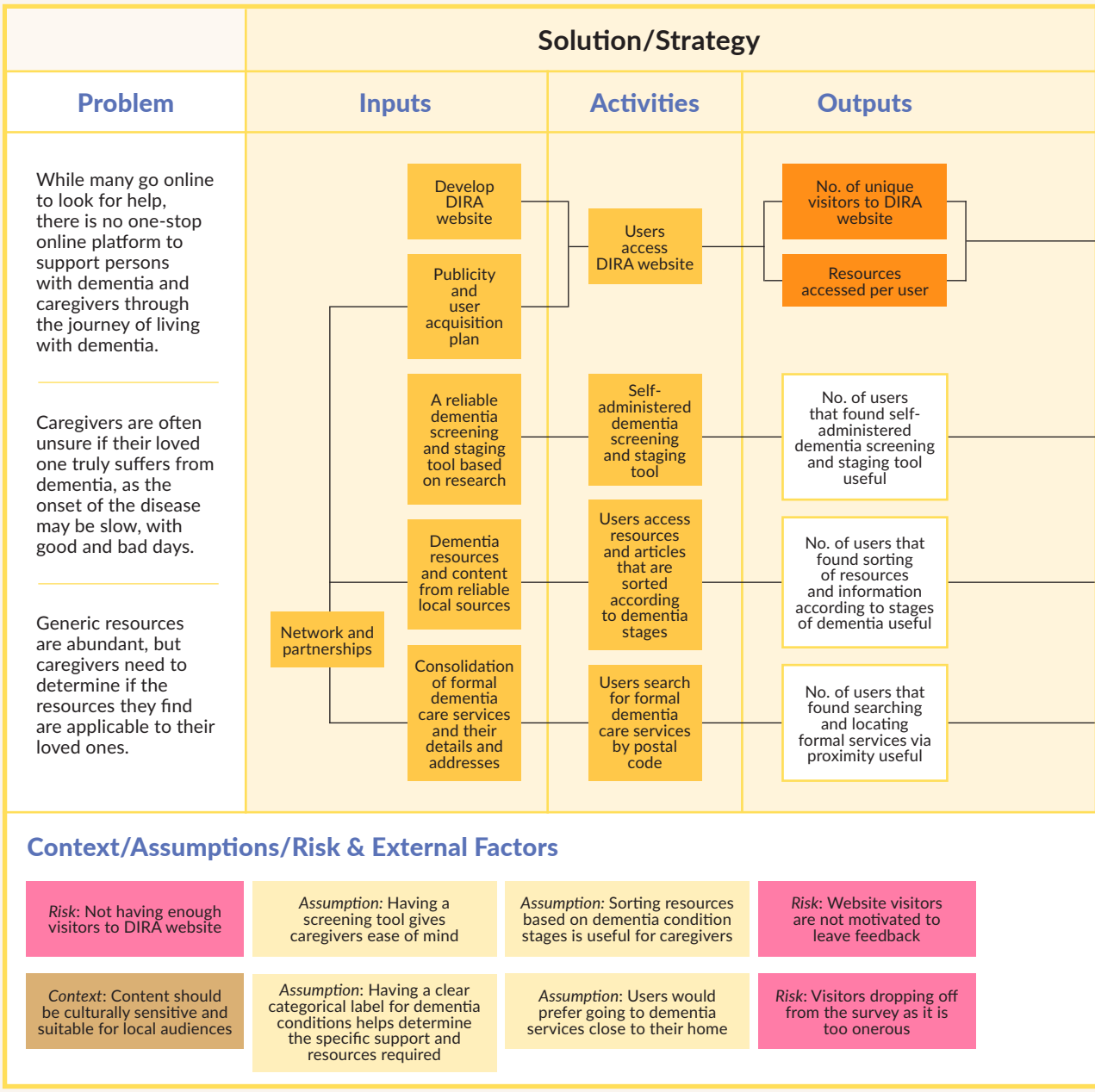
The interface of DIRA's self-screening tool

Key Learnings

- *The need to scope the "right" pilot – developing a Logic Model and Minimum Viable Product*

When DIRA was first conceptualised, the team had envisioned an immersive digital experience, including personalised avatars and an interactive journey map. However, it soon realised that it faced budget and timeline constraints, and had to "dream big but be okay with starting small", as team member Grace Xu put it.

