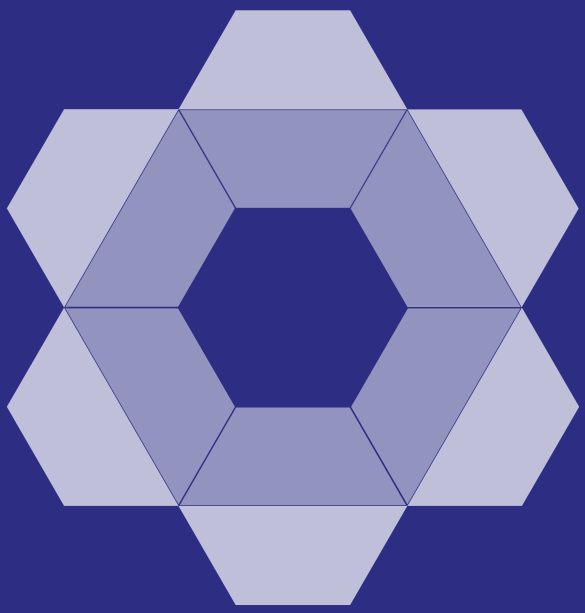
Digital Health & Care Innovation Centre



Rural Centre of Excellence Design Activities

Supporting Citizens and Professionals to Contribute to the Design of Innovative Health & Care Services in Moray

November 2025

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Funded by UK Government

Moray Growth Deal
Innovation from Tradition

Foreword

The Digital Health & Care Innovation Centre (DHI) have been working in partnership with Moray Health and Social Care Partnership as part of the Moray Growth Deal funded Rural Centre of Excellence (RCE). The RCE have been exploring innovative digital health & care services. This report details the participatory design activities run with health and care professionals and citizens of Moray.

The RCE programme is focussed around five 'Living Labs': supported self-management; long-term condition management; care in place; smart housing and communities; and mental wellbeing. The participation of those people with pertinent lived-experience is important for the RCE programme in Moray. Moray's challenge of resourcing health and care services grows and service providers need to find different ways of providing support. In particular, how new technologies can be used to help people find support in their immediate community and share information more effectively.

This report presents the activities the RCE programme has run with people in Moray. The designs for innovative digital tools reflect the current challenges and new ways of working. The design activities have finished but the designs here have been or are being developed into innovative services in Moray at the time of writing. In the near future, these new digital tools should continue to develop as we learn from their use and their evaluation.



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Digital Health & Care Innovation Centre
A world-leading collaboration between
University of Strathclyde Glasgow
SCHOOL OF INNOVATION AND TECHNOLOGY THE GLASGOW SCHOOL OF ART

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Image showing previous DHI participatory design activity in Moray.

Section 1
Introduction

The Rural Centre of Excellence for Digital Health and Care (RCE), is funded by the Moray Growth Deal and managed and delivered by Scotland's Digital Health & Care Innovation Centre (DHI). It aims to advance Scotland's digital health agenda and support economic recovery. The programme of work includes a Demonstration & Simulation Environment (DSE) in Elgin and five 'living labs' centred on identified areas for innovation within Moray.

Health and social care services in Moray face a growing demand that outstrips capacity, resulting in significant pressure across the entire system. Long waiting times for care assessments and care packages, and a shrinking workforce are two of the most critical challenges identified.

The DHI and the RCE programme of work is committed to involving those who use and deliver services as participants in the design and development of innovative services that are digitally enabled.

This report provides an overview of the contribution of design activities to the learning and development for each of the five living labs. For each of the five living labs the design activities engaged people with relevant experience to understand the current state of a service area; co-design a future, preferable, innovative service supported by digital technologies and; produce assets that would support the procurement activities of the RCE programme. The report also highlights some design activities that support the RCE programme more holistically.

Five key areas were identified that could benefit public services and citizens locally and nationally through adoption of co-designed, person-centred digital health and care Research and Development:

1. Supported Self-Management;
2. Long-term Condition Co-Management;
3. Care in Place;
4. Smart Housing and Smart Communities;
5. Mental Wellbeing.

The Design Team at the DHI is responsible for engaging and supporting people who have pertinent lived experience to meaningfully contribute to the design of future services that they will use (or will have used on their behalf). A person's relevant expertise might be lived (e.g., a person living with a long-term health condition; an informal carer, etc.) or trained (e.g., a nurse; a third sector charity worker; etc.). This participatory design approach helps to ensure that Moray's citizens and health and care professionals co-design innovative services that should be more preferable to them and hence, more likely to be adopted as 'business as usual' in the near future. The design team activities focussed on understanding the current state of a service area; co-designing a future, preferable service innovation; and producing options suitable for further procurement by the RCE programme.

The DHI Design Team is part of the School of Innovation and Technology at the Glasgow School of Art (GSA).

05

The Living Labs

Supported Self-Management

Weight management service innovation.

Led to trial of **digital weight-management service** in Moray. Also led to adoption of innovation by NHS Lanarkshire and a further five UKRI funded Weight-management service pathway design projects.

Co-managed Long-term Conditions

Coordination between statutory and community resources including Moray Leisure Centre.

Led to the **Heart of Moray campaign** to better support healthy weight.

Care in Place

Caring for people in there usual place of residence.

Led to the **Community Connections platform** incorporating person-owned records and integration with a service finding platform.

Smart Housing & Communities

Gathering data from home settings to better inform decision making by individuals and families.

Led to a personalised, proactive and **predictive monitoring service pathway** for citizens and health and care services in Moray.

Mental Wellbeing

Improving mental health services and access.

Integrating mental wellbeing information into the Community Connections platform and developing bundles of recommended **resources for common mental health needs**.

Innovative Health & Care in Moray

Engagement with the wider health and care community, including citizens, in Moray.

Aims and Objectives of the RCE Programme's Design Activity

The design activities for the RCE programme delivered three aspects for each living lab:

1. A current state capturing insights and perspectives, barriers and opportunities from multiple experienced perspectives. This helps the RCE and stakeholders to understand the current challenges and opportunities from a person-centred viewpoint.

2. A future state design depicting preferable, innovative, futures that address challenges through the appropriate application of digital technologies. Co-designed innovations should be preferable to stakeholders involved in the design.

3. Designs of innovative service changes that inform one or more calls for procurement of technologies that support service innovation and reflect the relevant current states and future state designs.

This document presents these three deliverables for each of the five living labs in Sections 2 through to 6. Some details are left out for brevity but the substantive diagrams and text covering the three deliverables are shown. It also contains materials from other design related activities that support the RCE programme in Section 7.



Image showing previous DHI participatory design activity in Moray.

Design Innovation

The DHI design team is part of the School of Innovation and Technology at the GSA. The school has expertise in research, teaching and delivering design innovation. Researchers at the school work on developing new service models, delivery pathways and digital solutions that could change the way health & care is delivered in Scotland.

The DHI design team adopts a participatory design approach[1] to innovation. That is, researchers support experts to co-design their preferred, future, innovative services. Experts, in this context means having appropriate lived-experience as many of Moray's citizens do, or being a trained healthcare professional for example. This person-centred, equitable approach aligns with the DHI's innovation process model (shown below). This approach helps the DHI to better understand diverse perspectives of individuals and organisations; define requirements for innovative services and systems; and support development of robust solutions that meet the needs of those people most affected.

In participatory design research, people are supported to share stories, challenges, and ideas using tailored methods and tools, helping translate insights into meaningful, sustainable innovation. The work presented in this report used a Participatory Design approach[3] to co-design current states and future states that informed requirements for procurement for each of the five living labs. Some of the requirements overlapped with previous, commonly seen requirements from similar research from the DHI[2]

The design activities for each of the five living labs received institutional research ethics approval from the GSA. Example research ethics materials (Consent Form and Participant Information Sheet) for the Care in Place living lab are shown in Section 7 as an example.

References

[1]Bratteteig, T., Bødker, K., Dittrich, Y., Mogensen, P. H., & Simonsen, J. (2012). Methods: Organising principles and general guidelines for Participatory Design projects. In J. Simonsen, & T. Robertson (Eds.), Routledge International Handbook of Participatory Design (pp. 117-144). Routledge.

[2]Chute, Chaloner and French, Tara and Raman, Sneha and Bradley, Jay (2022) User requirements for comanaged digital health and care : review. Journal of Medical Internet Research, 24 (6). e35337. ISSN 1438-8871 (https://doi.org/10.2196/35337).

[3]Elizabeth B.-N. Sanders, Eva Brandt, and Thomas Binder. 2010. A framework for organizing the tools and techniques of participatory design. In Proceedings of the 11th Biennial Participatory Design Conference (PDC '10). Association for Computing Machinery, New York, NY, USA, 195–198. https://doi.org/10.1145/1900441.1900476



The DHI's Innovation Model with design practice supporting each stage.

The Living Labs Methodology

The RCE employs a Living Lab methodology from ENoLL (https://enoll.org/) which aligns closely with the participatory design approach described here.

ENoLL defines Living Labs as: 'user-centred, open innovation ecosystems based on a systematic user co-creation approach, integrating research and innovation processes in real-life communities and settings.'

The core of the Living Labs approach, in line with the DHI Design Team's participatory approach is the involvement of multiple stakeholders to ensure a variety of views and experience are the driver for more adaptable and impactful innovation that has been tested in real-world settings.



Image showing previous DHI participatory design activity in Moray.

Section 2
Supported Self-Management Living Lab

The Supported Self-Management Living Lab focused on weight management and was a collaboration between NHS Grampian, the University of the Highlands & Islands (UHI, industry partners Lenus Health and Sitekit Solutions and, the DHI.

Obesity related conditions are putting unsustainable demands on the NHS and other public services for weight management interventions as well as creating significant socioeconomic implications. In a report published by Nesta in 2022 it was stated that the annual cost of obesity in Scotland was £5.3bn, with £4.1bn of that attributed to the value lost to people through ill health and reduced quality of life, with figures continuing to rise. It is estimated that the annual cost to the NHS for treating obesity related conditions is £772m.[1]

Currently, the weight management service model in NHS Grampian can be seen as fragmented, with multiple systems addressing different parts of a patient journey that do not integrate with each other or with other NHS systems. This lack of integration makes it difficult to personalise the service, support better patient self-management and improve clinical and patient outcomes. This also means that the service faces challenges with effectively scaling to support patient demand due to the effort required to act across multiple siloed elements.

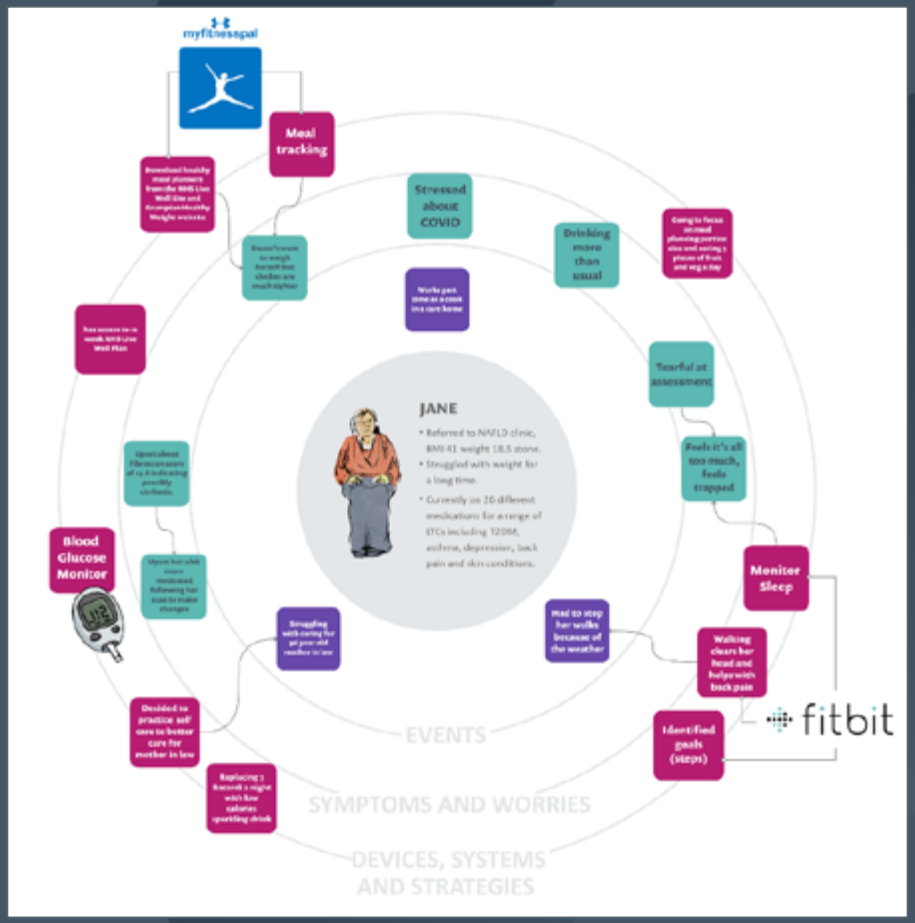
In response to the NHS Grampian Plan for the Future Strategy[2], the NHS Grampian Public Health Team has co-produced a future vision for adult weight management and type-2 diabetes pathways. This living lab builds on this vision and provides support to NHS Grampian to test new pathways and demonstrate quality improvement and enhanced patient experience in a safe innovation environment.

[1] Nesta. Costs Of Obesity In Scotland. 29 June 2023. Available from: https://www.nesta.org.uk/feature/counting-the-cost-of-obesity-in-scotland/. Accessed on: 13/05/25.

[2] NHS Grampian. NHS Grampian's Plan For The Future 2022-2032. 2022. Available at: https://www.nhsgrampian.org/about-us/planforthefuture/. Accessed on: 12/03/25.

Weight-management service innovation design from DHI in partnership with NHS Grampian from prior to the RCE being established.

Citizen Requirements



#	Common Citizen Requirement	Project Requirement
P1	Hold and share my personal health story and have services use this to personalise my care.	Self-assess, curate my weight, physical activity, diet, and lifestyle history.
P2	Share my experience and outcomes – and for this to improve care for myself and others in the future.	Share the things that support and detract from my ability to self-manage and learn and reinforce with peer groups.
P3	Have conversations with professionals that focus on my priorities.	Self-assess, identity and share my priorities and needs ahead of my appointment.
P4	Have conversations with professionals that have the necessary information or test results available and gathered ahead of time.	Draw a mixture of self-assessment data and clinical record data together into an easy-to-use clinical dashboard.
P5	Have an ongoing dialogue with professionals outside of formal appointments, allowing me to ask questions on my own terms.	Two-way secure messaging between patient and clinical interfaces.

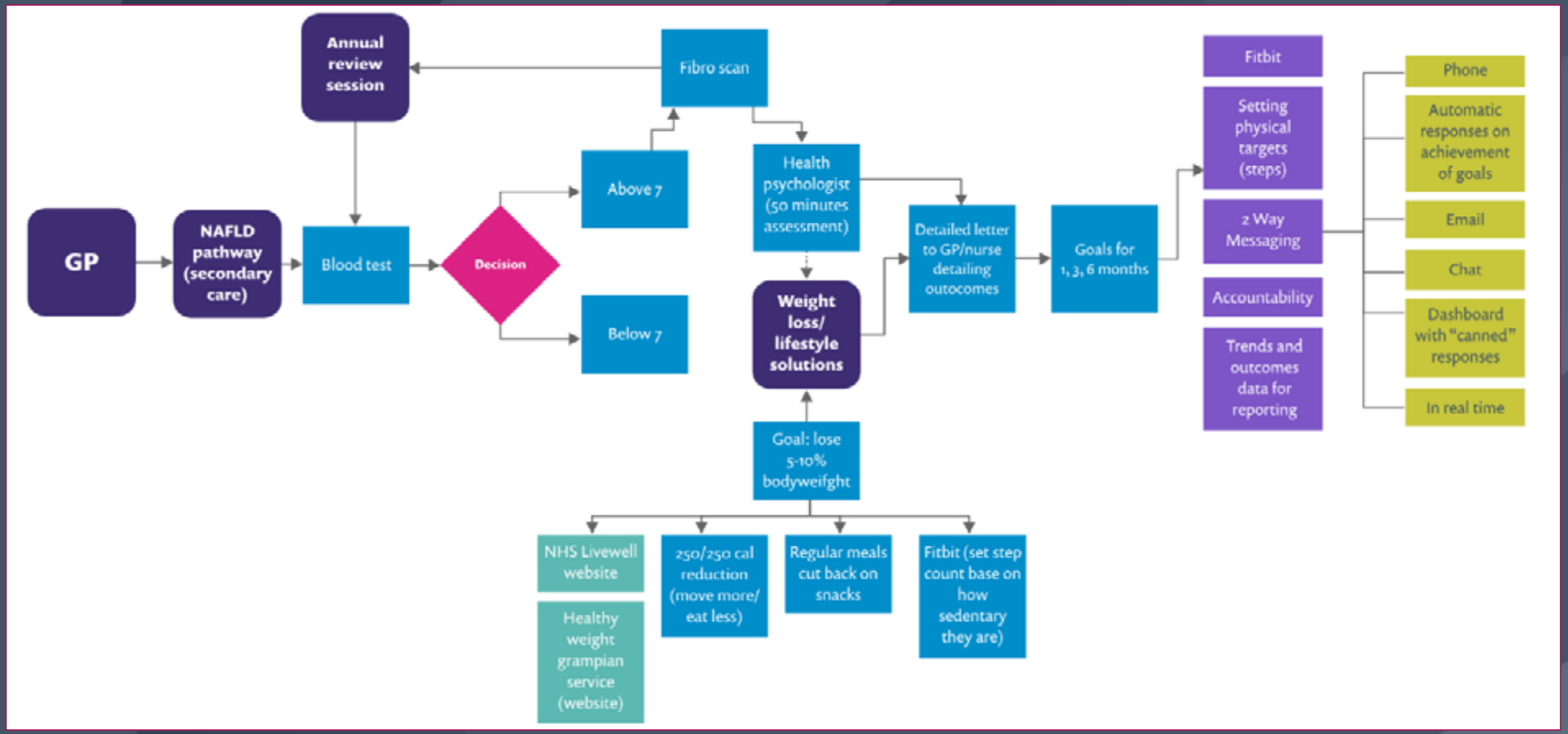
Only part of table shown

#	Common Professional Requirement	Project Requirement
CP 1	Access and contribute to an individual's personal health story so that I can deliver more personalised care, enhancing dialogue and joint decision making.	The patient can consent to share self-assessment, weight, activity, diet, lifestyle, previous weight loss attempt history, and other relevant clinical records.
CP 2	Share and visualise where the individual is on their current care pathways, personalised to their story to help us both manage and prepare.	N/A for this simulation (but relevant and could be developed in later stages)

Only part of table shown

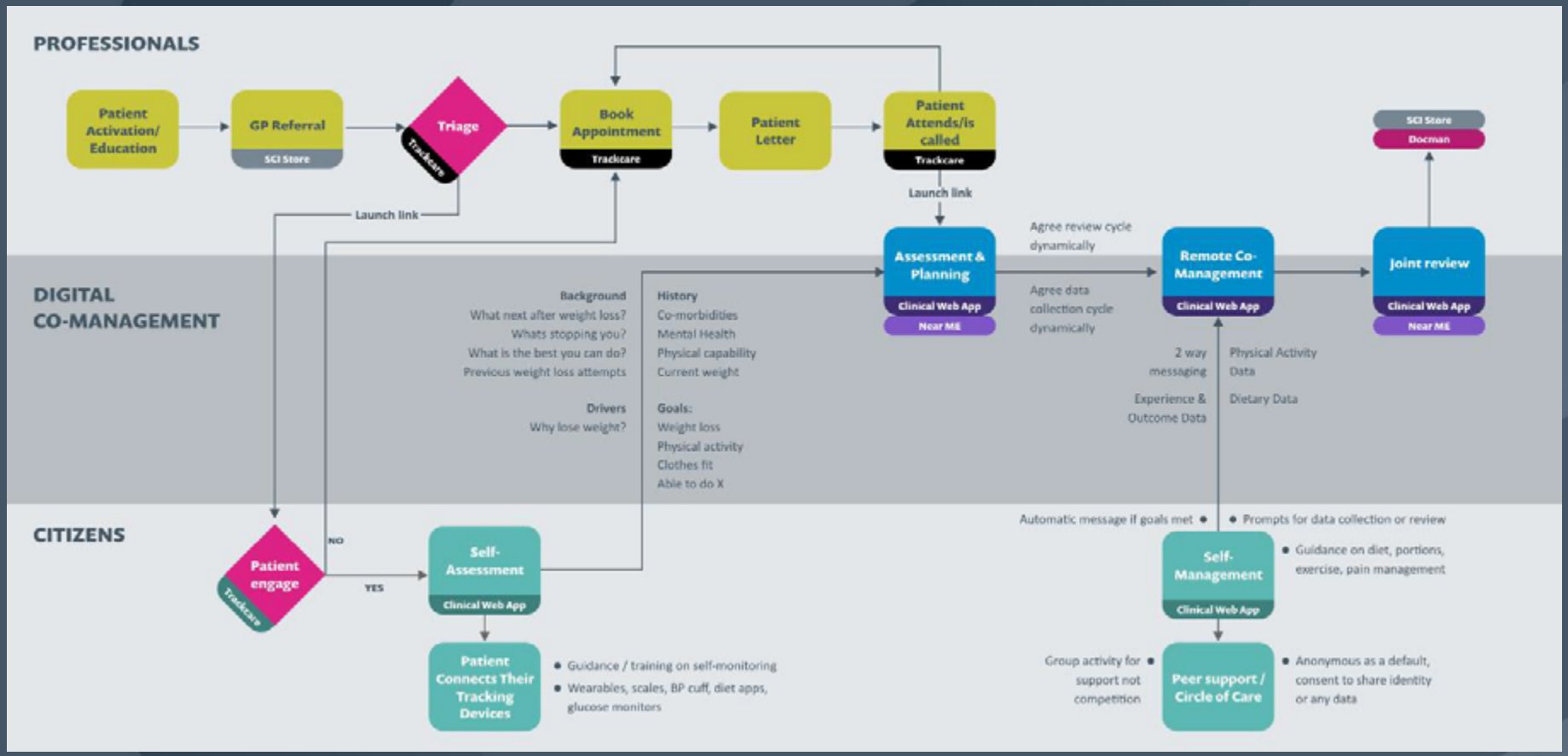
Weight-management service innovation design from DHI in partnership with NHS Grampian from prior to the RCE being established.

