This paper is presented to the IJB to give an update on the progress of the MGD Rural Centre of Excellence for Digital Health and Care and its Strategic Alignment to the Region

Moray Growth Deal overview

The Moray Growth Deal (MGD) is a regional deal designed to boost economic growth across Moray - http://www.moray.gov.uk/moray_standard/page_114144.html. It is a long-term plan centred around specific projects designed to transform the economy, address concerns around encouraging young people to live and work in the area and address gender inequality in employment. It brings together Scottish and UK governments, Moray Council, partners from across the public and third sectors and private businesses. Each of these partners will be investing in a better future for Moray.

The Rural Centre of Excellence for Digital Health and Care Innovation

The Rural Centre of Excellence (RCE) is one of eight programmes within the MGD, led by the Scottish Digital Health and Care Innovation Centre (DHI). It focuses on developing innovative digital health and care assets and pathways in Moray through codesign with local stakeholders from health, social care, third sector and citizens, with a focus on the additional challenges experienced by those providing and receiving services within rural communities. The objective of this project is to invest £5m from UK government funding to create an anchored and mobile Demonstration Simulation Environment (DSE) and five Living Labs (LL) of digital health and care innovation testbeds in Moray, programme managed by DHI and supported by civic academic and industry partners (see fig 1 below for summary).

The key objectives of the Rural Centre of Excellence include:

- Creation of 5 Living Labs to find digital health solutions to health and social care challenges

- R&D Funding:
  - Funding to participate in simulations
  - Developmental Procurement

- Building a Demonstration and Simulation Environment (DSE) within the Alexander Graham Bell Centre for Digital Health at Moray College UHI

- Skills and curriculum development

- Opportunities for companies to showcase their innovations

- Fostering collaboration– dynamic cluster

Fig 1 – Summary of main RCE objectives

The realisation of this will mean that by June 2025, the Moray region will have a range of key assets, infrastructures and capabilities which will position it as a world leading Rural Centre for Excellence (RCE); where partners co-create, test and commercialise digital health and care innovations at scale to address global challenges.

The DSE is a physical immersive facility anchored in the Alexander Graham Bell building in Elgin along with technical assets with which simulations can be developed at pace, leading to a range of demand-led Living Labs built-in real-world environments tested by the Moray community across the region. In addition, a workforce development, future skills and research support programme is planned to build capacity and capability to continue to develop, implement and scale up digital innovations that can be transferred across Scotland and the rest of the UK (see fig 2 – Innovation focus and key themes).

DHI's Data Exchange layer provides a neutral and well-principled mechanism for data sharing across health and care providers and importantly, out with statutory healthcare systems into care services and third sector organisations such as charities. By providing underlying infrastructure, the RCE DSE will enable smaller businesses, without the power to sell and deploy large-scale platforms into health organisations to build services that are more readily procurable and deployable.

DHI Approach to Service Transformation

- Demand for solutions that reduce pressures on staff and improve the experience for service users
- Digital solutions and commercially available products can respond to these needs
- DHI through MGD contributes by identifying issues, solutions and creating rural centre of excellence which fosters an ecosystem in Moray to develop, test and innovate
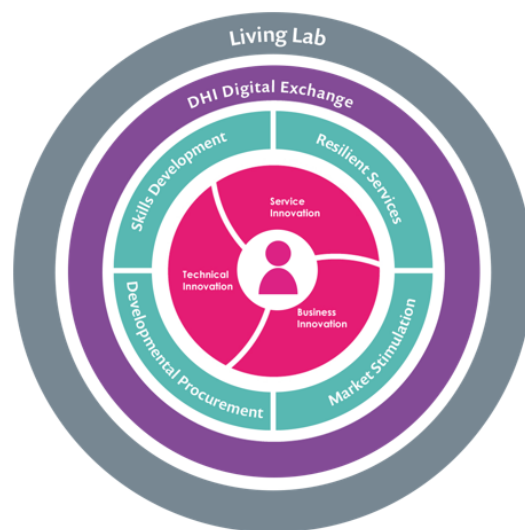

Fig 2 – Innovation focus and key themes

How we work - Living Labs and DHI's Innovation Process

When referring to Living Labs DHI use the definition used by the European Network of Living Labs (ENOLL);

'Living Labs are defined 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'

Please note DHI and RCE have reactivated their membership of ENOLL to ensure the Moray RCE activities are amplified and good practise and transferability is fully activated to position the RCE as a region of 'High opportunity' on a global stage.