By using a Logic Model to map out how key features of the solution would lead to outcomes, the team was able to identify and then test anticipated cause-and-effect relationships, to assess the solution's validity. The process also revealed assumptions to validate, risks to mitigate, and contextual factors the team needed to consider during DIRA's implementation.

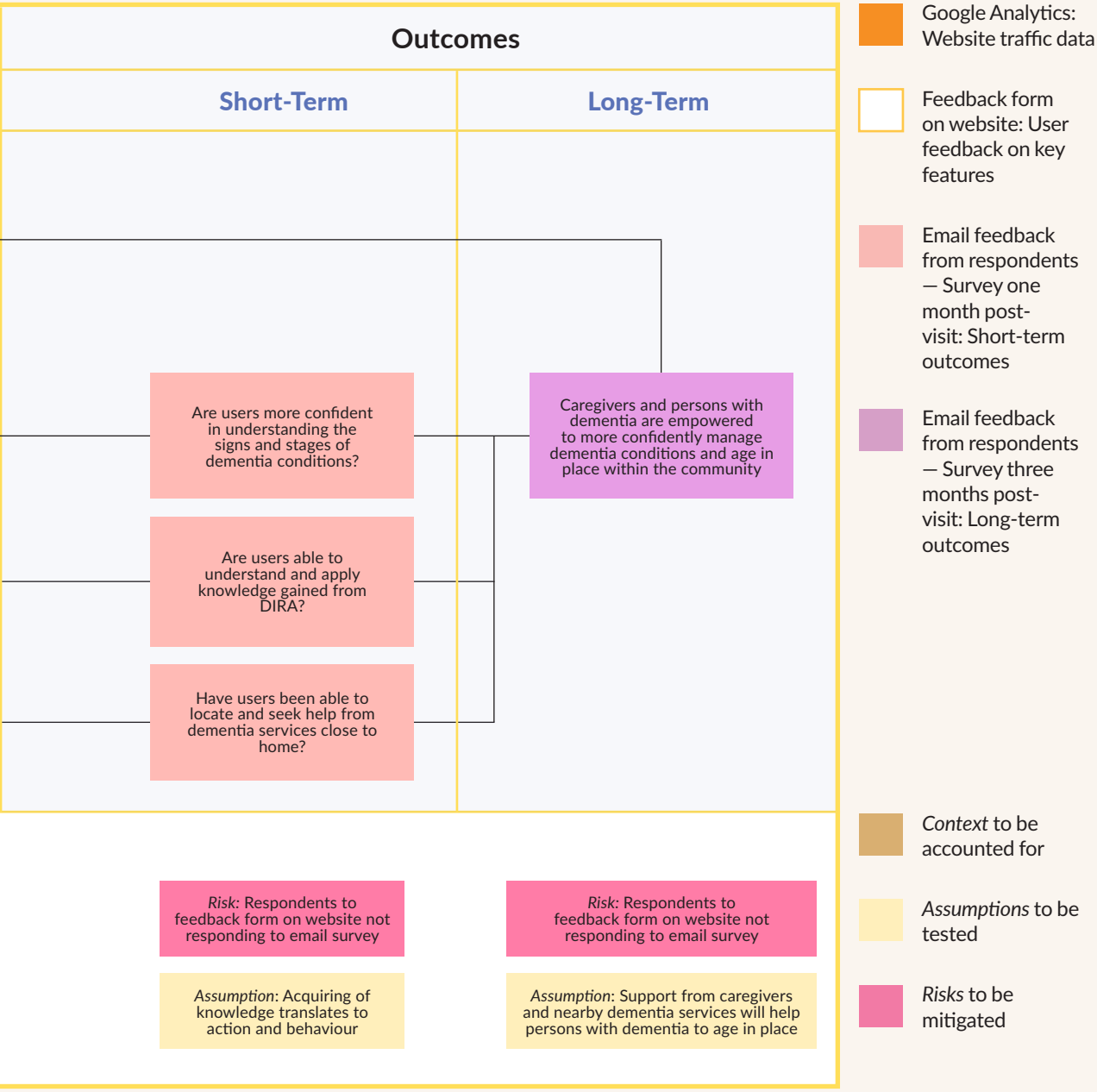


Sample Logic Model developed for DIRA

Insights from research helped the team to prioritise features, separating the "must-haves" from the "nice-to-haves". This enabled the team to scope its project requirements, deliver a Minimum Viable Product (that is, a solution scaled down to its essential features) and test key offerings.