Current State map



Weight-management service innovation design from DHI in partnership with NHS Grampian from prior to the RCE being established.

Preferred Future Service – achievable subset agreed for Simulation



Design Activities

The 'Supported Self-Management' Living Lab evolved from earlier simulation activities (example assets shown on the previous page) conducted by the DHI design team before the RCE was established. Insights from previous co-design activity, along with patient needs and input from clinical teams, informed the development of prototype digital tools through several rounds of iteration. These prototypes served as a catalyst for the team to explore the broader service model and identify necessary integrations to create a better service pathway. This process ultimately helped to define the vision for a future solution.

Design activities for this living lab included extensive clinical engagement, co-design of future state service delivery models and prototype development for the technologies needed to support the future design. This involved three participatory design workshops aimed at understanding the current weight management service processes, and co-designing a future service and new ways of working.

The current Weight Management Service pathway was co-designed and a future service model was co-designed during two participatory design workshops with health and care professionals from NHS Grampian and one citizen panel workshop.

This living lab also included additional mapping of the Nutrition and Diet Resources (NDR-UK) process for prescribing to identify system overlaps and links with the proposed future WMS digital pathway. This mapping was done in a separate co-design workshop and is shown on page 15.



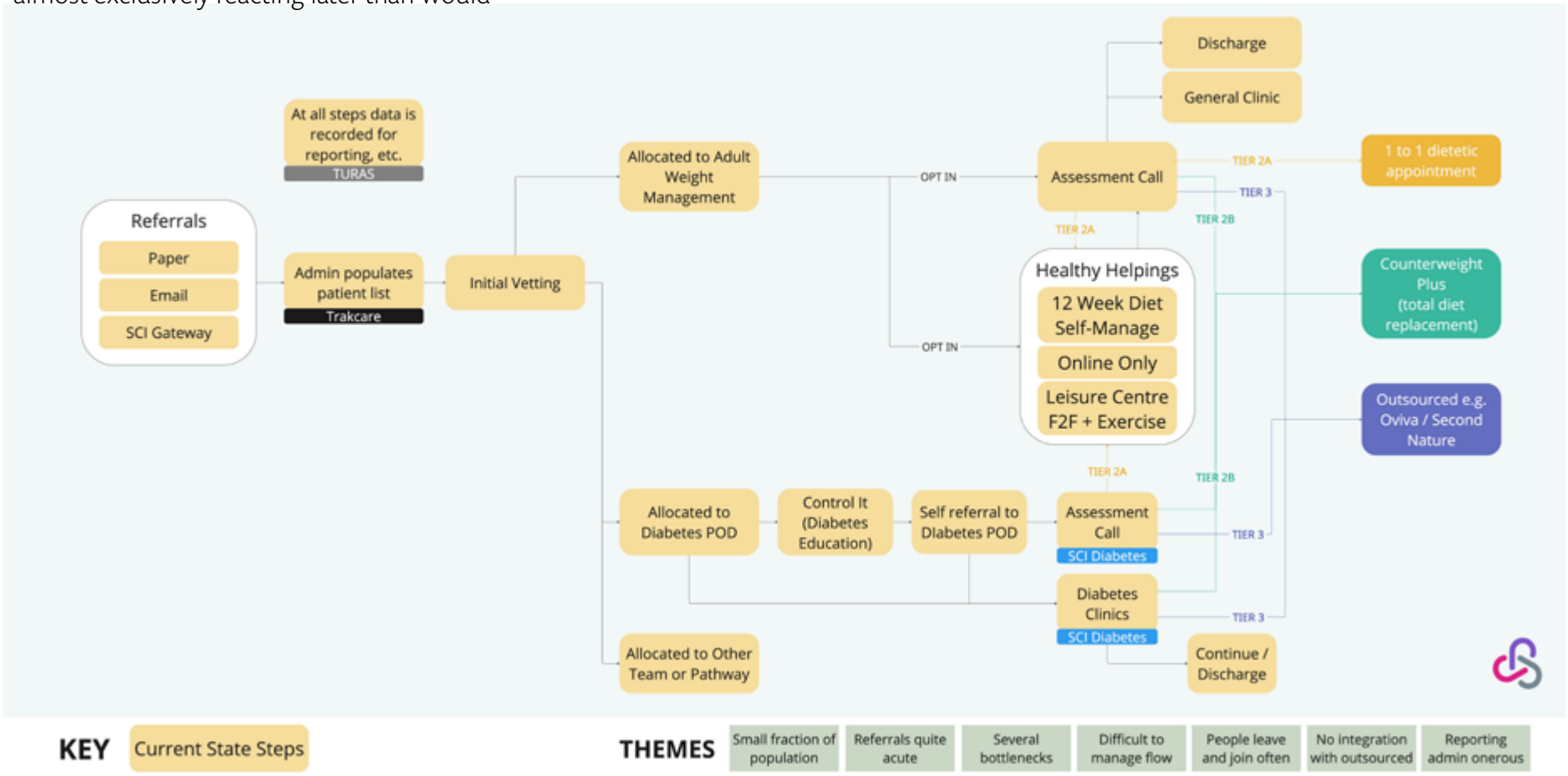




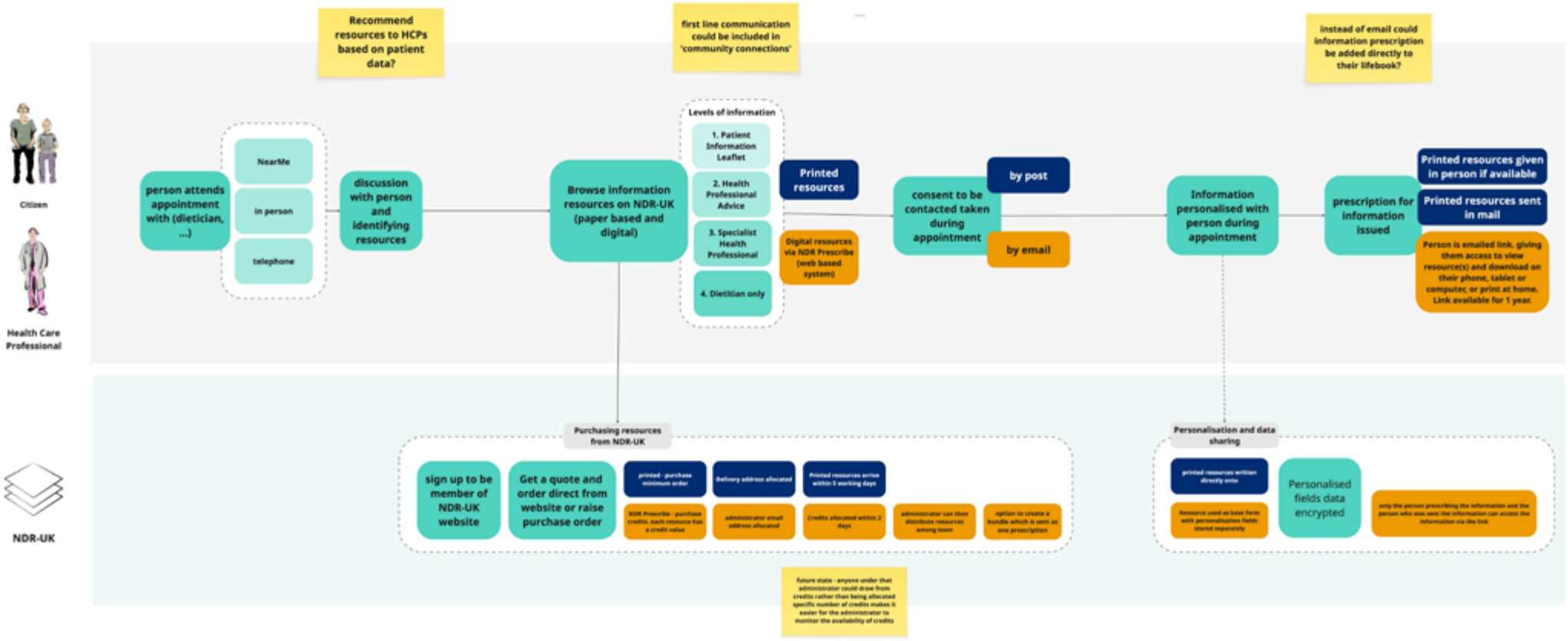
Current State Mapping

Identified themes from the current state mapping design activities:

- The service is struggling with long wait times and cannot scale using current technologies.
- Referrals coming into the service are becoming more acute and so the service is almost exclusively reacting later than would be ideal for people with high levels of need and complexity.
- There are several bottlenecks throughout the process. Often, people wait without access to resources that can only be unlocked through assessment processes.
- It is difficult to manage overall patient flow through the service. Patients drop-out of programmes and join and/or leave the pathway frequently. A lot of the staff workload is trying to keep track of patients and keep communication channels open with them to help them transition between stages and interventions well.
- The administrative load on the team is high, with paper forms and records, spreadsheets, multiple communication channels and reporting tools to manage.



Co-designed current state map of the Weight-management Service in Moray.



Co-designed current state of the NDR-UK (Nutrition and Diet Resources) applicable in Moray.

Future State Mapping

The future, preferable, digital service was co-produced by staff from NHS Grampian's clinical teams. The map shown opposite outlines the proposed service pathway for a future Weight Management Service. The co-designed service pathway shows more activity undertaken by citizens using digital tools and less vetting and assessment than the co-produced current state of the service shown before.

Outcomes

The Supported Self-Management Living Lab showed sufficient alignment with the Long Term Condition Co-Management Living Lab due to an identified need for a unified technical infrastructure and an overlap in the target user groups related to weight management and type-2 diabetes management.

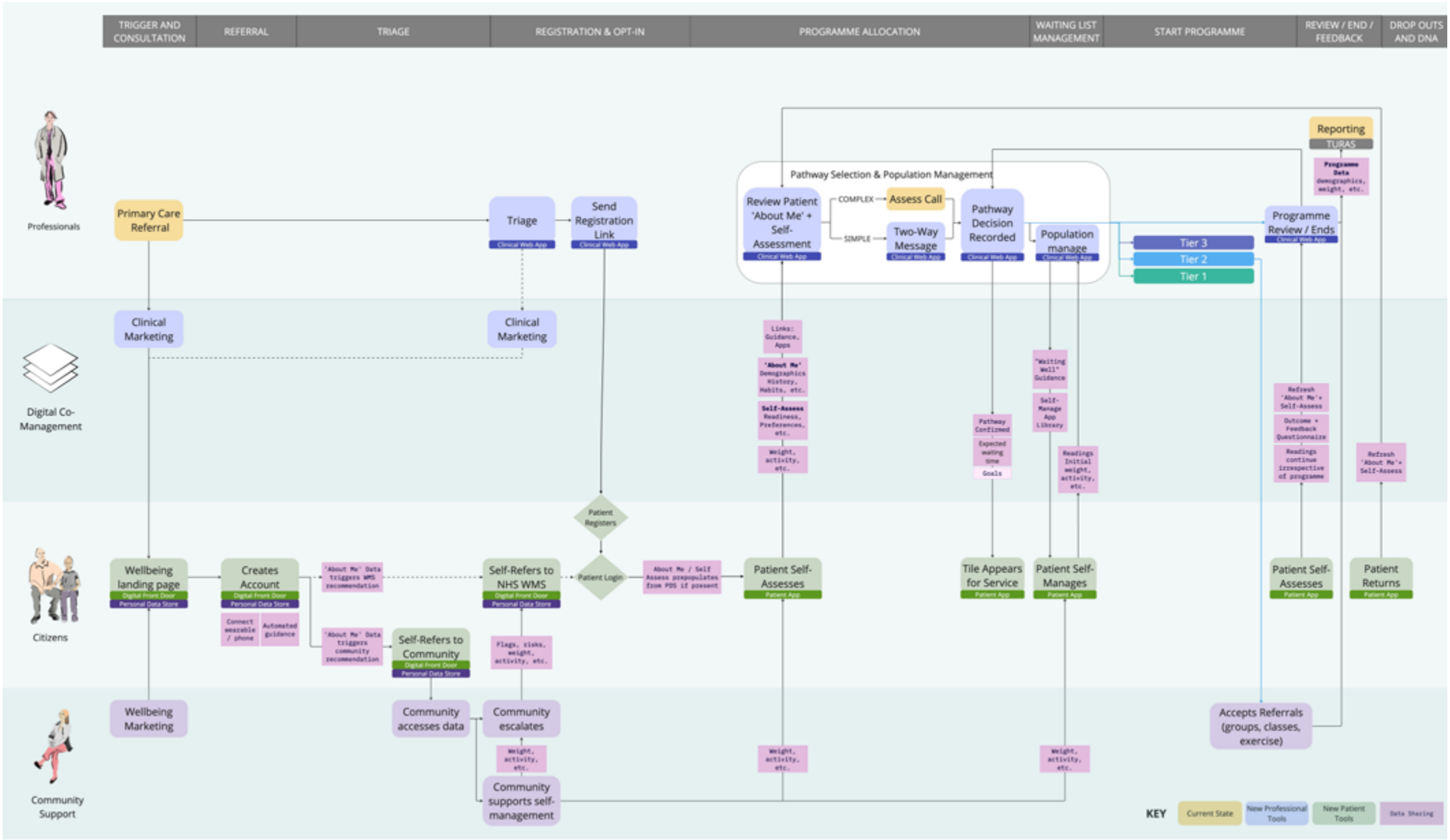
The work undertaken by the design team led to the Heart of Moray campaign.

Scaling and Adoption

The DHI and NHS Lanarkshire have worked together to co-design an innovative digital service model for NHS Lanarkshire's weight-management service. The work took place over four participatory design workshops led by the DHI between October 2024 and March 2025. The workshops were attended by DHI staff and seven health and care professionals from NHS Lanarkshire. This Weight Management Service future state (shown on next page) was co-designed with health and care professionals from NHS Lanarkshire and is an adaptation of the WMS future state co-designed in Moray.

Furthermore, within the wider DHI activity, this work supported the national anti-obesity medicines service design and weight-management service re-design in other Scottish health-boards through several successful UKRI funding bids with Moray, NHS Lothian, NHS GG&C, NHS Inform and NHS Lanarkshire.





Co-designed future service pathway of the Weight-management Service in Moray.

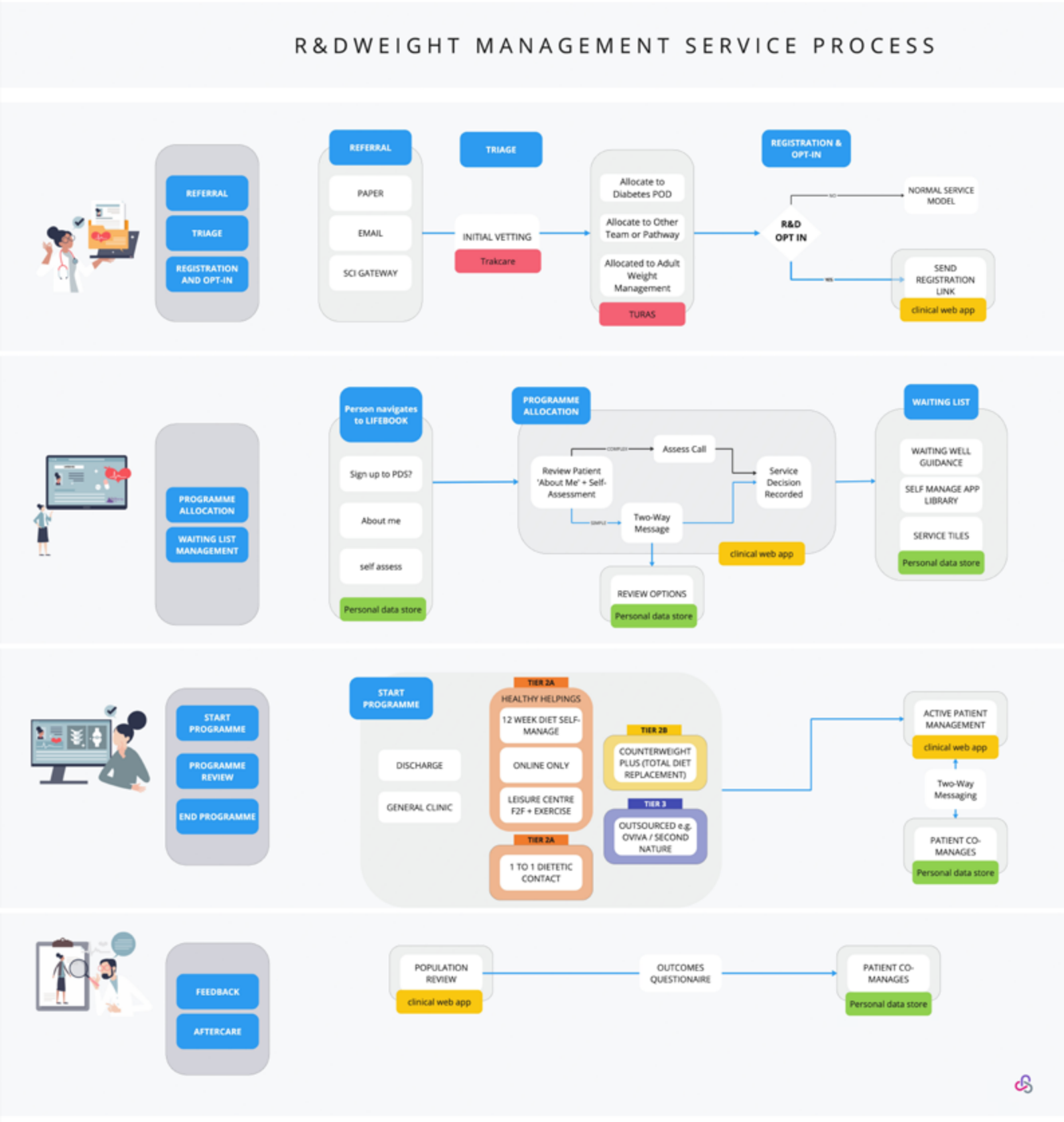


Diagram showing the future service of the Weight-management Service in Moray.

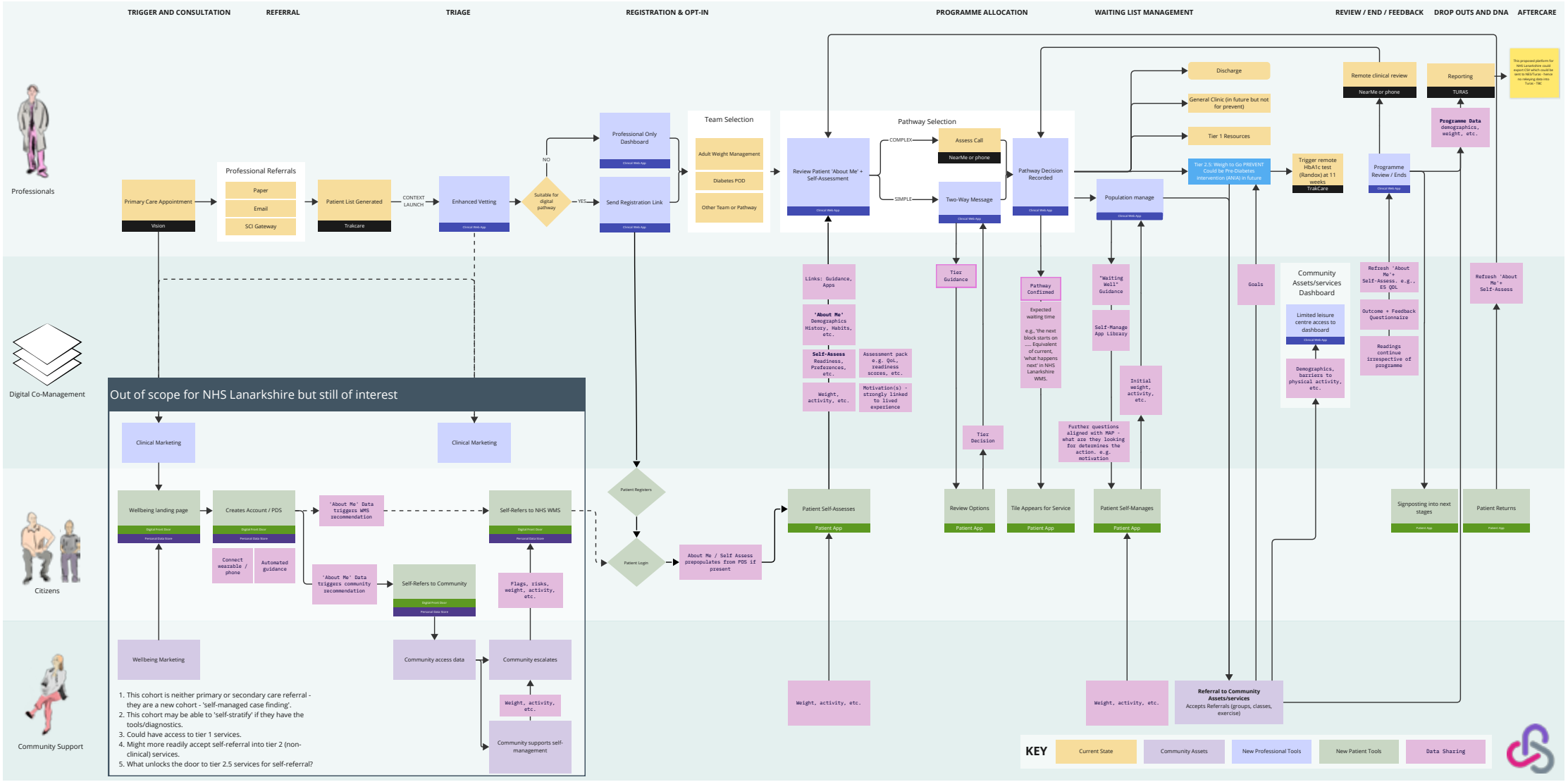


Diagram showing a future service of the Weight-management Service in NHS Lanarkshire. This service design is informed by the Weight Management Service design work done in Moray.

Section 3
Long-Term Condition Co-Management Living Lab

The Long-term Condition Co-management living lab aimed to understand the preferred, near-future, digital innovations to support Moray's long-term condition care professionals. The types of digital innovations under consideration were:

- Person-owned records - this allows the person to do their own curation and integration to support their health and care in the way they want to.
- Data-exchange - allowing data to transfer between organisations with citizen consent.
- Tools to support and remote and asynchronous services - such as two-way messaging, PROMs/PREMs reporting, telehealth, etc.
- Tools to support long-term condition management - such as personalised guidelines and supporting tools for citizens to self-manage more effectively.

Design Activities

Workshop 1: Current State

On 28th June 2023, the Moray Future Strategy Challenge Competition was held for the Long-Term Condition Management Living Lab. This was a two-hour participatory design workshop to perform an 'as-Is' analysis of the current state of the pertinent service areas. The participants included representatives from the Moray Leisure Centre, primary care, and secondary care.

The goal of the workshop was to understand and improve chronic disease management, particularly for individuals with type-2 diabetes, by designing targeted interventions within primary care and promoting referrals to the Moray Leisure Centre. Currently, the referrals are made by GPs or practice nurses through a Word document with basic questions to understand the background, focusing on addressing access deprivation and ensuring a proportionate response (current state shown on page 21).

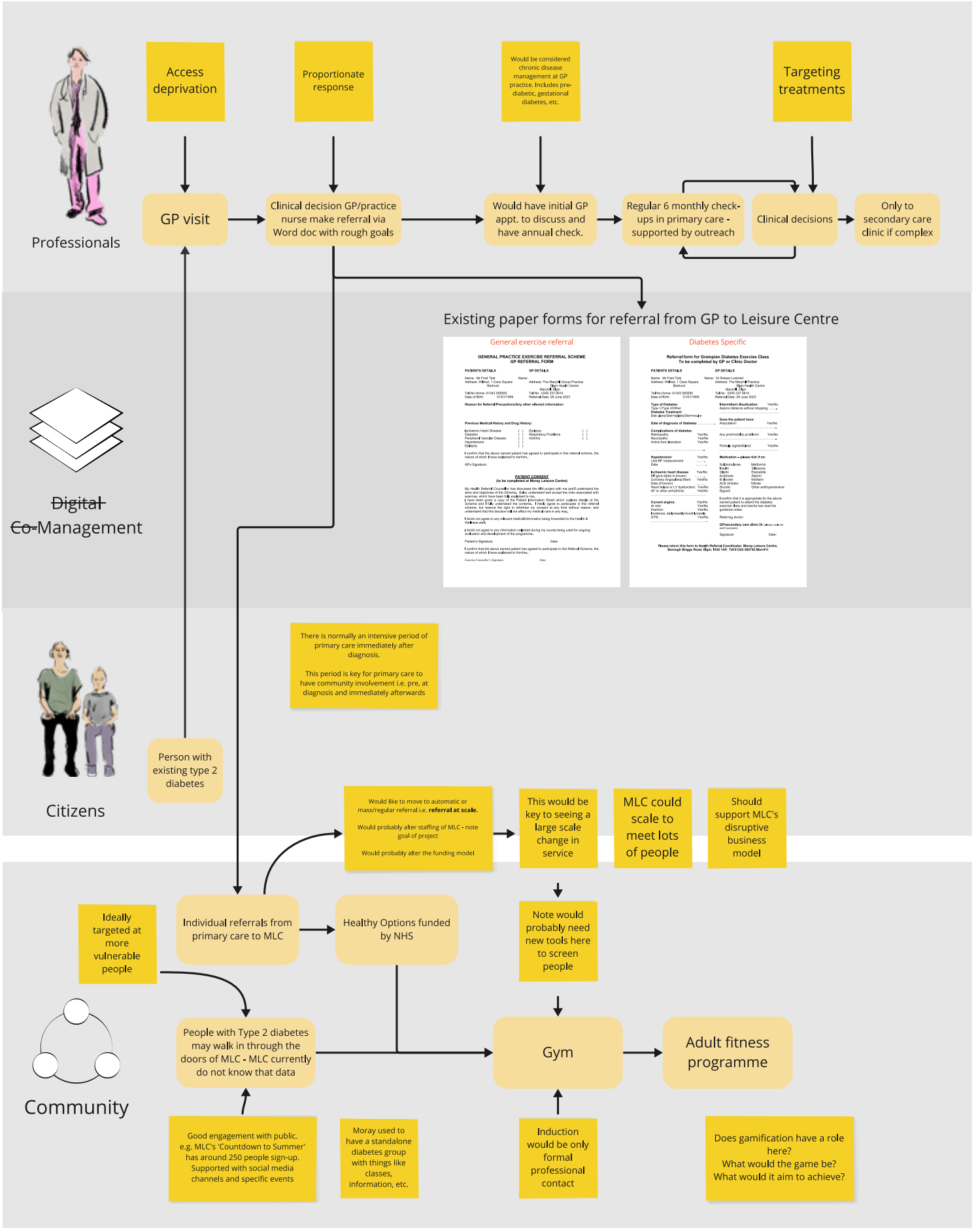
Workshop 2: Future State

On 21st August 2023, a participatory design workshop was held with the aim of generating a possible future state design for type-2 diabetes service models, in collaboration with community resources such as local leisure centres.

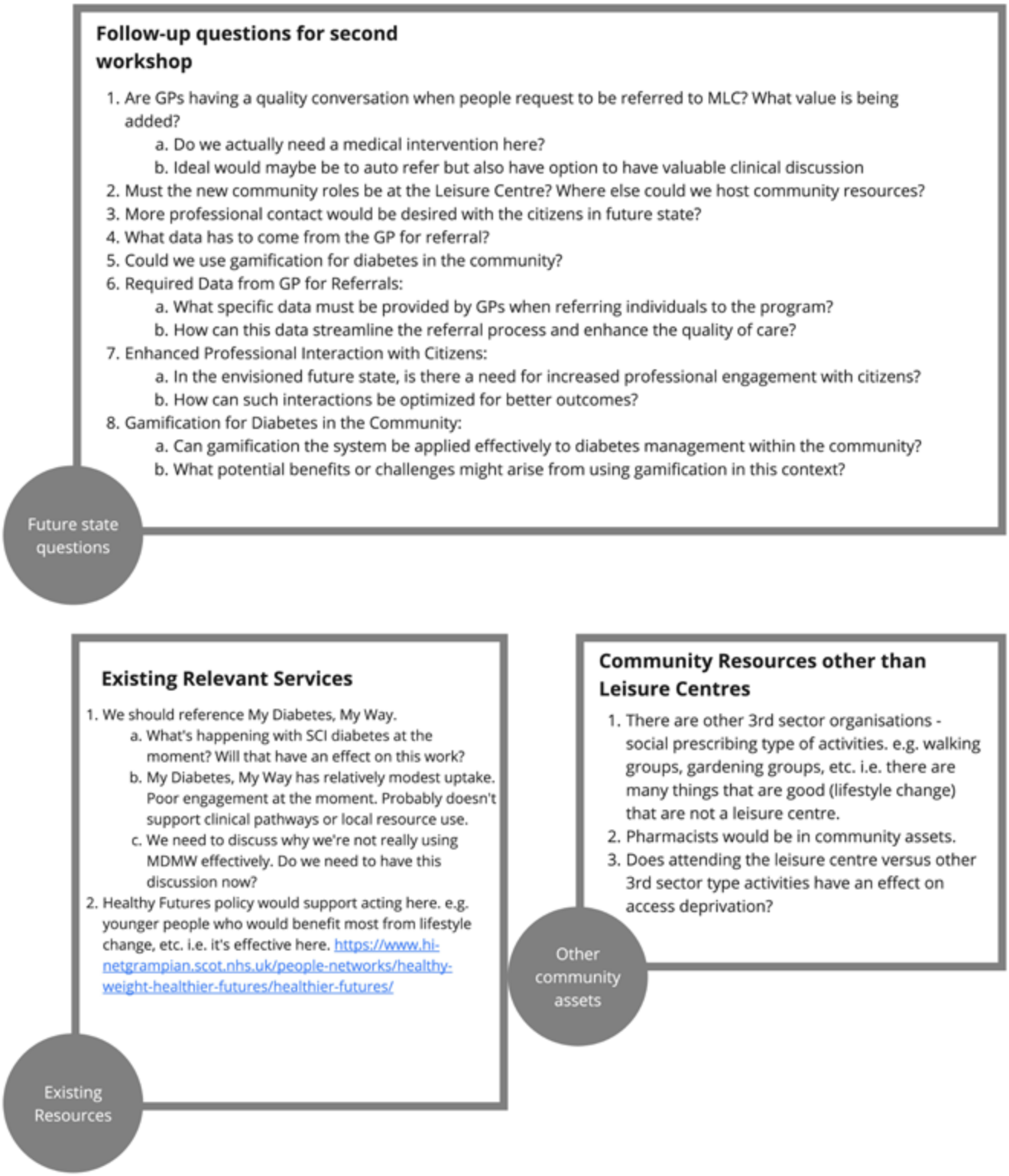
The workshop began with an introduction to the project followed by a presentation of findings from workshop 1. Examples of alternative models for long-term condition management were then shared as a discussion point asking how an asthma virtual clinic model could be adapted for type-2 diabetes. An early prototype from the Care In Place Living Lab was also shown and discussed as a mechanism for supporting early access to services in Moray. These ideas were used to stimulate discussion regarding how these ideas might apply to long-term condition management.

21 Current State

Long-term Type 2 Diabetes management

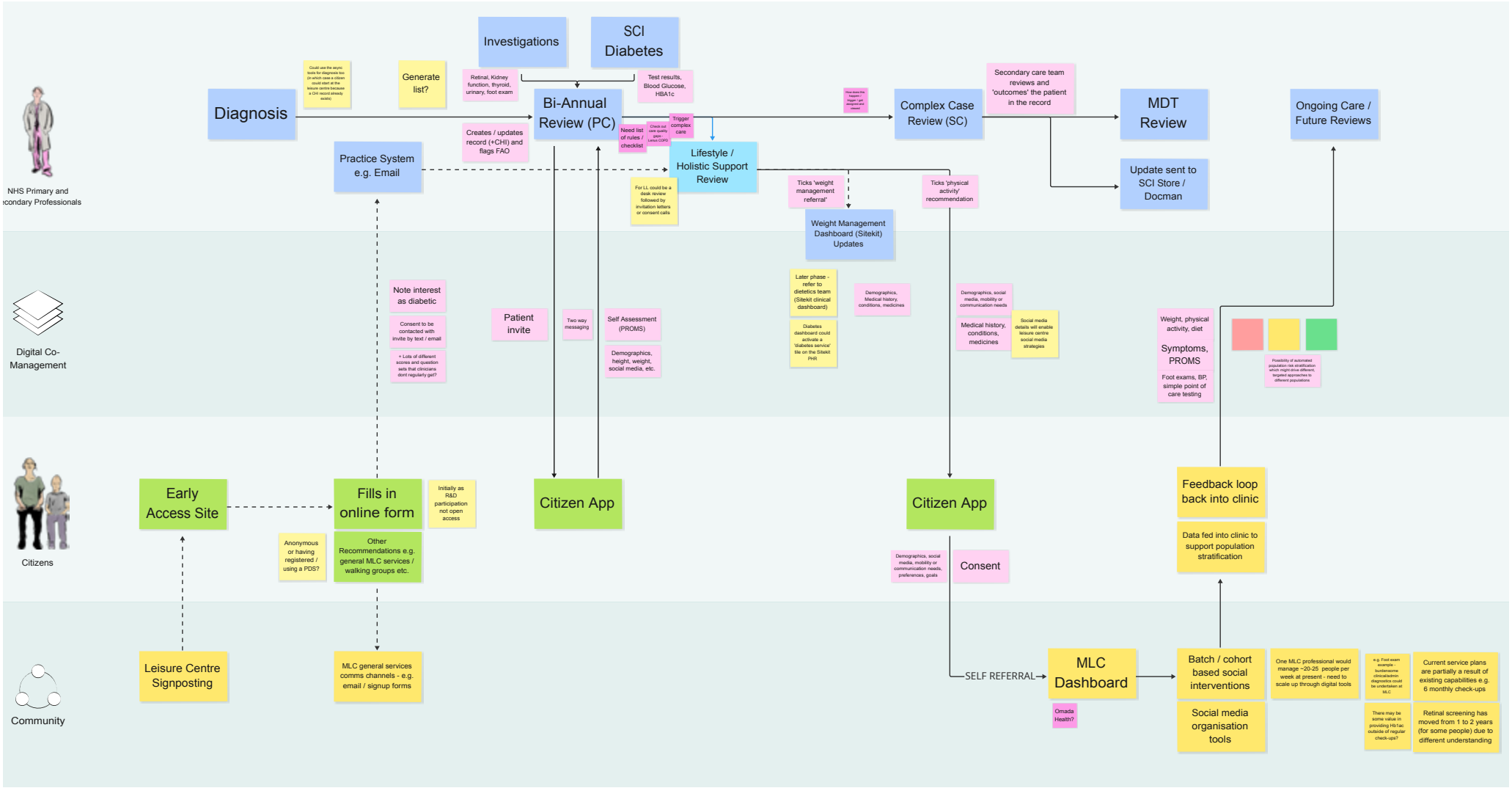


Co-designed current state of long-term condition management services in Moray.



Points of note from the current state co-design activity.

The Co-designed, Preferable, Future Service Innovation Around Type-2 Diabetes Management in Moray



The co-designed future service around type-2 diabetes management in Moray.

Future state questions

Broader contextual notes and questions

1. Overall the proposed model falls under the term 'management by exception' - where currently everyone is given the same standard support irrespective of need or risk.
2. Are we engaging with HealthPoints? https://www.nhsgrampian.org/your-health/healthpoint/where-to-find-your-local-healthpoint/ - question from Malcolm Simmons during RCE project board meeting.
3. Unresolved queries re whether we include pre-diabetics in the intervention.
4. Unresolved queries re whether the diabetes virtual clinic component starts with diagnosis process or only ongoing management.
5. Unresolved question re whether conversation with GP before or during referral is important? or are their just administering the sharing of patient and clinical details to allow the MLC team to act? If its purely administrative, should the referral happen with a simple check box during virtual review on a dashboard? or automatically?
6. The pathway in the short term will still need to go through primary care, as any digital system will need to link to CHI, and at the moment it is only realistic for this to be added by a clinician during the setup of a patient record in any new system.
7. There is a cultural and 'optics' element of this proposed change - who do the public want 'managing' their diabetes? A doctor? The NHS? The leisure centre? themselves? or a combination? How is it presented? - The service could be seen as a bus full of patients, with MLC as the driver with the NHS as the person navigating from the passenger seat. Over time sat navs can help everyone understand how to make the journey themselves, regularly attending the garage to fuel and maintain (MLC) and occasionally needing intervention e.g. a breakdown, or better a proactive bit of outreach when a breakdown looks likely (NHS).

Roadmap

Proposed Roadmap



Possible Architecture

Possible Systems Architecture



Points of note from the future service co-design activity.

Proposed Roadmap

NOW

Clinical	A person with type two diabetes attends bi-annual appointment.	A burdensome sequence of clinical and admin tasks are required to get the right investigations and appointments lined up to support a single, time pressured face to face interaction. Lots of opportunities for either the checklist of prep activities or the consultation to become sub-optimal.	The clinical team signposts the person to a range of community resources, usually with leaflets. In some cases there are referral forms that are completed infrequently.
Community	The person self-manages physical activity / lifestyle.	The person's self-management efforts are largely disconnected and invisible to clinical services. The person can often be isolated in their self-management and unwilling to reach out for support.	Non-medical community support organisations (e.g. leisure centres, rehab courses, etc.) are often very good and supporting lifestyle change. However they are usually using pen, paper and phone to organise and so cannot easily scale the service. They do not get enough referrals to justify investing in the tools to support larger scale. The referral doesn't just activate this organisation, it holds crucial clinical information that allows such an organisation to safely support someone with a specialist intervention - e.g. type two diabetes remission. Without more referrals the organisation cannot contribute effectively.

NEXT

Clinical	**A person with type two diabetes has an ongoing, asynchronous / remote interaction with their clinical support team using a digital platform.**	**The digital platform includes a virtual diabetes clinic dashboard that streamlines the clinical and admin steps. It ensures that the prep checklist is complete and guides clinician and patient in the sequence. The bi-annual review can be delivered flexibly - face to face or by a clinician reviewing a dashboard while on the phone with the person.**	**During the review process tick boxes in the clinical dashboard can initiate referral to community groups. Another checkbox triggers signposting to a self-management sites, apps and services to support their self-management.**
Community	The person self-manages physical activity / lifestyle.	**The person has an app that they can use to share data into the clinical team (e.g. 'about me', weight, habits) making their self-management efforts and any symptoms or issues more visible to the clinicians.**	**As part of the referral, the person's app asks if they want to share some of their clinical / personal record with a community organisation. This data is used via a community organisation dashboard that helps that team to review, onboard and support people through social / peer group / event based activities that help them self-manage and change their lifestyle. More people participate and community organisations invest, with tech helping the service scale to thousands of participants. The platform flows data back to the referring clinical team for later interactions.**

LATER

Clinical	A person with type two diabetes has an ongoing, asynchronous / remote interaction with their clinical support team using a digital platform. **Through past interactions, the person also already has this platform connected to their community organisation.**	The digital platform includes a virtual diabetes clinic dashboard. It ensures that the prep checklist is complete and guides the sequence. **The digital platform allows the checklist to be completed flexibly, meaning that the person, or the community organisation can contribute e.g. a BP check or weigh in. This reduces the load on the clinical team, who instead focus on managing populations and intervening when the data suggests a need.** The bi-annual review can be delivered flexibly - face to face or by a clinician reviewing a dashboard while on the phone or **two way messaging** with the person.	Tick boxes in the clinical dashboard can initiate referral to community groups and signposting to a self-management sites, apps and services. **The dashboard holds lifestyle data (e.g. physical activity) and clinical data from the person or community organisations (e.g. BP, HBA1C). This, with the knowledge that the person can escalate quickly using digital comms, may allow for new methods of managing clinical risk that do not require the same degree of investigation and contact in low risk groups.**
Community	The person self-manages physical activity / lifestyle **as part of a group, supported by their peers and by community organisations that are expert in motivation, gamification and community organisation.**	The person has an app that they can use to share data into the clinical team (e.g. 'about me', weight, habits) making their self-management efforts and any symptoms or issues more visible to the clinicians. **This can be supplemented by devices and systems on site in community organisations. E.g. a person could take their children to sports club and get a foot exam or be helped with a finger prick HBA1C test while there. This 'supported' self-management can be more flexible, accessible and less stigmatising.**	Referrals include consented data that is used by community organisations in dashboards that help them review, onboard and support people through social / peer group / event based activities. More people can participate and community organisations can invest, with the technologies helping to scale from dozens to thousands of participants. The tools allow a flow of self-management **and increasingly clinical** data back to the referring clinical team. Clinical teams monitor whole populations more effectively for less effort, and can better target people at higher risk or with more complex care needs.

Roadmap

Co-produced prioritisation of what should be developed and in what order.

Alignment between the Supported Self-Management and Long-term Condition Co-Management Living Labs

At the start of 2024, the Supported Self-Management and Long-term Condition Co-Management living labs aligned due to an identified need for a unified technical infrastructure and an overlap in the target user groups related to weight management and type-2 diabetes.

Two workshops were held with participants from both of these Living Labs to consider how a future service could be marketed and how citizens would access the service. A key discussion topic was on the target population, their potential requirements and how the service model could direct them to appropriate support (as shown in the figure below).