The team decided to initiate its pilot within Ang Mo Kio because of the sizeable residential population; in addition, it was familiar with the area and already had strong networks there.

"It was good to dream, but ultimately we had to narrow our scope down to the core functions," team member Teo Ying Ying reflected. "It was a good learning experience for us to understand what it really took to create a website, decide what features were essential, and focus on the key elements we wanted to test in our pilot." (For more information on Logic Models and Minimum Viable Products, refer to pages 104 and 109, respectively.)



- ### Stakeholders can offer valuable support

Cultivating strong relationships and meaningful collaborations with partners enhanced the team's efficiency and effectiveness. By contributing their local knowledge and managing content curation, community partners in Ang Mo Kio helped to ensure that the platform offered comprehensive resources.

When an opportunity arose to present DIRA to stakeholders such as the AIC, Dementia Singapore, hospitals and non-governmental organisations, the team was initially hesitant due to the nascent stage of the pilot. Nevertheless, it went ahead, and was pleasantly surprised by the reception from the community. Many stakeholders expressed an interest in DIRA and a willingness to be involved throughout the pilot while waiting for the proof of concept for potential scaling and adoption in the future. Hence, the team recognised the value of early stakeholder engagement through gathering feedback and securing buy-in.

- ### The importance of clearly defining needs

Through working with a website developer, the team learnt the importance of having a clear idea of what it needed, as this would in turn affect how effectively it communicated its requirements to the vendor.

"It was tedious working with the vendor because we were not crystal clear about the details they needed. We imagined that it would just involve us communicating the overall concept and handing over the resources, and they would make sense of it all," Ying Ying mused. "In fact, they needed to know exactly what we wanted, like where to put the logo and how we wanted to word the content. There were a lot of grey areas that we had not discussed."

> Dream big but be okay with starting small.
>
> *Grace Xu,*
> *DIRA team member*

- ### Time management is essential

One key takeaway was to allocate enough time for comprehensive end-user testing and involve a larger number of user testers, so as to mitigate risks and minimise post-launch modifications to the website.

Likewise, more time could have been allocated to evaluating DIRA's pilot — this would have yielded more meaningful results and insights.

DIRA team member Teo Ying Ying presenting to Mr Desmond Lee, Minister for National Development and Minister-in-Charge of Social Services Integration

Next Steps

The DIRA website is now live, and the team seeks to expand its reach through increased community outreach and publicity efforts. This will allow the team to repeat its evaluation with a larger sample size, providing more robust data. To further develop DIRA and explore its potential for government adoption and integration with DementiaHub.sg — a resource hub launched in September 2021 — the team will engage key stakeholders, including AWWA's management, the Agency for Integrated Care and Dementia Singapore.

Final Thoughts

Creating a truly user-friendly solution requires empathy, user-centricity, and the ability to effectively translate user needs to technical experts, as the team learnt. Its pilot report concluded: "As social service professionals seeking to leverage technology to improve our work and service delivery, we have to develop and embrace this approach of working with cross-disciplinary technical professionals, while being deeply aware of how we can better serve our users through better design."

AFTERWORD

The organising committee of Design4Impact 2023

> D4I embodies hope, courage, faith and perseverance by a group of dreamers and imagineers who wanted to make a difference amidst the uncertainty of a global crisis. D4I started with nothing — no prominent recognition or significant prizes. But it captured the imagination of those who have a genuine interest in championing vulnerable communities. Amidst the challenges, we saw humanity at its best.
>
> ***Liang Hwee Ting***
> *Director, Communications and Engagement, MOH Office for Healthcare Transformation, and founding member of Design4Impact*

Through the COVID-19 pandemic and beyond, Design4Impact (D4I) has brought Singaporeans together to make a difference in the lives of others.

As we celebrate five years of transformative impact through the collective expertise and experiences of pioneering teams that have implemented their solutions, D4I continues to flourish — through the Community of Practice that unites D4I alumni and social innovators in achieving social good, and through teams' continuous enhancements to the solutions they have implemented.

We invite you to join the D4I movement. This playbook is free for you to use and share, as you harness design thinking to create innovative health and social care solutions that will benefit vulnerable groups in our society. Additional resources are available at https://for.sg/d4i, and the repository will be updated regularly. Please reach out to us at moht.comms@moht.com.sg or innovation@ncss.gov.sg to share how the playbook has inspired or empowered you, or provide feedback on how we can improve it — we would love to hear from you!

For additional D4I resources, scan here:

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