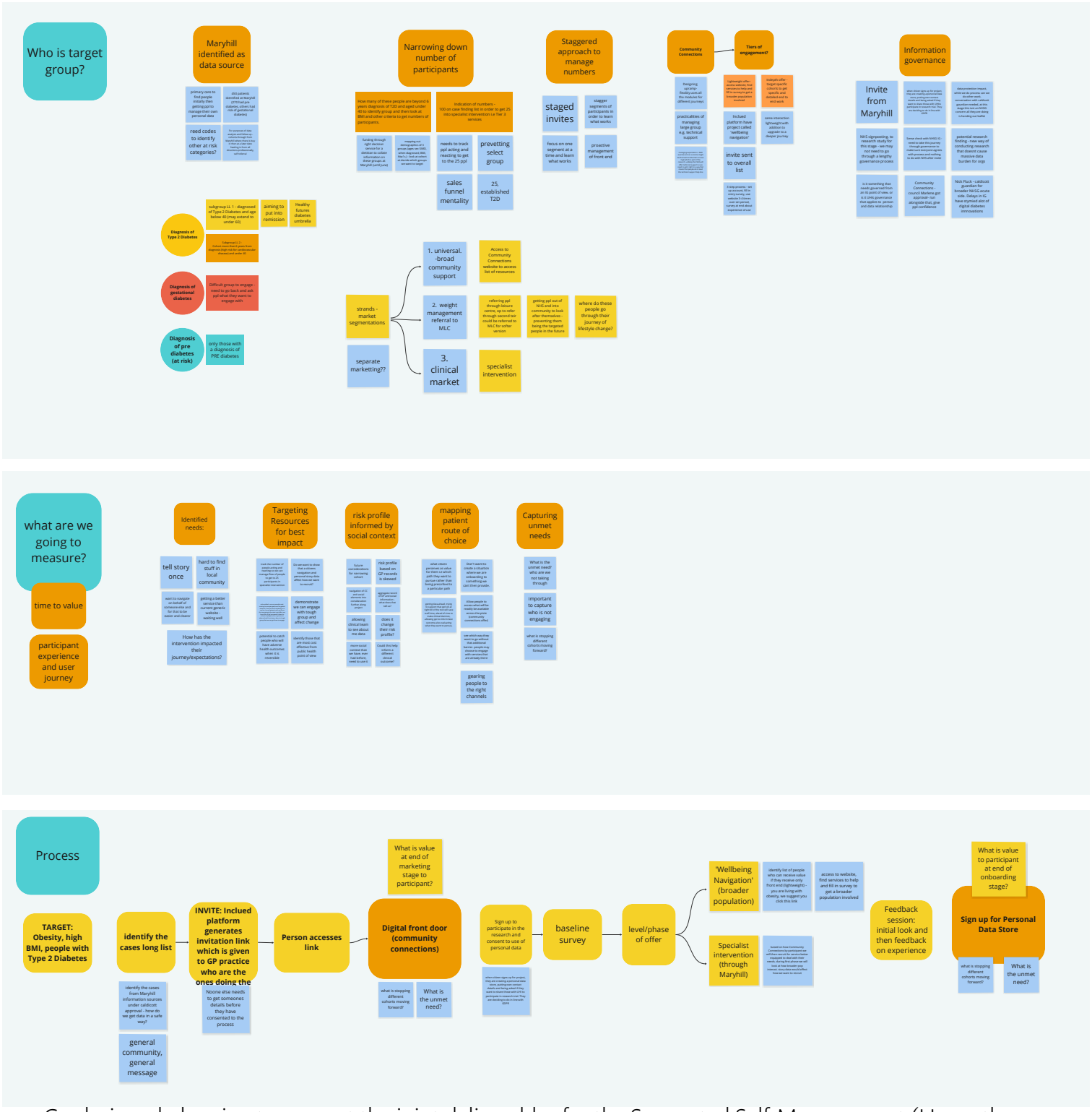
The proposed work of these two Living Labs will be delivered over three campaigns, in partnership with Moray Dietetic and Diabetic services, and Moray Leisure Centre. This collaboration demonstrates the value and additional capacity that can come from health and care services working together with leisure and other community facilities through shared digital platforms.

Supported Self Management Workshop (15/4/24) - persona development

	Persona	characteristics	engagement dynamic	navigation triggers	destinations
Diagnosis of Type 2 Diabetes	subgroup LL 1 - new diagnosis of Type 2 Diabetes and age below 40, **remission**	mid 30s, digitally active, juggling children and job, and possibly supporting others	may struggle with scheduled interventions		
	Subgroup LL 2 - Cohort more than 6 years from diagnosis (high risk for cardiovascular disease) and under 40	reluctant men, new type 2s, don't meet remission criteria, option to do something else not soups and shakes	weight train gym, 5 aside football, multi threaded response; may not want to be associated with weight loss group		
Established Type 2 diabetes		LL2 - man in mid 50s, developed diabetes in 40s, accelerated cardiovascular risk group, a bit over weight but wouldnt see himself as being over weight compared to peers, worrying if he is a smoker might be 10 years from diagnosis - established T2 Might have NAFLD and raised lipids too with potential smoker and high alcohol intake.		How do we prompt quit smoking as part of this	
Diagnosis of gestational diabetes postpartum	50% chance of developing T2D within 5 years	previous pregnancies with gestational diabetes, higher bmi, younger age group (some might be up to age 60) struggling with family, work and other caring commitments. usually family history of diabetes. may be planning for further family	struggle with scheduled interventions; Difficult group to engage - need to go back and ask ppl what they want to engage with	Interacting with a family dynamic, future generation also at higher risk;	introducing health for future pregnancy;
diagnosis of pre diabetes	only those with a diagnosis of PRE diabetes	older, up to 70, presenting with higher BMI, area of deprivation, males and females, other co-morbidities, HBa1C creeping up into pre diabetes zone	some able to do digital; interested in different activities; might be interested in groups; some working, some retired		

Co-designed insights showing the alignment of citizen cohorts for Supported Self-Management (LL1 on the diagram) and Long-term Condition Co-Management (LL2 on the diagram) living labs.

LL1 + 2 Onboarding Workshop 21/03/24



Co-designed planning to support the joint deliverables for the Supported Self-Management (LL1 on the diagram) and Long-term Condition Co-Management (LL2 on the diagram) living labs.

Outcomes

This work has led to the Heart of Moray campaign which links to RCE core infrastructure Community Connections and the trial of a new service intervention for type-2 diabetes care in NHS Grampian.

Section 4
Care in Place Living Lab

The Care in Place Living Lab aimed to understand current challenges with health and care needs and explore new ways to deliver important services using digital solutions. The work was focussed on caring for people where they normally live.

Health & Social Care Moray has experienced extreme pressure on its services. Unpaid carers have also expressed concern about how much they are relied upon. People seeking support would like a better experience when using services, including easier access, quicker decisions, and to be listened to. By involving people who use and deliver services, this living lab aimed to create digital solutions that streamline access to care and support, improve efficiency, and enhance the overall experience of care recipients and providers.

The project originated with a problem-definition process, where professionals at Health & Social Care Moray identified critical barriers to effective care provision. Key findings highlighted the importance of 'early access' to community services, the need to reduce duplication of information for more effective data sharing among providers, and the potential of self-management strategies supported by digital tools. Participants of this process expressed a desire for more integrated health and social care services, where information could be easily shared across sectors, enhancing continuity of care and reducing the administrative burden on staff and users.

Design Activities

In this project, the design team has been involved throughout from initial problem-definition to prototyping and evaluation of user experience following the DHI's innovation model (page 07).

A focus group and three workshops with health and social care professionals, and six interviews with unpaid carers were conducted. These activities informed our understanding of the challenges faced and the preferred user requirements for a digital tool to support unpaid carers to access information and services in Moray more easily.

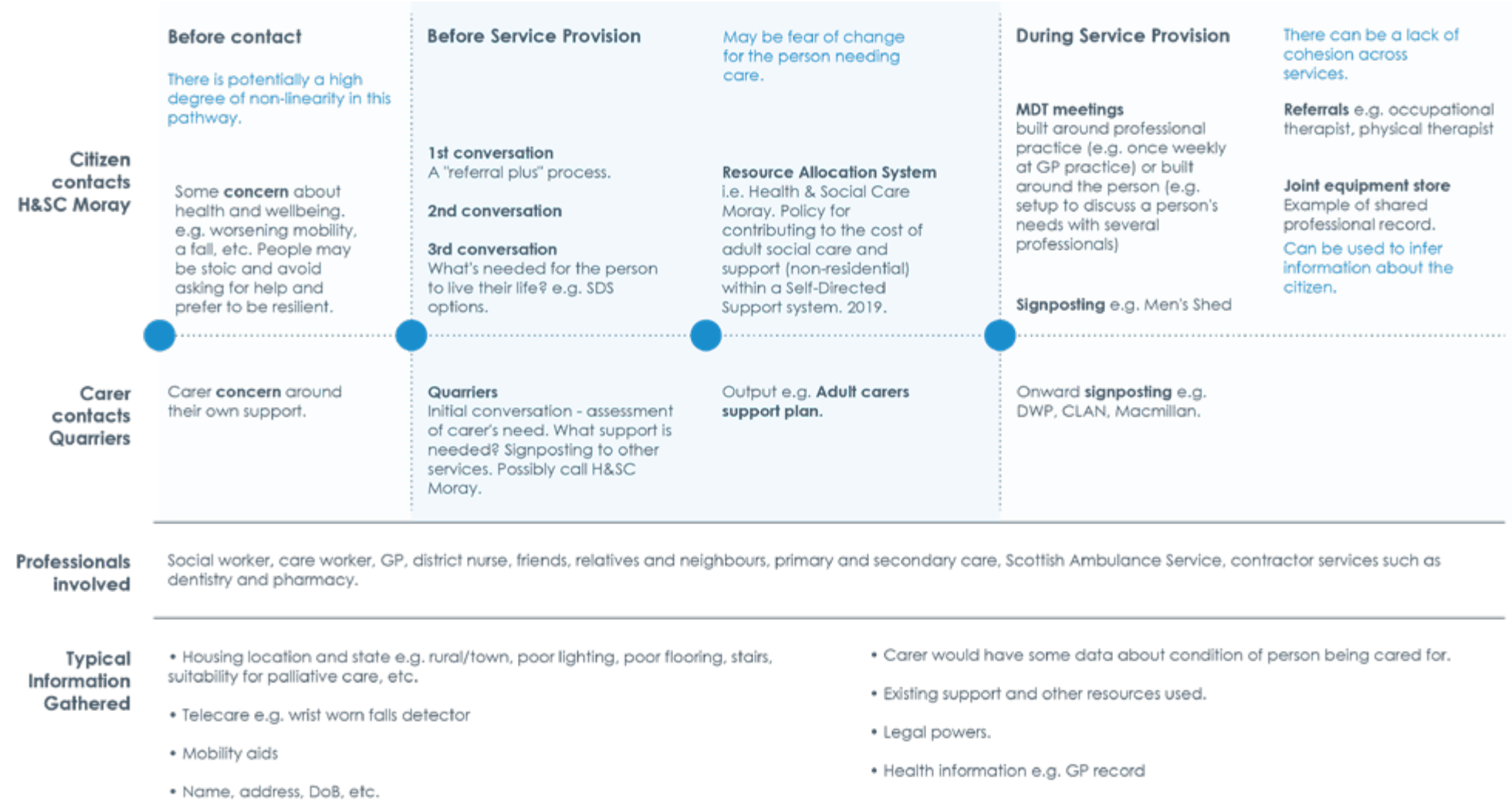
Following an open tender process, partners Daysix (daysix.co) and MyDex (mydex.org) developed a digital prototype which was then tested and refined with potential users.

A series of development workshops were then held with staff and unpaid carers to demonstrate functionality and test user experience. Change requests were passed back to technology partners to refine the prototype and further test with some of Moray's citizens in a real-world environment.

User Experience evaluation was also undertaken by the design team. This encompassed feedback workbooks at each development workshop with both staff and citizens; questionnaires; and one-to-one interviews with six participants involved in the earlier co-design activities.

The evaluation sought to gauge user satisfaction of the digital tool, specifically the:

- Look and feel;
- Language and accessibility;
- Navigation and usability;
- Emotional experience;
- Their experience of the earlier co-design activities.



A co-designed representation of the current state of services helping to care for people where they normally live.

Current State

Based on insights generated during the current state mapping activity, four concepts were proposed to take forward to the co-design of the future service innovation. Participants thought that these concepts would improve the coordination of health and care services. It is important to note that the concepts build on the idea of a person-owned record, where it is the citizen (whether that is someone being cared for or a carer) who owns the information and chooses what to share with whom.

- **Early Communication**: Moving the first point of contact with Health & Social Care Moray or Quarriers to earlier in a person's life. This does not have to be significantly earlier but maybe just to the point of first, or mounting concern. This would start a person's relationship with Moray H&SC or Quarriers earlier than usual to find out about them and to access (non-resource intensive) help.
- **Recognising carers**: Create a digital carer identity and share associated information tied to that identity.
- **Citizen's Timeline**: An auto-populated timeline of recent health and care interactions.
- **Digital Communication**: Establishing a modern, digital communication channel between Health & Social Care Moray and people being cared for and, between Quarriers and carers.

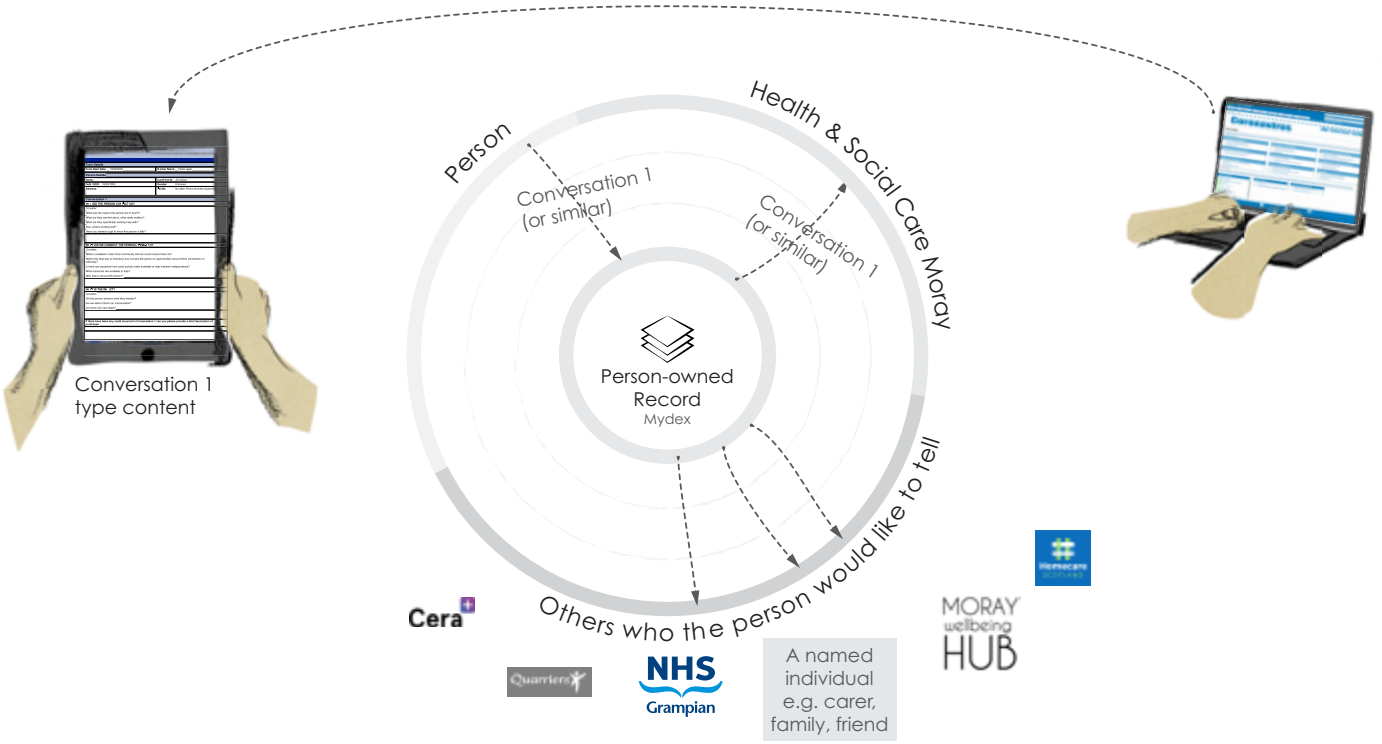
These concepts are illustrated on the following pages. These findings formed the basis for an academic, peer-reviewed paper presented at the The International Association of Societies of Design Research conference:

Participatory design of service innovation to support people and their carers in Moray

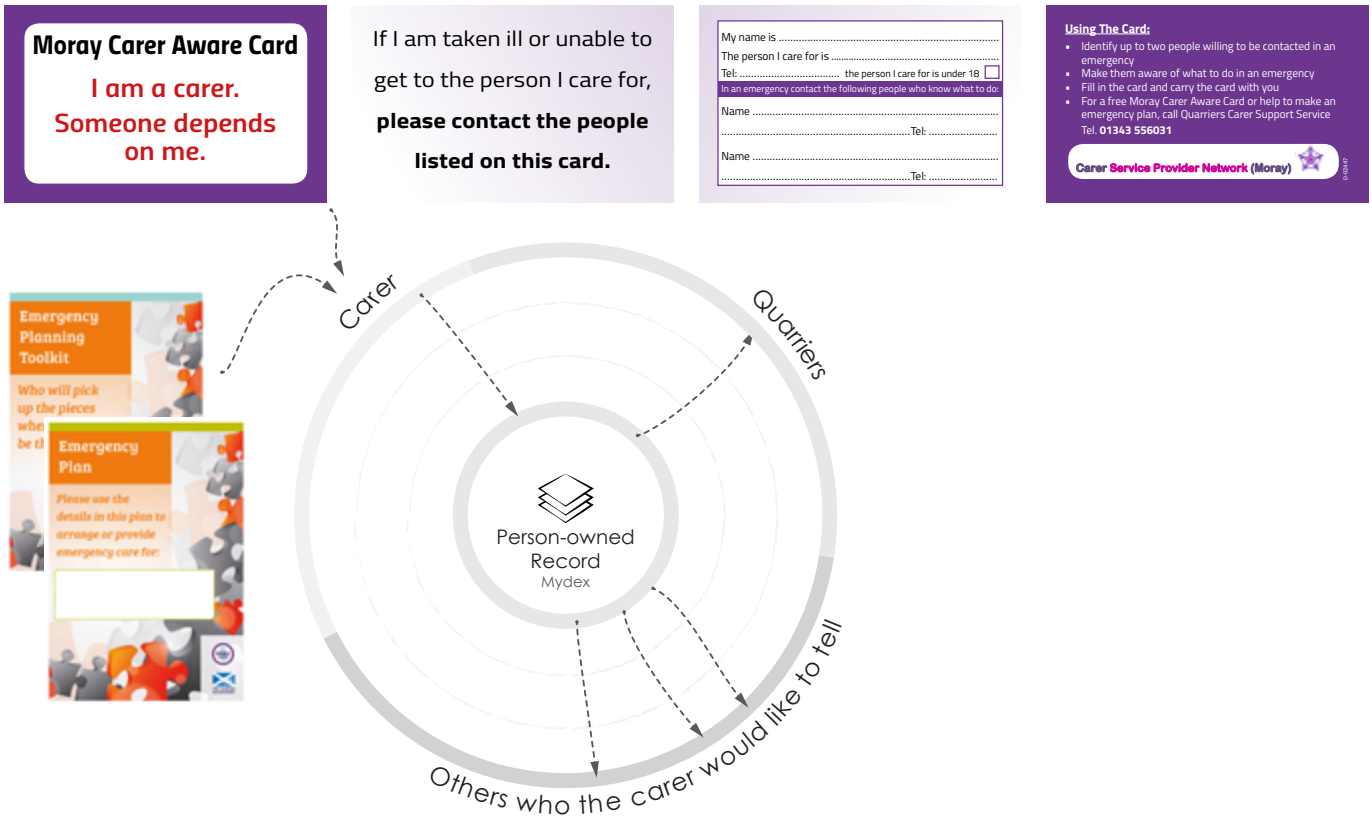
Bradley, Jay, Joseph, Sonya Lizbeth, Shore, Linda and Harkis, Marlene (2023) Participatory design of service innovation to support people and their carers in Moray. In: IASDR 2023 Life Changing Design, 9-13 Oct 2023, Milan, Italy.



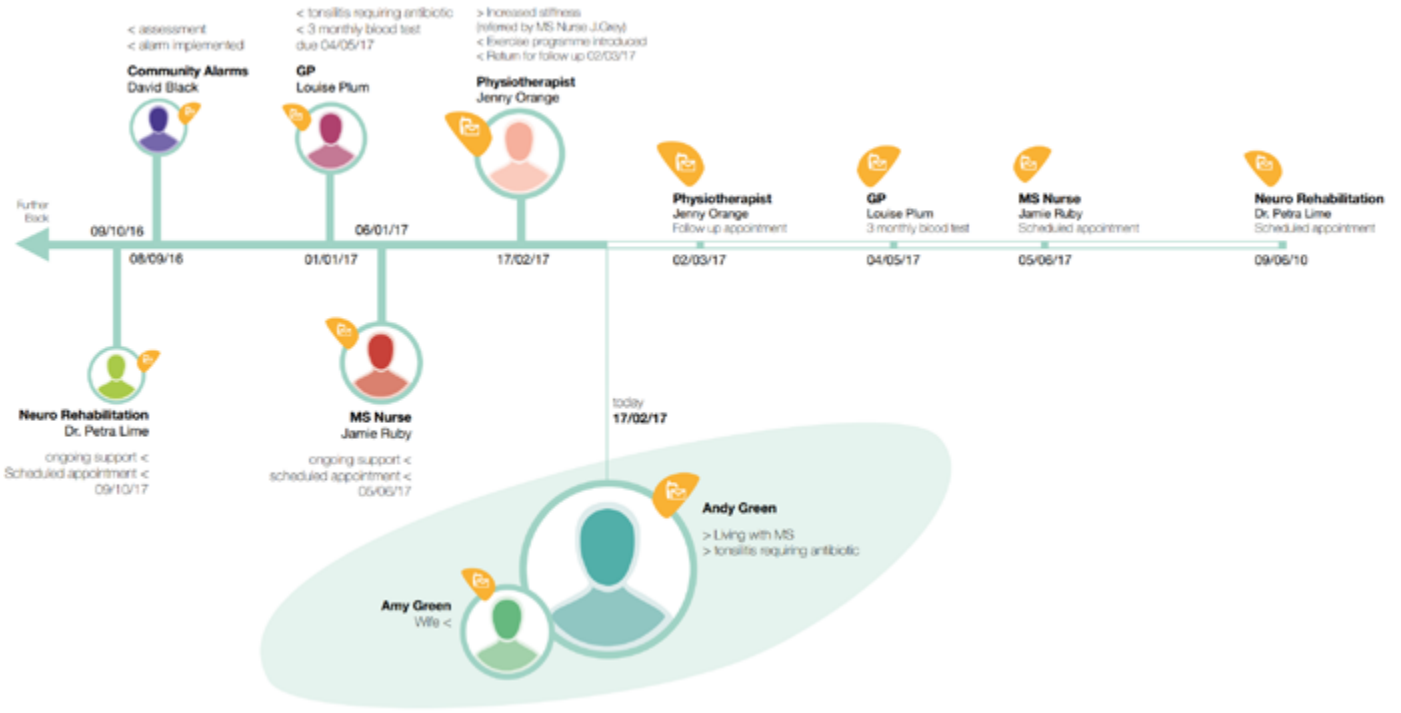
Citizens at a co-design workshop for the Care In Place living lab.



Concept 1: Early Communication



Concept 2: Recognising Carers



Credit: Gemma Teal, Backpack, 2017

Concept 3: Citizen's Timeline



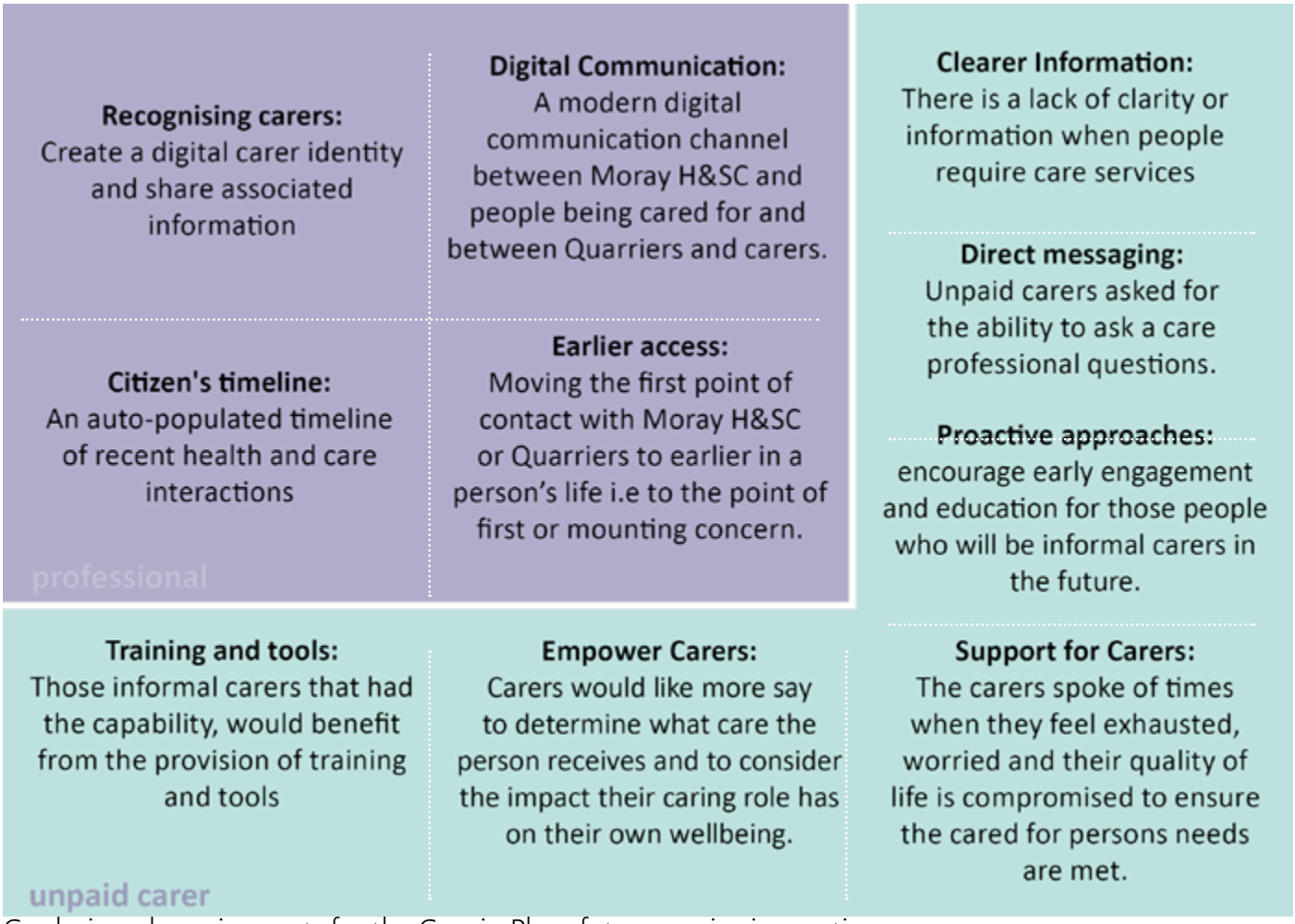
Citizens at a co-design workshop for the Care In Place living lab.

Requirements

Requirements were generated from a focus group and three participatory design workshops with health and social care professionals, and six interviews with unpaid carers in Moray, conducted by the DHI Design Team. These activities helped inform our understanding of the challenges faced by healthcare professionals, service delivery staff, and unpaid carers, and define the user requirements (below) for a digital pathway that supports unpaid carers to access information and services in Moray more easily.

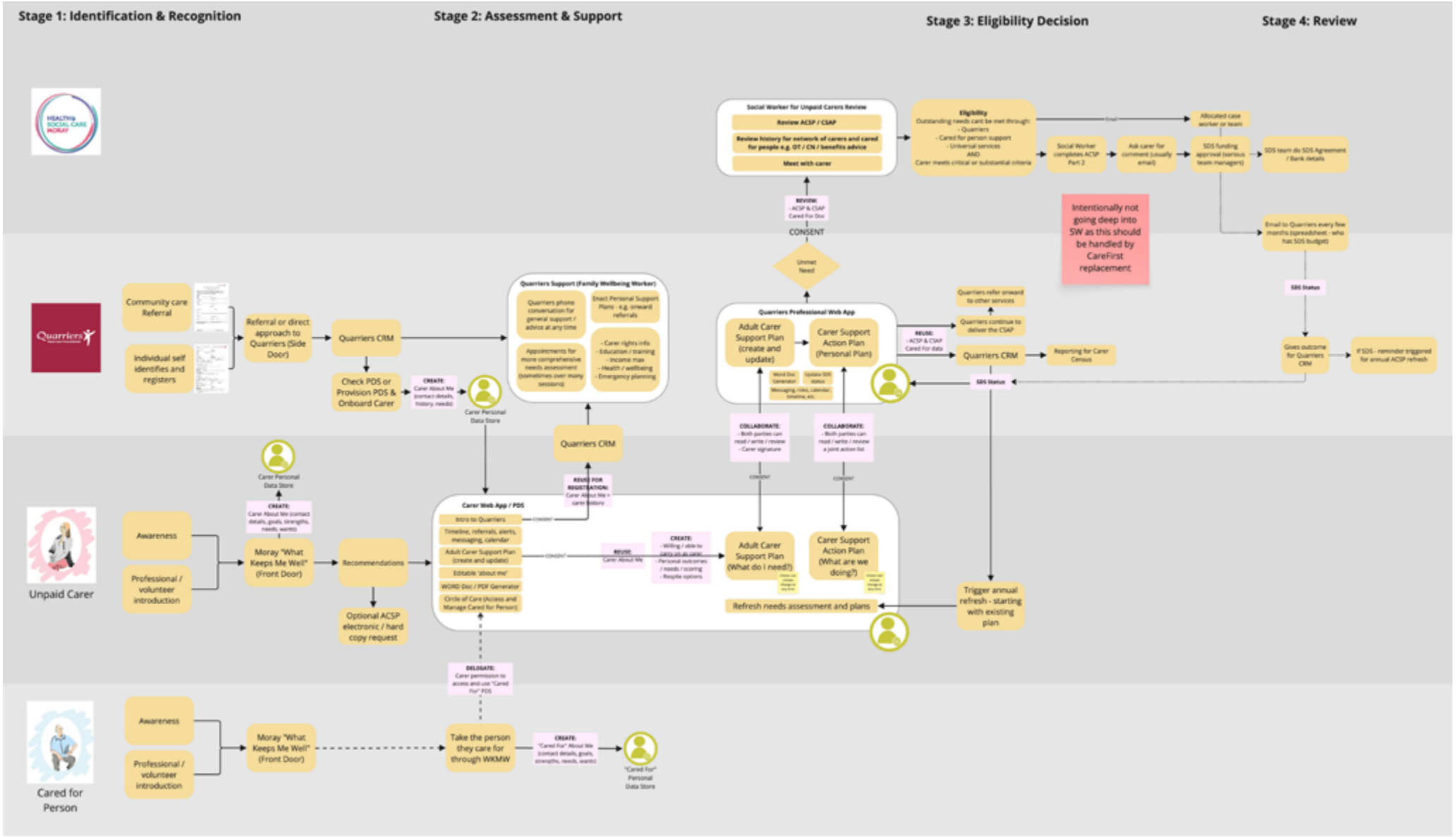
Outcomes

The procurement of an external development resource to build and deliver the Community Connections web-site (https://communityconnect.scot/) using a Personal Data Store. Community Connections has become core infrastructure for the RCE across all its Living Labs and has been further used by the DHI in its wider programme to illustrate best practice.



Co-designed requirements for the Care in Place future service innovation.

Future State



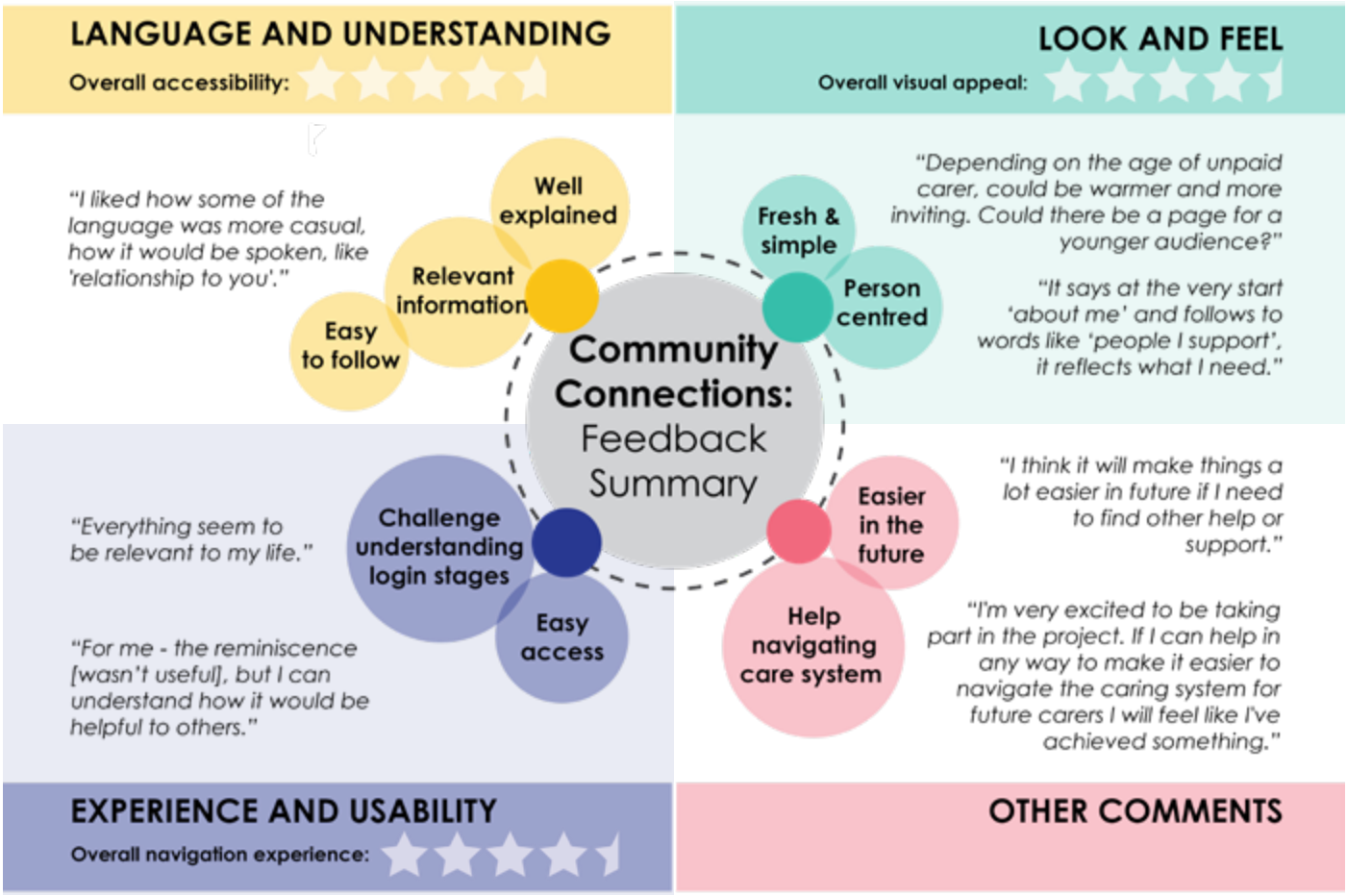
Co-designed future service innovation for the Care in Place Living Lab.

User Experience Evaluation for Care in Place

The user experience evaluation aimed to provide an understanding of the usability and user satisfaction for the two digital tools developed as part of the Care in Place project. Throughout the co-deign process, citizens were asked to provide feedback on their user experience using specially designed workbooks, questionnaires and one-to-one interviews. The findings were largely positive with participants expressing an optimism for the future use of the digital tools to make it easier to navigate the care system in Moray. The feedback focused on four areas and suggested improvements:

- **Person-centred look and feel** could be further enhanced by wider user testing with a larger and more diverse group to ensure inclusivity and appeal across multiple age groups
- **Log-in process** requires simplification. The participants had to log into Community Connections and setup a personal data store which is onerous and confusing.
- **Language and navigation** Support from staff and family members was still required for those less confident with digital technology.
- **Emotional triggers** from recounting difficult experience is sometimes inevitable, so providing more reassurance throughout the platform - such as reminders that people can complete it at their own pace - may be beneficial.

The findings have contributed to the development of the Community Connections platform and personal data store and their potential adoption into future services in Moray.







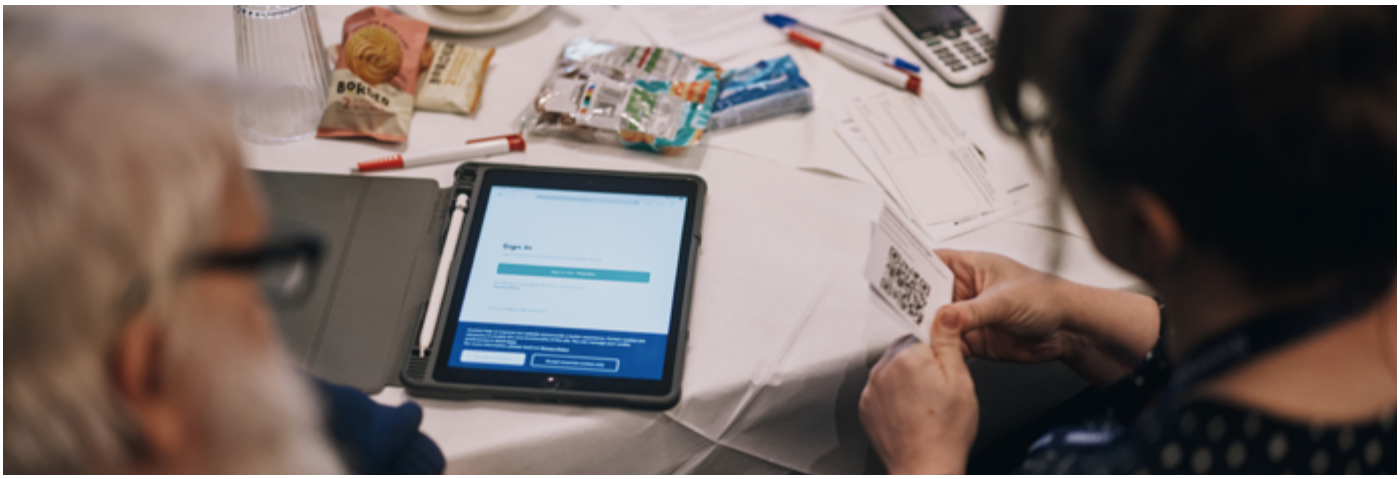
Citizens at co-design workshops for the Care In Place Living Lab.

Example case study from Care in Place Evaluation

Unpaid carer, Forres

"So for me, if we can set up a system for somebody like myself that you can go in and put in your details, you only have to do it once and you can find the services that might be helpful to you rather than having to spend time, spend hours on Google would make such a difference."

On the use of digital tools	**Can do it from home** "You can do this from home and still be where you needed to be. Without depending on other people to come in and sit with them while you go and to appointments." **Filtering services for each person** "I think putting on the information of your loved ones, the ones that you're caring for and being able to access services in their name rather than your own all the time, (...) It'll be pertinent to the ones you're caring for, and also for yourself if you need it."
On the experience of co-design	**Opportunity to help carers** "I jumped at the chance because there's nothing out there that is coordinated to help carers find the different paths that they need. (...) when I started as a carer, I was quite unprepared for the impact it would have on your emotional wellbeing."
On the key benefit	**Control of information** "I think having our own control over our own information is the biggest thing for me."





Participants at co-design workshops for the Care In Place Living Lab.

Section 5
Smart Housing and Communities Living Lab

The Smart Housing and Communities Living Lab aimed to explore the potential of smart home technology in Moray and enable citizens to live independently at home for longer through the use of non-intrusive devices and sensors that can be used to prompt, remind, and gather ongoing data related to vital signs, functional activity, mobility, falls and environment both in the home and outdoors.

It was proposed that monitoring ongoing data (such as vital signs, activity and environment) using non-intrusive devices and sensors within the home and combining this with other types of information (e.g. about health, care, housing, personal sources etc.) would enable citizens to have more control of their healthcare decisions and live independently at home for longer. This should support a self-managed, proactive and preventative approach, with community resources being the primary source of support wherever possible, delaying and reducing the requirement for statutory intervention.

Exploring perceptions to Instrumental Activities of Daily Living and associated experiences in a Smart House Living Lab'

A research study was conducted by the Glasgow School of Art researchers in collaboration with Universidad Politectcnica de Madrid, Spain to explore and understand how Instrumental Activities of Daily Living (IADLs) are undertaken and extend autonomy by technological intervention and support for the person living in the smart home setting. This research activity benefited from on the ground understanding and experience of a smart house living lab based in Spain.

The study involved task-based exploration in a smart home setting spanning the IADL categories through semi-structured interviews, centred on key themes of: transportation, communications, shopping, food preparation, financial management, house cleaning, home maintenance, and managing medications.

This research study was made possible as a result of funding made available through the Horizon 2020 Research and Innovation Programme ('Virtual Health and Wellbeing Living Lab Infrastructure-Project number 101007990).

Design Activities

A participatory design workshop with professionals, focused on current and future state mapping, was held on 19th June 2024, at the RCE space in Elgin.

The workshop brought together 23 professionals from diverse backgrounds (including health, social care, third-sector, emergency response, and occupational therapy), all committed to developing effective solutions for smart housing and communities in Moray.

Participants contributed to a current state mapping activity using a specially designed visual mapping tool to capture the current telecare pathway and prescribing options, allowing participants to identify existing challenges and gaps and the data captured along the pathway.

A future state design activity asked participants to consider the Community Connections platform and personal data stores and how these might play a role in an alternative model to the traditional telecare system.

Potential future opportunities related to smart housing were also presented, including talks on 5G in rural areas by Iain Boag and modular smart homes presented by Professor George Crooks from the DHI.
These presentations were followed by discussion and feedback on participants' reactions to the proposals and their potential application in Moray.

Follow up design workshops were held to develop and validate the earlier workshop findings in June and August 2024.



Participants at a co-design workshop for the Smart Housing and Communities Living Lab.

Current State Findings

Accessing information

Multiple information sources were identified prior to referral, however, challenges were raised relating to uncertainty about where to begin looking for information, how appropriate information is and frequent use of overly medical language. Participants agreed that people are often at the point of crisis when the need for this information arises.

Assessment and referral

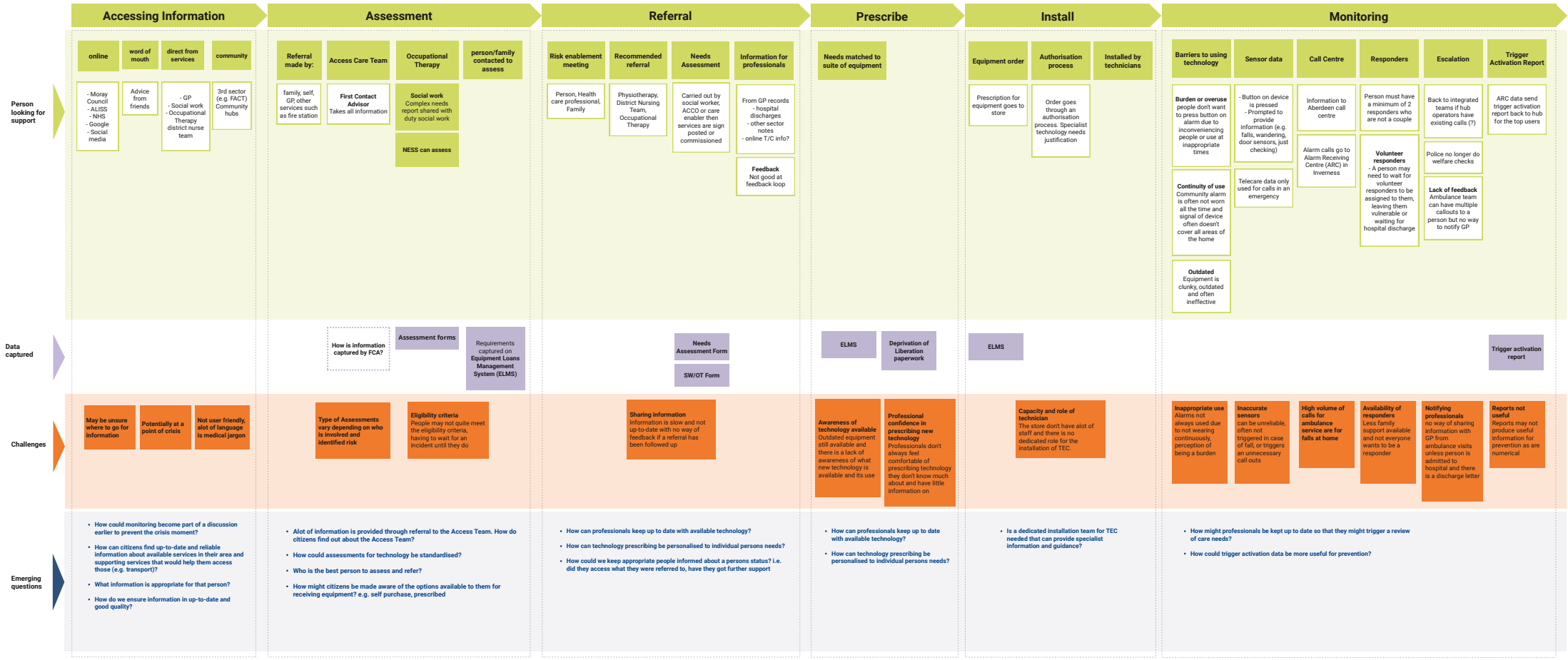
The housing needs assessment process varies depending on which professions are involved, potentially leading to overlaps in information captured. The Access Care Team was highlighted as having a significant role as the first point of contact for accessing information about support. Participants said that a referral is needed in order to access the information. Other challenges were also raised, such as eligibility criteria for services often delaying support until a crisis occurs and the sharing of information being slow, using out-of-date technologies with a lack of feedback for professionals.

Prescribing and equipment installation

These processes face issues such as a lack of knowledge about new technologies available for prescription, outdated equipment, and insufficient technician capacity for Technology Enabled Care (TEC) installations. Participants highlighted the Equipment Loans Management System (ELMS) as a key resource, but this still features outdated equipment and makes it difficult to find new technologies unless specific terms were used in searching the system.

Monitoring and response

The issues raised included: inconsistent use of community alarms, limited responder availability, and inadequate feedback loops, leading to repeated call-outs without proper follow-up, that contribute to inefficiencies in the service response. A significant gap identified was the ineffective use of data. Telecare data is used only for emergency call-out. The trigger activation report is ineffective for prevention due to the format (i.e. data cannot be traced back to individual service users).



Smart Housing current state map (co-designed by professionals)

Future State

Accessing Information via Community Connections

Participants identified a number of key requirements, namely a need for improved access to up-to-date and reliable information from both a citizen and professional perspective. This included creating a single source of information that helps people self-manage; assess services and self-refer; providing community-driven support resources and; ensuring minimal barriers to accessing information.

These requirements are closely aligned with the capabilities of the Community Connections digital platform developed as part of the Care in Place Living Lab.

Use of Personal Data Stores

Participants emphasised the importance of integrating personal data and devices to support health and wellbeing. This included the need for interoperability with other systems, a professional interface compatible with various devices and data, and a holistic view of individuals for personalised prescribing and review. Additionally, participants highlighted the necessity of incorporating technology and monitoring into anticipatory care plans and providing support for families to self-manage care needs.

As part of a digital referral process participants discussed the need for a set of triage questions that are profession specific (e.g. Social Work or Occupational Therapy) and supported by a standardised technology assessment question set.

A number of questions for further consideration arose, such as how a personal data store might be used as part of assessment, and how this might be different if there was more information available to the professional ahead of the needs assessment and what data would add value.

Monitoring and Responding using AI

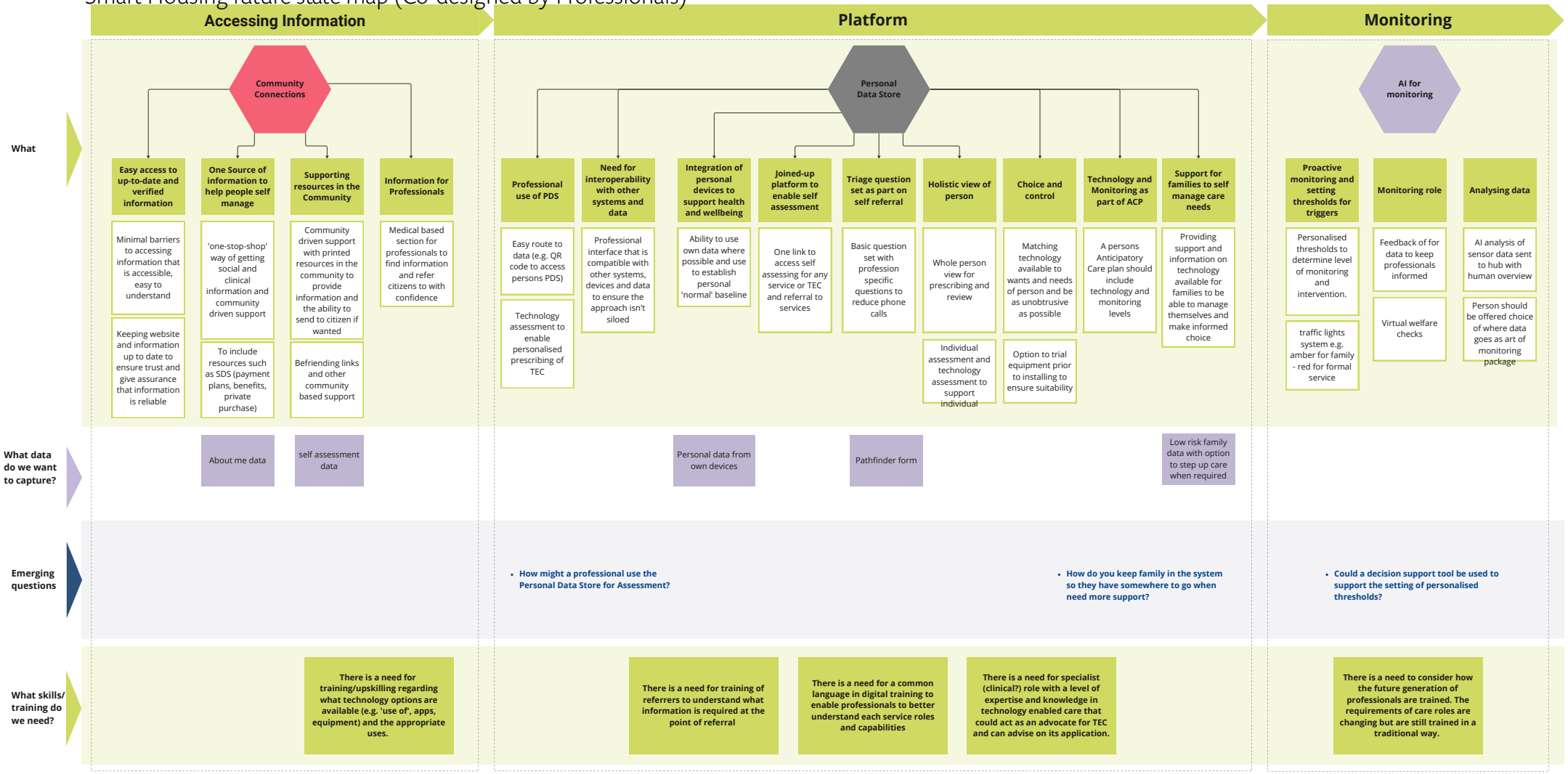
Participants highlighted a need for setting personalised thresholds for monitoring and intervention, that should be developed with clinical expertise and informed by a person's personal data. A suggestion was made to use a decision support tool as part of setting thresholds.

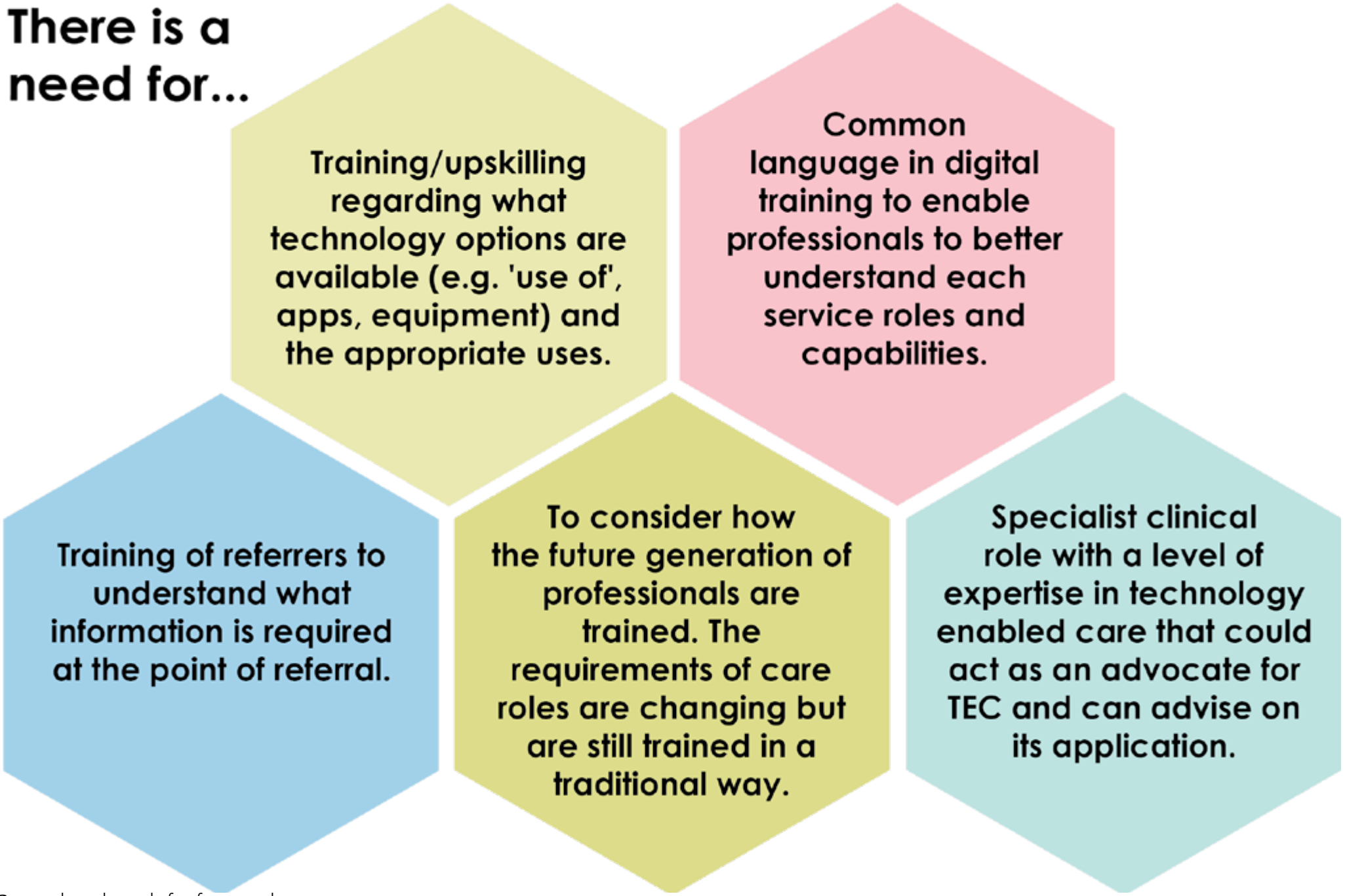
Feedback mechanisms to keep professionals informed were also discussed, to support a person to remain safe in their home. The use of AI to analyse sensor data was considered essential due to the potential amount of data collected and the importance of identifying the point at which this data should be escalated to a professional. Participants also emphasised the need for personalised data handling and consent protocols.

Training and upskilling

The participants identified a strong need for training and upskilling. This included understanding available technology options, appropriate usage, and referral processes. The development of a common language in digital training and the consideration of future professional training needs were also noted. There was a particular emphasis on creating specialist roles with expertise in technology-enabled care to act as advocates and advisors.

Smart Housing future state map (Co-designed by Professionals)





Co-produced needs for future telecare systems.



Participants at a co-design workshop for the Smart Housing and Communities Living Lab.

Smart Housing and Communities Opportunities

Modular Smart Homes Opportunities

A presentation from George Crooks, DHI Director, shared a future opportunity to develop a relocatable, exemplar modular smart housing unit to demonstrate the health, care, housing, and environmental benefits of using ambient monitoring technology. Creating a relocatable smart enabled unit, could allow the prototype to be deployed and tested within a clinical service with the potential to be used across all areas of Moray.

Additionally, this type of unit can be used to deliver technology enabled care training to health and care staff, and would support broader RCE communications and engagement activity aimed at increasing citizen readiness and confidence in future digital service deployment.

Participants were asked for their initial responses to the proposal; to identify potential use cases appropriate to the Moray context; and the potential opportunities and challenges. Three main use case ideas were suggested:

- **Housing solution**: A new affordable housing option that is digitally enabled, offering proactive wellbeing and energy-use use insights to families to enable independent living supported by digital technology.
- **Temporary housing/ clinical solution**: A housing option designed to allow patients to stay in a homely setting that is digitally enabled to aid recovery in a safe environment supported by digital technology.
- **Training facility**: Mobile training unit designed to increase technology use, awareness, confidence and prescribing skills for citizens, their families, third sector/ community hubs and health and social care staff.



Smart Rural Opportunities

The 5G Aberdeenshire Smart Rural project, based in Huntly, aims to demonstrate and evidence the value and use case opportunity for LoRaWAN technology, particularly in rural communities. The project is currently installing connectivity infrastructure (gateways) and five Internet of Things (IoT) sensors into 1,000 properties in Huntly to show the collation and flow of data into a digital receiving platform (provided by Archangel), including movement activity, temperature and humidity.

This is not a health and social care test case, but simply aims to demonstrate this connectivity solution and the types of data that can be generated and collated reliably, at low cost and at scale. It is proposed that, subject to costings and an agreed specification, an area within Moray be identified that has both connectivity issues and an appropriate test cohort. The aim would be to demonstrate personalised wellbeing benefits through platform-generated insights based on the data received, and to test this over a six-month period.



Participant at a co-design workshop for the Smart Housing and Communities Living Lab.

Section 6
Mental Wellbeing Living Lab

Mental health and wellbeing challenges are placing an increasing strain on health and social care services, particularly in rural areas with older populations. Preventative care and social prescribing are critical strategies to alleviate this burden, offering individuals the tools and resources to proactively manage their mental health. However, service fragmentation, difficulties in accessing community-based supports, and the absence of a person-centred approach continue to hinder the effectiveness of these strategies. In addition, understanding of mental wellbeing is key to developing effective outcomes by enhancing the community voice through qualitative research methods, immersion with the community and reports to policymakers/ stakeholders to inform and define unmet needs.

The Mental Wellbeing Living Lab aims to expand and enhance the Community Connections platform to address current gaps while leveraging emerging digital technologies to support mental wellbeing.

Co-design Workshops

Two workshops were run by the design team to map out the current state of mental wellbeing system in Moray and identify future, preferable opportunities for innovation.

The first design workshop was held in July 2023 with participation from representatives of NHS Grampian and Moray Council. The purpose of the workshop was to critically examine the current mental wellbeing system in Moray, providing a collaborative platform for stakeholders to identify existing challenges and opportunities for improvement.

This workshop aimed to develop design interventions that promote mental wellbeing among the older adult population in the Moray region, considering the changing demographic and lifespan balance; identify the root causes of isolation, loneliness, and lack of resources or career prospects among young adults in the Moray region; and consider ideas for how digital technology might enable a supportive and inclusive community that fosters social connections and enhances mental wellbeing for all age groups in the Moray region.

The discussions emphasised the importance of a holistic, community-centred approach, leveraging both statutory and third-sector partnerships to enhance accessibility and inclusivity. Additionally, the workshop shed light on critical areas such as rural mental health, perinatal support, and stigma reduction, while recognising the need for immediate assistance pathways and tailored services across all life stages. The

insights gathered served as a foundation for developing targeted strategies to address the identified gaps and foster a more resilient and effective mental wellbeing system in the Moray region.

The second design workshop was held in December 2024, with participants representing NHS Grampian, Moray Wellbeing Hub and Moray Council. The workshop aimed to:

- Identify current barriers and gaps in current Mental Health and Wellbeing service provision in the Moray region, with particular focus on navigation of services.
- Identify opportunities for digital intervention that could enhance a person's experience of navigating the systems through the Community Connections platform.
- As part of Community Connections, consider how the mental health and wellbeing services are displayed and what information/services should feature.
- Identify test cases and opportunities with the potential to trial a digital intervention that would enhance personalisation and contribute to a person's personal data store assets.



A design activity prompt used at the first workshop for the Mental Wellbeing Living Lab.

Current State

Participants focused on access and navigation of mental well-being support identifying six themes:

Stigma and accessing support: there is a stigma attached to mental health and wellbeing in a small community where people may not access support due to fear of recognition by someone in their community. This is also related to the use of language when talking about mental health and wellbeing.

Reaching out and waiting times: often people were not reaching out soon enough for help and support, instead waiting until a point of crisis or not perceiving their needs as mental health related. Once they did reach out (often to a GP) there are long waiting times.

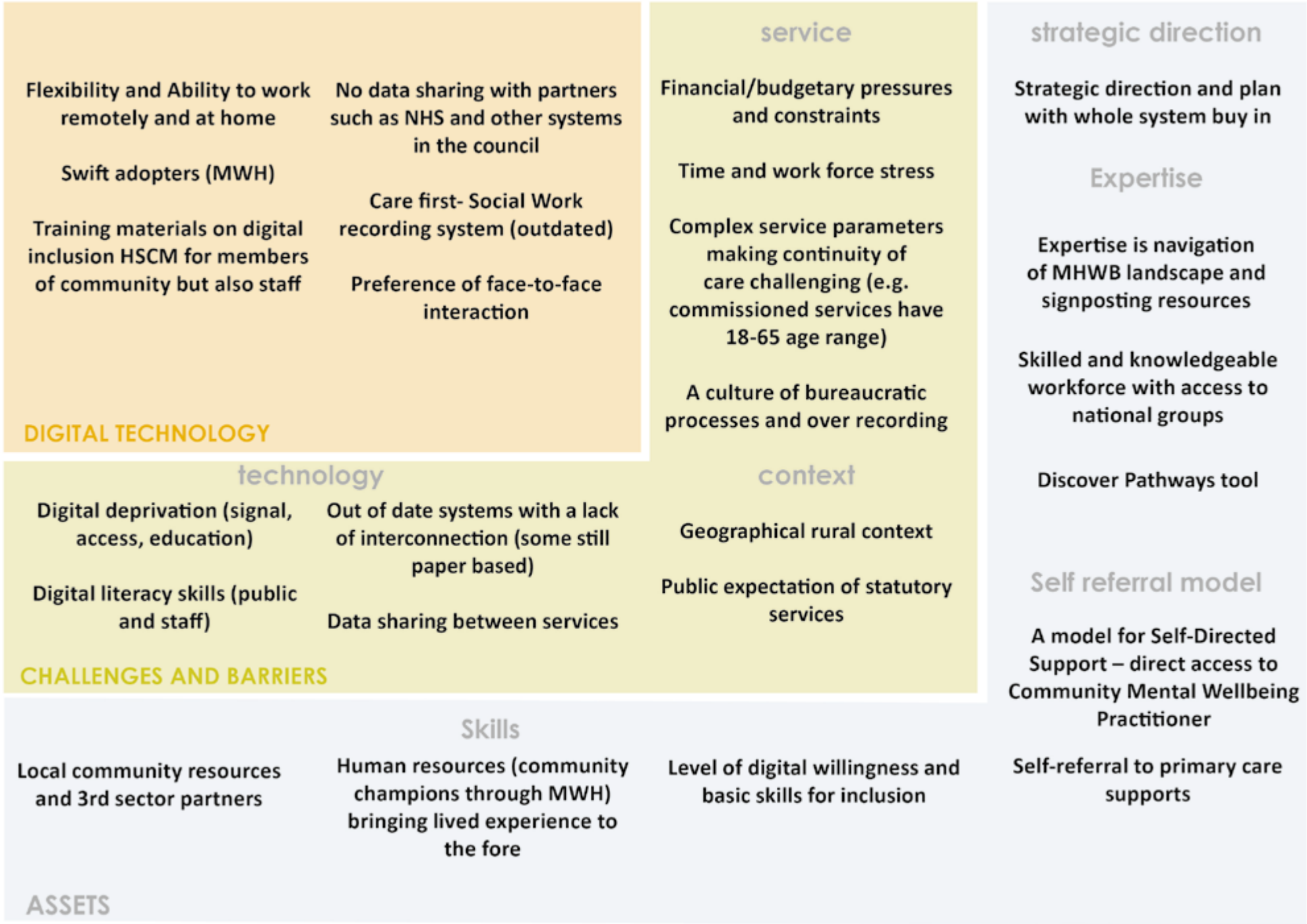
Promotion and awareness of services: direct access mental health and wellbeing practitioners at local practices currently have a waiting list of 2-3 weeks and provide 45 minute appointments, intended to reach a person before a point of acute need. There is a concern over wider promotion of the service as that would increase waiting times.

Transition points: for example, transitions from child to adult services, adult to older adult services and related funding streams are at odds with continuity of care. For example, given a commissioned service with a cut-off age range of 18-65,a 64 year old can access a service package but a 65 year old with the same needs may be ineligible. Participants also suggested older people's services were overly dementia focused, which may pose a gap in provision.

Complexity of services: there is complexity of services available. For example, social work mental health deals with a small percentage of the population age range (18-65); primary care (18+) for preventative approaches; older adult mental health team is for 65+; and wider social care (community care), for 18+.

Onus on individuals: Concerns were raised with the language related to 'self' (e.g., self-manage, self-referral) which places the onus on the individual to seek support and make change, differing from broader views of mental wellbeing.

> "Good mental health is to be able to look outward from self but in cases of poor mental health a person may be very inward looking and unable to identify or articulate their need." - Workshop Participant



Co-designed current state of pertinent services from the first workshop for the Mental Wellbeing Living Lab.

Future State

Opportunities

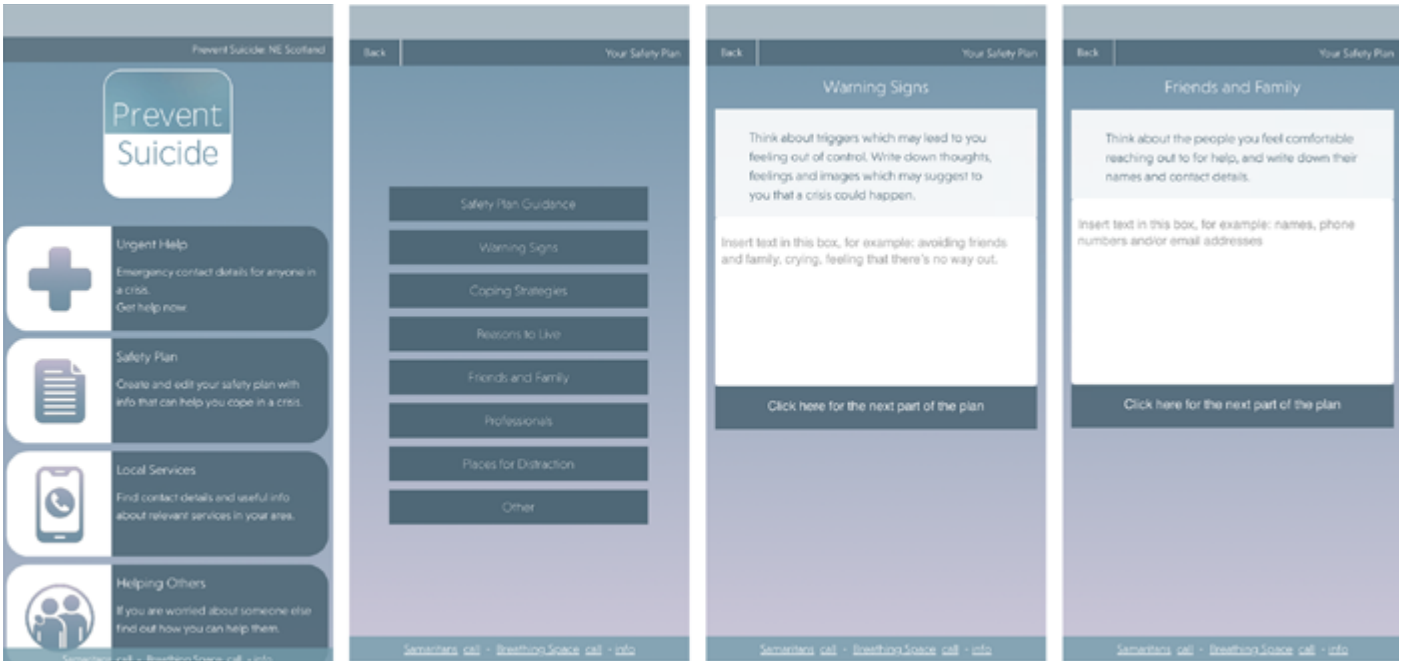
Two potential areas of opportunity where a digital intervention could enable better navigation and personalisation in the near future for development were discussed by participants:

Suicide Prevention App

The suicide prevention app, that is currently being used in Moray, could be an ideal candidate for embedding within the Community Connections platform and using the personal data store and a set of questions for navigation. In the current app, there is an information gathering tool and safe-plan that could be a candidate for development. The app is led by the individual and community feedback is that it is a useful tool, although the information it collects is not currently shareable. This is a privately provided app, not just specific to Moray.

Collaboration with the Police

Participants suggested an idea for collaboration with the police who are well versed in responding to a person at a point of crisis. Vulnerable person reports from the police are currently produced and include information signposting. This could be a potential candidate for linking to Community Connections, and with the option to set up a personal data store with the person. A high percentage of police interactions is related to mental health and time is taken to ensure someone's safety. There could also be potential to collaborate with the police to include the safe-plan in their interactions with people in mental distress.



Screenshots from the currently used suicide prevention app.



Participants at a co-design workshop for the Mental Wellbeing Living Lab.

Requirements

Integration of mental health and wellbeing services and information into the existing Community Connections platform was the key requirement. Participants highlighted several points for consideration:

Additional tiles: To enhance the Mental Wellbeing space on Community Connections, participants suggested the addition of a tile for 'Mental Crisis' and tile for 'Peer Support' would be beneficial to the user for ease of navigation. A 'tile' is a unit of information in the Community Connections platform and when clicked, would lead to further information.

Existing frameworks: There were also several documents suggested that could support a framework for questions to support navigation to appropriate mental health and wellbeing services, such as: Vulnerable Person Disclosures (VPDs); Concern reports; and Safe-plans.

Neutral front door for access to mental health and well being support: Moray Wellbeing Hub have a 'Navigation Conversation' format that has potential to aid a person navigating to appropriate services via Community Connections and could serve as a starting point for digitisation.

Joint ownership: A practitioner (e.g., Social Worker) has a degree of ownership over the notes, conclusions and recommendations they have made to a person. This would need to be stored on professional record systems. What data would be shared into a person's personal data store for a digital mental wellbeing service remains an open question.

Questionnaire commonalities: Practitioners have different styles of conversation to find out the same information around an individual to signpost them to appropriate support. What are the commonalities? CHIME (wider recovery model rather than linear health model) might be a suitable model to use.

Digital triggers: Participants highlighted the need to consider the digital equivalent of physical barriers like badges or ties that can trigger fear. There is a challenge in how to respond to bad mental health days and the potential for individuals to delete their personal data store due to fear or paranoia related to digital technologies. Consenting to others' access, foe example family members, is an important factor to consider.

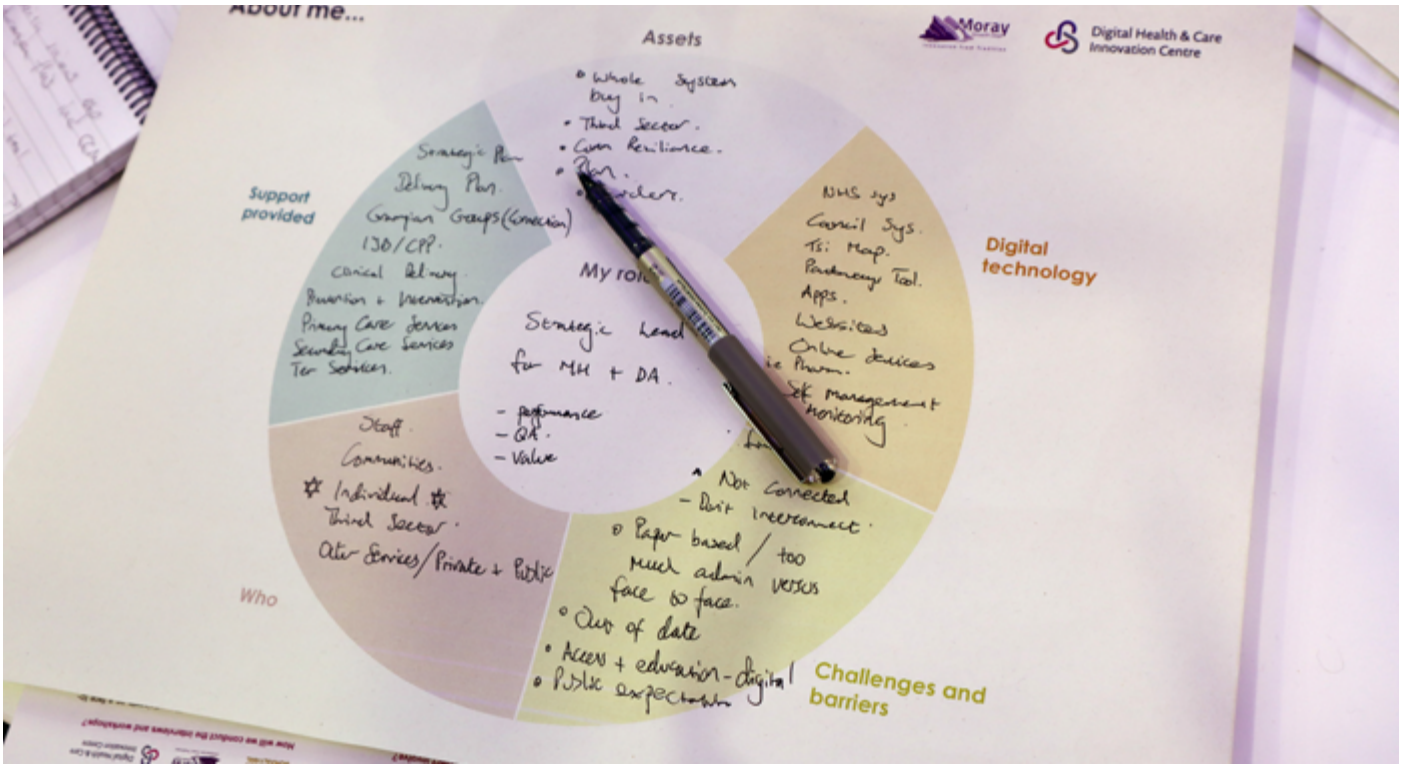
The importance of connection: A person may require help to identify their point of need. Holistic data could contribute to this so, there may be a need for other information from a person who knows them well.

Understanding data: An important feature may be the ability to see trends in personal data (e.g. map my mood) and the story of how a person managed to overcome a low period, including input from loved ones of how and what happened. This could lead to pattern recognition in the system and could help a person to start recognising life challenges and how to self-manage.

Building trust: There is potential to utilise the Moray Wellbeing Hub community champions for promotion through peer-to-peer connection and provide access to user testers.

Digital inclusion: There are varying degrees of digital literacy and willingness within the community. What is the human interface to the digital system? What are the touch points? E.g. access team or other tools such as leaflets.

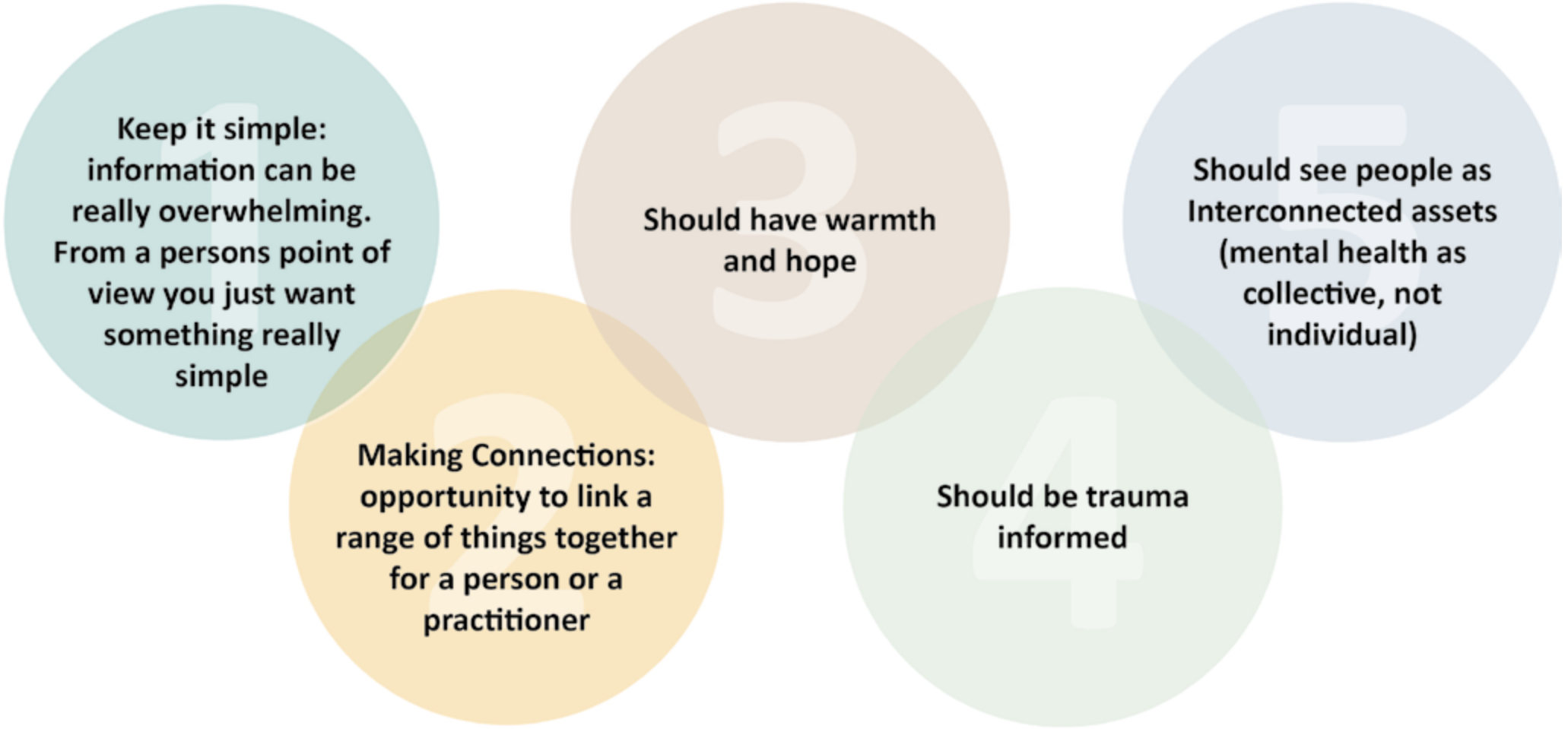
"Not everybody is digitally connected, and not everybody wants to be just digitally connected. How do you reach those people without labelling mental health and getting them to come through a specific door."
- Workshop Participant



An example co-design activity at a workshop for the Mental Wellbeing Living Lab.

Guiding Principles

Participants designed a set of guiding principles for the digital intervention to support navigation of mental health and wellbeing services. These are intended to guide the development of the future innovative service changes and are subject to change as the understanding of requirements becomes more refined.

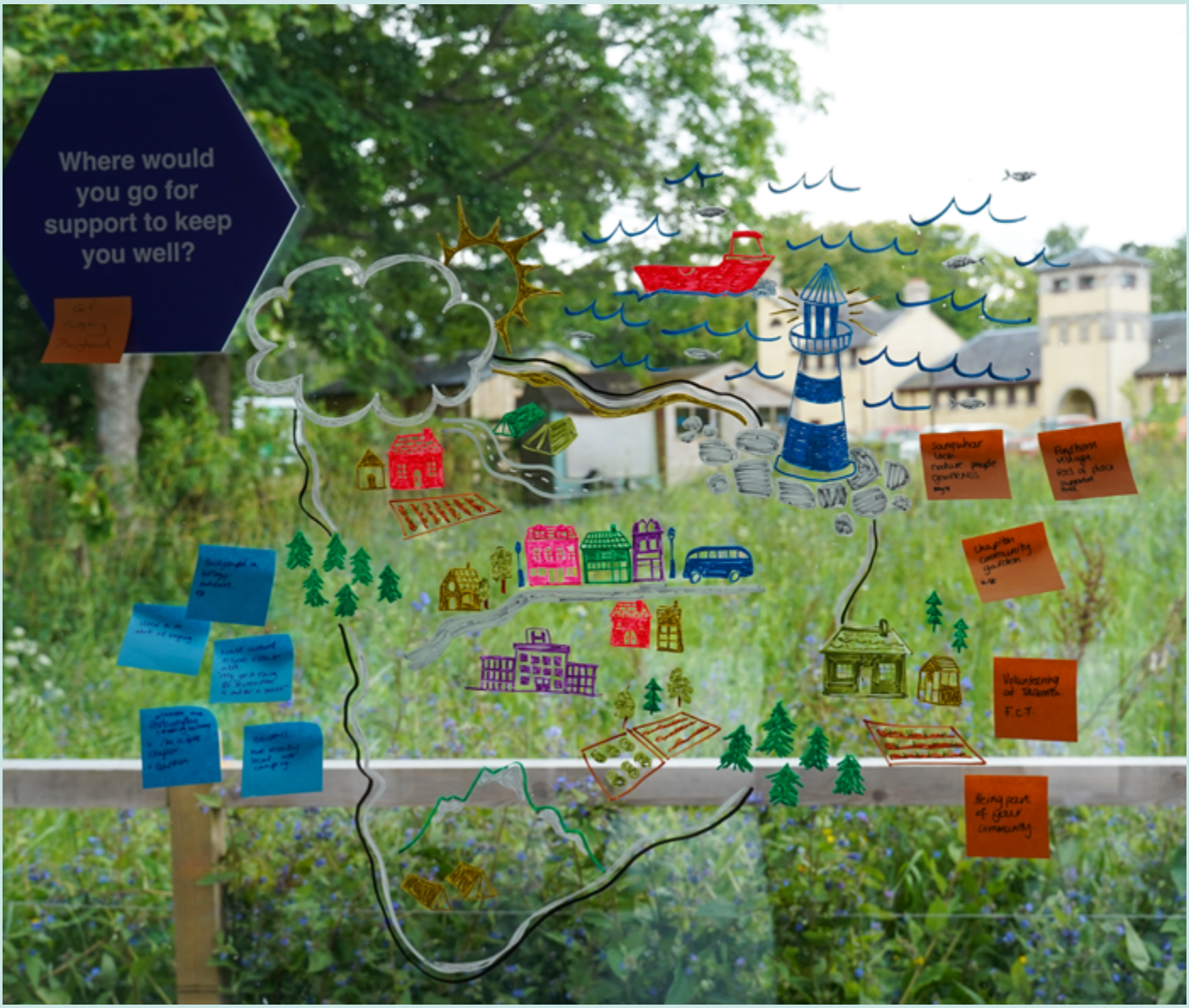


Section 7

Innovative Health and Care in Moray

The DHI Design Team ran several design related and public engagement activities outside of the five Living Labs discussed above. This research was titled, 'Innovative Health and Care Moray' was aimed at gaining a deeper understanding of the current and desired state of healthcare in the Moray region.

The research aligned with the existing five themes of the Rural Centre of Excellence: Weight Management, Long-Term Condition Management, Care in Place, Smart Housing, and Mental Wellbeing.



We are Digital: Moray Event

What if...?

We are working on a project with the Moray Growth Deal to imagine the future of digital health and care in Moray.

We would like to chat to you about your experiences and ideas.

What if technology could be designed in a way that supports people to be more in control of their healthcare and live more independently?

What if there was a one-stop-shop for Moray citizens where you could find information and support for your health and wellbeing?

What if you had ownership and control over your health and care data and could use and share this with your own personal data such as your diary?

What if mental health and wellbeing was supported by fitness centres, pharmacies or libraries?



Visitors at the We are Digital: Moray event

A digital inclusion day was held at UHI Moray in October 2024 by the 'We are Digital: Moray' group, of which the RCE is a partner along with Moray Council and the Third Sector. The DHI design Team in partnership with Dr Tara French, Digital Inclusion and Design Lead for Scottish Government, designed an engagement on the use of digital technology to support health and wellbeing.

Through the interactive pop-up, people living in Moray shared their thoughts on: their attitudes towards digital; where they would go for support with digital in Moray; and how can the people of Moray be supported to use digital as part of their health and wellbeing in the future.
The pop-up event was a notable success with approximately 40 people contributing.





Design activities at the We are Digital: Moray event

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RCE Ministerial Visit

The DHI Design Team supported a ministerial visit at the initiation of the RCE at the Glasgow School of Art's Highlands and Islands campus in the summer of 2022.





61
The Glasgow School of Art Summer Shows

The GSA Highlands and Islands campus Summer Shows are a public showcase of work taking place on the campus from students and staff.

Exhibits showed the intersections between research, innovation, education, and enterprise within rural contexts. The events featured work from the RCE alongside other research and student work at the campus.



The GSA summer shows took place on 14th and 15th June 2024 and 6th June 2025.



LL1: Support Self Management

This project focuses on the development of digital innovations to support citizens to take active responsibility in managing their physical and mental wellbeing in order to minimise the risk of developing more serious conditions later in life.

Focus area:
Weight Management

LL2: Co-managing Long-Term Conditions

This project will focus on the clinical aspects of diagnosing, stabilising, and managing long-term conditions. A key objective will be to improve methods of communication, data gathering and integration of system information to create efficiencies to improve access and create capacity.

Focus area: Type 2 Diabetes

LL3: Care in Place

Through engagement with citizens, and health and care professionals, we have co-designed digital solutions to support carers and the cared for in accessing appropriate care services in Moray.

Focus area:
Unpaid carers and people receiving care

LL4: SMART Housing and Communities

The aim of this project is to enable citizens to live independently at home for longer through the use of non-intrusive devices and sensors that can be used to prompt, remind, and gather ongoing data related to vital signs, functional activity, mobility, falls and environment both in the home and outdoors.

Focus area:
Frailty and prevention

LL5: Mental Health and Wellbeing

This project aims to understand what services are relied upon, identify groups that are at risk of poor mental wellbeing, and understand current experiences of delivering and seeking support, in order to explore the potential of digital solutions to support mental wellbeing.

Focus area: Mental Wellbeing

Person-centred data sharing

The underpinning digital asset we aim to test is the use of a Personal Data Store. This enables the citizen to store and use their own data about them and their life. Organisations can deliver personal data into the PDS as part of normal service delivery or collect data from a Personal Data Store with consent.



DHI Rural Centre of Excellence

Innovating Health and Care in Moray

The DHI considers that a person-centred model of service transformation is the most appropriate means and a key enabler of responsive and efficient public services as determined using insights gained over many years of research and numerous projects. DHI's support has delivered service improvements which have been realised using participatory design methods.

With the recent establishment of a Rural Centre of Excellence (RCE) in the Moray local authority area, there is an opportunity to reinforce DHI's strategy so that inclusive engagement is embedded and prioritised as a core principle of the RCE, enabling a meaningful and sustained partnership with groups of people who may be marginalised or harder to reach.

The RCE is one of a portfolio of initiatives funded by the Moray Growth Deal investment, aiming to level up the local economy and addressing inequalities and rural imbalances. The RCE aligns with existing local and national strategies aimed at transforming health and care through digital technology.

Living Labs

During early stakeholder engagement in Moray, five key themes were identified as priority areas within the Health and Social Care sector.

These themes will be explored using a Living Lab methodology, which is defined by the European Network of Living Labs (ENoLL)[1]. Living Labs (LLs) are open innovation ecosystems in real-life environments using iterative feedback processes throughout the innovation lifecycle to create sustainable impact.
They focus on co-creation, rapid prototyping & testing and scaling-up innovations & businesses, providing (different types of) joint-value to the involved stakeholders.
In this context, living labs operate as intermediaries among citizens, research organisations, companies and government agencies.

[1] *enoll.org/about-us/*

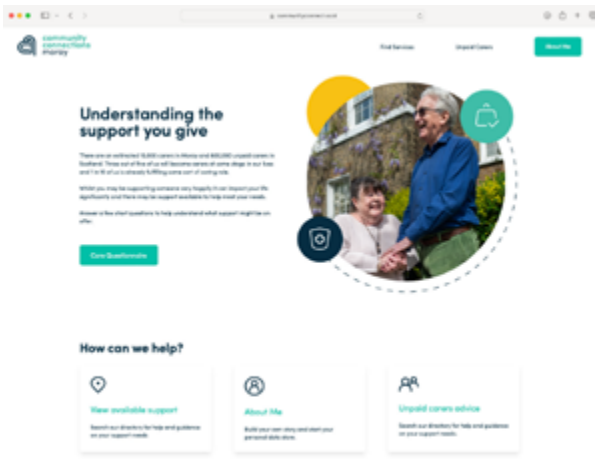
Digital Health & Care Innovation Centre

Moray Growth Deal
Innovation from Tradition

An example poster for public visitors from the GSA Summer Show, 2024







Care in Place

DHI Rural Centre of Excellence

Care in Place looks at the referral and assessment pathways for social care support, with a focus on older people and their informal carers. Through engagement with citizens, and health and care professionals, we have co-designed digital solutions to support carers and the cared for in accessing appropriate care services in Moray.

The Digital Health and Care Innovation Centre's Rural Centre of Excellence (RCE) conducted preliminary engagement with Moray's Health and Social Care partnership, identifying key challenges and needs of care services in the region such as: long waiting times for care needs assessment; reduced capacity in the existing workforce; a need to prevent crisis in relation to health issues and breakdown in care arrangements; and support for unpaid carers. It was also proposed that person-owned records might be used to support an innovative future assessment process leading to better use of the self-directed support service.

Impact and New Ways of Working

Through collaboration with citizens, and health and care professionals, the RCE has co-designed and procured digital solutions to better support unpaid carers in accessing appropriate care services in the region. The findings of the project are providing valuable insights into the future direction of care services in Moray and are informing the development of innovative and sustainable solutions to address the pressing challenges.

The RCE has recently supported the launch of the Community Connections website which enables the citizen to receive tailored information and services, self-refer to a range of services and create a Personal Data Store, putting the citizen in control of their own information and reducing the need to repeat their story.
This technology will allow a greater volume of the population to be supported through minimising the need for face-to-face appointments, in turn reducing travel and time off work, and will allow ongoing dialogue and support as required.

Collaborators: Quarriers, University of Highlands and Islands, Health and Social Care Partnership Moray, MydexCIC

Digital Health & Care Innovation Centre

Moray Growth Deal
Innovation from Tradition

An example poster for public visitors from the GSA Summer Show, 2024

Participant Consent Form for Interview, Focus Group or Workshop

Project: **Care in Place** for the Digital Health and Care Innovation Centre's Rural Centre of Excellence

Project Lead: Dr Jay Bradley, Innovation School, Glasgow School of Art
Email: j.bradley@gsa.ac.uk

*Please **circle your response and initial the following statements**. Please ask the researcher if you have any questions.*

I confirm I have read and understood the participant information sheet (v8 dated 9/9/2022) and have had the opportunity to ask questions about it.	**Yes/No**	*Initial:*
I agree to be a **participant** in the research project.	**Yes/No**	
I understand that my participation is **voluntary** and that I am free to withdraw at any time, without giving any reason. Any information I have given will be used with my permission or may be removed from the research if I withdraw.	**Yes/No**	
I understand the risks and mitigations around **COVID-19 transmission** that will be in place and agree to consent to taking part.	**Yes/No**	
I agree to **audio recording** during the research project activity for later transcription. This transcription will be used by the researchers to analyse the interview, focus group or workshop.	**Yes/No**	
I agree to being visible in **photos** and **video** taken during research activities for the purposes of research and publicity as described in the next two clauses.	**Yes/No**	
I agree that writing, audio and transcription of the ideas, suggestions and insights contributed by me including quotes can be used for **research purposes** by the Glasgow School of Art and the University of Strathclyde (as the constituent partners of the Digital Health & Care Innovation Centre), e.g. exhibitions, publication, journal articles, conference papers/presentations, lectures and/or broadcasts.	**Yes/No**	
I agree that writing, audio and transcription of the ideas, suggestions and insights contributed by me including quotes to be used by the Glasgow School of Art and the University of Strathclyde (as the constituent partners of the Digital Health & Care Innovation Centre) **to publicise** the work of the project/organisation, e.g. exhibitions, print and broadcast media online publication and/or social media.	**Yes/No**	
I agree to the storing of my contact details (below) for 5 years to enable the Glasgow School of Art and the University of Strathclyde (as the constituent partners of the Digital Health & Care Innovation Centre) to **contact me regarding future project activity**.	**Yes/No**	
I would like to **waive my anonymity** so that I can be attributed by name and role in reports of this work. You may wish to do this if you would like to be publicly linked with this project but there is no requirement or encouragement to do so.	**Yes/No**	
I wish to add **other instructions or restrictions** in relation to my participation?	**Yes/No**	
If yes, please provide details:		

Signed or verbal consent noted		Date:
Name		
Email		

Project Lead signed or verbal agreement noted		Date:

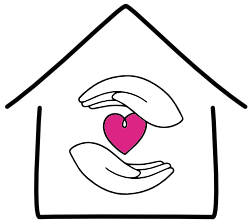
Example consent form for the Care in Place Living Lab, submitted for GSA institutional research ethics.

Care in Place

for the Digital Health and Care Innovation Centre's Rural Centre of Excellence

Participant Information Sheet

For interview, focus group or workshop participants



What is this research project about?

Care in place is a research project with the aim of understanding the current and preferred future of Moray's care services for people needing and requesting support to remain at home. The Digital Health and Care Innovation Centre's (DHI) preliminary engagement with Moray's Health and Social Care Partnership identified the following pertinent service pressures in Moray:

- Long waiting times for care needs assessment and waiting lists for care packages;
- Reduced capacity in the existing workforce to sustain the level of service required;
- The need to prevent crisis in relation to health issues and breakdown in care arrangements;
- Support for unpaid carers - reducing pressure and providing flexible support;

and also proposed that person-owned records might be used to support an innovative future assessment process leading to better use of the self-directed support service.

What does this research project involve?

Moray's Health and Social Care Partnership have invited you to be interviewed, or be part of a focus group or to be a participant in a participatory design workshop. All three activities are described here.

Interviews with Citizens of Moray

Citizens of Moray with experience of the care needs assessment process and experience of the self-directed support service have been invited for interview. The interviews will provide real-life experience of the care needs assessment process and the self-directed support service in Moray.

Interviews will be run remotely over the phone or online or, if preferred, in-person. The interview will be led a by a researcher from the Glasgow School of Art. We will ask you for your real name on the consent form but we will not include your real name in our output unless you have waived your anonymity on the consent form because you would like to be named in our reports.

Focus Group and Participatory Design Workshops with Health and Care Professionals

A focus group and five workshops will be attended by health and care professionals, industry partners, academics and policy makers. At the workshops we will discuss the current state of assessment and co-design preferable future health and social care service innovations for Moray. Moray HSCP and the DHI will jointly decide who to invite to the focus group and workshops, when they will run and for how long they will run depending on staff availability. Approximately 10 people will attend each activity and there is no requirement to attend all four activities though some may wish to do so. The focus group and workshops will be led a by a researcher from the Glasgow School of Art helped by other staff from the DHI.

How can we hold interviews remotely?

The workshops will be run in-person (at UHI Moray in Elgin). Interviews with citizens will be run on-line using Microsoft Teams and Miro, over the phone or in-person at your preference. Microsoft Teams is an online collaboration tool that enables several people to talk and see each other over the Internet. If online, you may choose to turn your device's camera on or off. Miro is an online shared whiteboard that allows several people to see and edit the same text and drawings. Microsoft Teams and Miro will be accessed through a unique link sent by the researcher by e-mail to interviewees. The link will open a web-page when clicked. Interviewees do not need to be technically proficient but would need to read an e-mail and click a link on a computer, tablet or phone and have an Internet connection sufficient to support a typical TV streaming service. After the interviews the links to Microsoft Teams and Miro will be disabled.

What precautions will you take to help protect me from the COVID-19?

As workshops and some interviews may be held in-person, there is a risk of COVID-19 transmission. In planning for this research, we have completed a Glasgow School of Art fieldwork risk assessment including the risk of transmitting COVID-19. The Glasgow School of Art staff have been asked to take lateral flow tests before and after the in-person activities and the physical equipment (e.g. pens) will be disinfected before and after the workshop to reduce the risk of transmission. If you or a family member has developed symptoms of COVID-19 in the last 7 days, please do not attend, but get in contact and we will arrange another time to meet.

Interviews with citizens are being held on-line to avoid the risk of COVID-19 transmission.

Please let us know at any time if there is anything we could do to make you feel safer or if you would like to reschedule or withdraw your participation.

Who is organising and funding this project?

This research project is funded by the Digital Health & Care Innovation Centre, which is a Scottish Funding Council initiative between The Glasgow School of Art and The University of Strathclyde. The DHI aims to bring together health, care and third sector professionals, academics and industry partners to work together to develop innovative ideas to overcome health and social care challenges. The research is part of the DHI's Moray Growth Deal funded Rural Centre of Excellence for Digital Health and Care Innovation. Research output will be shared with Moray's Health and Social Care Partnership during and after the project has finished.

This research project is being led and organised by researchers from the Innovation School at The Glasgow School of Art who are part of the DHI.

The Innovation School is based in Glasgow and Moray. Our research involves working with health and care professionals, policy makers and the public to explore challenges in health and social care to co-design new ideas for improving services in Scotland.

Moray Health and Social Care are inviting health and care professionals and citizens to be part of this research.

What happens afterwards?

The findings of this research will inform a funding call

Example Participant Information Sheet for the Care in Place Living Lab, submitted for GSA institutional research ethics.

Care in Place

for the Digital Health and Care Innovation Centre's Rural Centre of Excellence

to industry partners who will develop a functioning innovative service in partnership with health and care providers in Moray. This service will run for a significant but limited period of time. Near the end of this period of using the new service, two further participatory design workshops (with healthcare professionals) and eight more interviews (with citizens) will be organised. There are five other related research projects being run as part of the same Moray Growth Deal funded Rural Centre of Excellence for Digital Health and Care Innovation.

Why have you been invited?

You have been invited because you can contribute knowledge that will help co-design the future of health and care services in Scotland. It is important that the people who will use a future service or have that service used on their behalf have a meaningful say in its design.

If you have additional needs that we can assist with to facilitate you contributing to this research project then please let us know. Taking part is your decision and it is entirely voluntary. You can also withdraw at any time, without giving a reason. If you withdraw during the research activity then any information you have contributed will be used with your permission or we will remove it from the research.

If you would like to be involved, you will be asked to sign a Consent Form confirming that you understand the purpose and methods of the research and are happy to participate. This will be requested at the start of your involvement in this research activity.

What will happen to the information you provide?

The information you provide (ideas and knowledge based on your training and/or lived experience), with consent, will be used by the research team to produce a report for the DHI. The information could also be used for *research purposes* such as at exhibition, in publication, academic journal articles, conference papers and presentations, lectures, on web-sites or broad-cast media.

The information you provide may also be *available to the public* according to your consent. For example, on social media and on web-sites.

Participant Information Sheet

For interview, focus group or workshop participants continued...

We would like to record audio during the interviews and workshops with your consent. The recording will be transcribed for research purposes.

Your information will be held in accordance with The Glasgow School of Art Data Protection Policy. All research data will be held under secure conditions at the Glasgow School of Art Highlands and Islands Campus near Forres. Paper and electronic records will be destroyed after 10 years. Access will be restricted to the DHI researchers at the Glasgow School of Art and Strathclyde University. Only professional identifiable information (e.g. your title & role) will be used unless you have waived your anonymity on the consent form. No personal identifiable information will be used in any publication without your consent.

The GSA will only share project data with staff responsible for administering, undertaking and disseminating the project work at The University of Strathclyde who are partners in the DHI. For more information about how the GSA will store and process your data, please contact Cate Green (c.green@gsa.ac.uk).

Who should I contact for further information?

Dr Jay Bradley (j.bradley@gsa.ac.uk)
The Glasgow School of Art, Highlands and Islands Campus, Blair's Farm Steading, Altyre Estate, Forres, IV36 2SH

If this study has harmed you in any way or if you wish to make a complaint about the conduct of the study you can contact the GSA using the these details for further advice and information: Head of Research, The Glasgow School of Art, 167 Renfrew Street, G3 6RQ - research@gsa.ac.uk

To see more of the research team's projects: futurehealthandwellbeing.org
To find out more about the DHI: dhi-scotland.com

Terms used in this research project

Waiting times. For this project, we are interested in the waiting time between requesting care services from Moray HSCP and a professional health and care needs assessment.

Reduced workforce capacity. The current workforce in Moray is struggling to deliver essential health and care services. This varies across services. The COVID-19 pandemic has made health and care delivery more difficult but this problem is not entirely caused by COVID-19.

Preventing crisis. A crisis might mean an individual's rapid decline in health or, the failure of a needed health and care service.

Unpaid carer. Someone who provides care but is not paid for their help. This might be a family member or neighbour or similar person.

Person-owned records. A store of data owned and controlled by a person. This might be held on the Internet or on a person's phone for example. Person-owned records can be used for a variety of reasons. In healthcare, the use of person-owned records could lead to better integration of services built around the person's needs. The owner needs to grant permission for an organisation such as a doctor or carer to add or see their data. Consent could be for a single period of access or could be a long-term agreement for an organisation to access data.

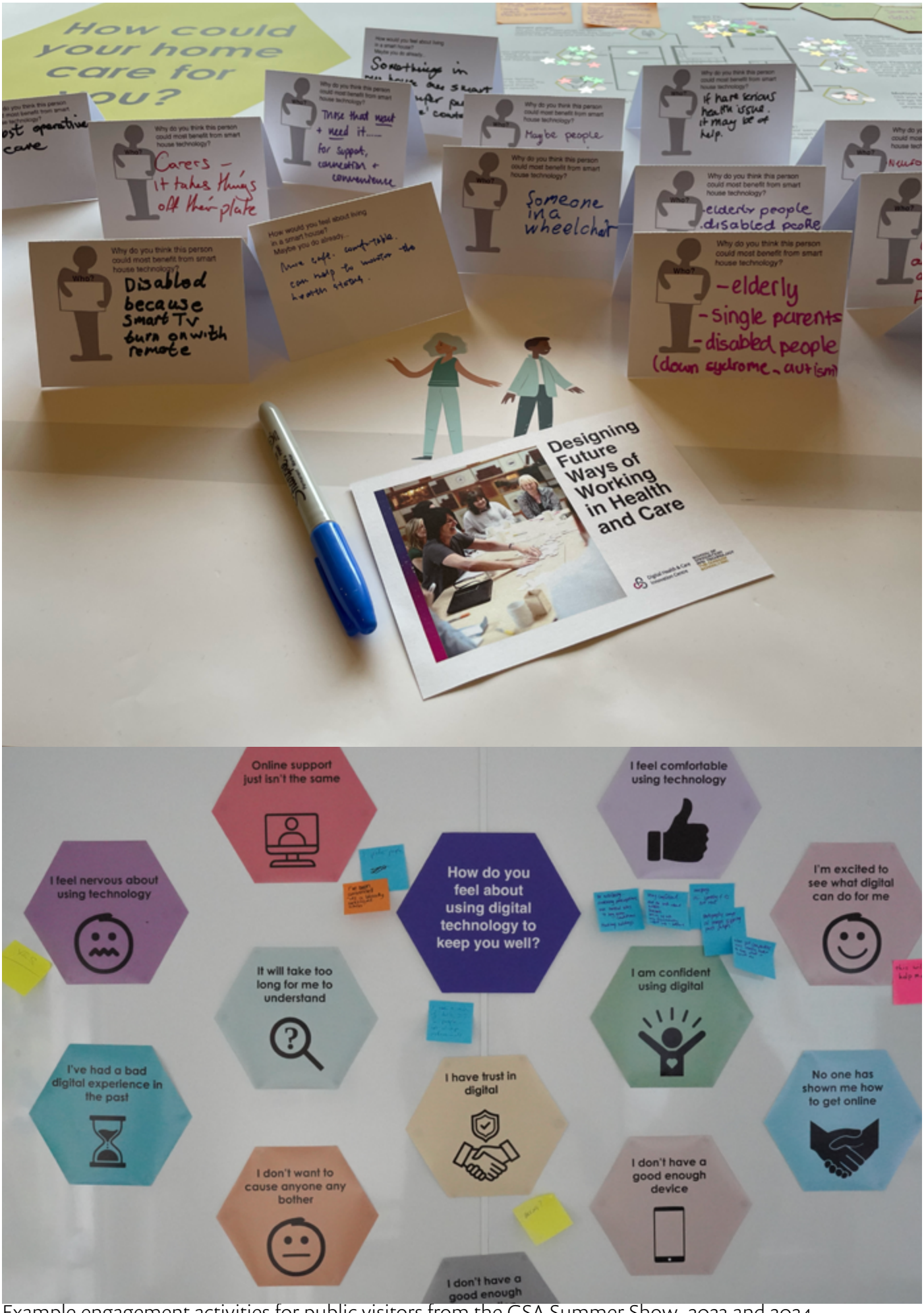
Assessment. A process designed to understand a person and their health and care needs. Every citizen has a right to an assessment of their care needs from the council. An unpaid carer also has the right to be involved in the assessment of a person's needs. An unpaid carer also has the right to an assessment of their needs in providing care.
[https://www.mygov.scot/care-rights]

Self-directed Support. "Personalised Community Care Services where services users are given choice and flexibility to manage and design their own support"
[http://www.moray.gov.uk/downloads/file81041.pdf]

Innovation. For this project, innovation refers to the co-production of new knowledge which in turn leads to the production of a new service using appropriate supporting technologies. The project aims to support the long-term adoption of the service in Moray and elsewhere but does not fund that procurement or running costs.

Version 8, 9th August 2022

Example consent form for the Care in Place living lab submitted for GSA institutional research ethics.



Example engagement activities for public visitors from the GSA Summer Show, 2023 and 2024

Conclusion

The design activities delivered through the Rural Centre of Excellence took a participatory and person-centred approach to designing innovative health and care services for Moray. The aim of these design activities was to bring citizens, professionals, and partners into a shared process to explore new service models that respond to current challenges. Through the five Living Labs: Supported Self-Management, Long-Term Condition Co-Management, Care in Place, Smart Housing & Communities, and Mental Wellbeing, the DHI design team applied a consistent methodology to understand the current system, co-design future possibilities, and generate designs that informed procurement and service development.

The Supported Self-Management Living Lab designed a new digital pathway for NHS Grampian's weight-management service that is currently being tested at the time of writing.

The Long-Term Condition Co-Management Living Lab addressed challenges in type-2 diabetes services. Participants designed a future pathway that emphasised shared information and stronger links between healthcare and community-based activity. This work led to the Heart of Moray campaign.

The Care in Place Living Lab focuses on the home setting and supporting unpaid carers, social care staff, and people seeking support. This work led to the Community Connections platform.

The Smart Housing & Communities Living Lab explored how non-intrusive home technologies could support proactive and preventive models of care. The design activities identified opportunities for future procurement of innovative data platforms.

The Mental Wellbeing Living Lab identified opportunities for clearer signposting, improved digital navigation, and better integration of existing tools (such as the suicide prevention app) into the Community Connections platform.

The design work across all the Living Labs contributes insights into the future health and care services that citizens and professional in Moray need and want. The design outputs are practical assets that support procurement, real-world testing, and ongoing and longer-term transformation of services in Moray.

Acknowledgements

Thank you to everyone, citizens and professionals who have given their time to the research and development projects that have taken place as part of the DHI's Rural Centre of Excellence. Your experience has been valuable in shaping the digital tools we have developed so far. I hope you can continue to find the time to stay with us on this journey, contributing to the research and changing the way we deliver services, improving choice and control and supporting self-management.

Thank you,
Angela, Jay, Sonya and Linda
DHI Design Team



RCE Team

Angela Bruce	Research Fellow, DHI
Sonya Lizbeth Joseph	Research Associate, DHI
Dr Linda Shore	Research Fellow, DHI
Dr Jay Bradley	Reader in Design Innovation, DHI
Marie Simpson	Programme Manager, DHI
Chaloner Chute	Chief Technology Officer, DHI
Karim Mahmoud	Commercial Innovation Lead DHI
Marlene Harkis	Engagement Lead, DHI
John Murray	Programme Manager, DHI

Technology Partners

MyDex	mydex.org
Daysix	daysix.co
Archangel	www.archangel.cloud

Photography

Sonya Lizbeth Joseph	DHI
Angela Bruce	DHI
Louise Mather	louisemather.com
Dani St-Onge	GSA