Fig 3 – RCE Innovation model

The DHI RCE Innovation model (see fig 3) includes engagement with senior Moray Health and Social Care stakeholders in the define stage identified the key issues and needs, and aligned with evolving local and national strategies these continue to inform the priorities and focus of the programme. This needs-led approach ensures that solutions developed meet a significant need within the partnership and increase the likelihood of the new assets being adopted into business as usual in the Moray area and beyond. By co-designing innovations closely with those delivering and receiving the services, a fit for purpose solution that is user friendly and welcomed, can more easily be achieved.

The Role of Co-design

Design approaches are embedding in the RCE with Co-design being a key collaborative approach that involves the active participation of various stakeholders, including designers, experts, end-users, and other relevant individuals or groups, in the design and development process of products, services, or systems. It aims to foster inclusive and user-centred solutions by incorporating diverse perspectives, knowledge, and experiences.

In the context of digital health and care innovation in Scotland, co-design plays a crucial role in driving the development and improvement of healthcare technologies, systems, and services. Here's how co-design helps in this domain:

1. User-Centred Solutions
2. Enhanced Engagement
3. Iterative Development
4. Innovation and Creativity
5. Sustainability and Scalability

Following these co-design principles and methodologies, the Glasgow School of Art's service innovation team of design experts work collaboratively with stakeholders across Moray to address complex challenges in health and care to support the Moray Growth Deal. This approach ensures that the DHI RCE develop solutions that are user-centred, inclusive, and responsive to the specific needs of Moray's citizens. Ultimately, co-design helps to enhance ensure we invest in the wellbeing of individuals, while supporting the growth and success of health and care services and businesses in Scotland.

Defining the Problem

Key strategic documents all indicate the necessity to urgently transform health and care services at a national level, to ensure their survival and sustainability. With an emphasis on '**shifting the balance of care' (see Fig 4 below)**, a major cultural shift and re-design is required to meet current and future challenges. Fueled by a substantial demographic change, a cost-of-living crisis and recovery from the pandemic, demand for services will continue to outstrip capacity. If additional personnel resources are not an option, a significant responsibility falls to the development of innovative digital solutions.

It is essential that we move away from a reactive and fragmented H&C service and move towards more efficient integrated services, shifting the balance of care away from the door of the GP and hospital as the primary point of contact, and look to develop a more proactive, preventative and predictive approach that tackles lifestyle choices in early years. A shift in the population where citizens become a more active participant in maintaining and managing their own health and wellbeing through enabling better health choice. Supported by easier access to self-management opportunities through access to the right information at the right time, with more reliance on the community and its assets to become an integral part of a health care system, to include third sector organisations, community groups leisure centres and libraries. When people require statutory services, ensuring that digital technology can bring the best efficiencies for timely diagnosis and treatment, and utilising technology and data to adopt a predictive and preventive approach using smart technology and monitoring.

Through early engagement with service deliverers and citizens the following issues and needs were highlighted

- Specific areas of concern for citizens and their families - waiting lists for assessment and provision of packages of care.
- Creating capacity in the workforce – reduction in duplication of effort - one collection of data used by all – facilitate citizen contribution. Self-assessment and direct access to key services – support access to SDS. Streamline assessment /discharge from hospital and prevent admission. supporting Home First, Hospital without walls model. Improved management of long-term conditions including dementia.
- Prevention of Crisis – LTC management (Home Health monitoring) – Prevention of Falls – support growth in Telecare/Telehealth Service
- Support unpaid carers **–** more imaginative /flexible approach /improve access

Fig 4 – Shifting the balance of care from treatment to prevention/community support

How the RCE Contributes

The RCE will contribute to shifting the balance of care in the following ways:

Infrastructure

- Developing a platform linking local and national health and wellbeing information and services in one updateable location to support early self-management, problem solution and wellbeing, delaying the need for statutory intervention and promoting a healthier and more responsible population.

- Creation of a Personal Data Store (PDS – see fig 5) as the government supported approach to data collection and sharing through a national ID service. A PDS will allow the citizen to document their journey, priorities and preferences and will enable them to both share and receive intervention information from the services they engage with. This will reduce the need to repeat their story, allowing them to share data at their discretion and while digitally connecting them and their formal and informal circle of care, helping them to manage their holistic health and care needs. By establishing a PDS early, the data gathered through their life course will become richer and will create insights into changes in their baseline condition and functional levels, leading to earlier intervention, prevention, and maintenance of independence for as long as possible.

- Linking of the PDS to the early access platform will allow smart suggestions of services which may be of benefit, based on the information stored as it is updated.

A Personal Data Store (PDS) enables cloud-based, citizen-controlled storage and exchange of personal data across people, organisations and sectors.

Fig 5 – Personal Data Store links all Living Lab activities

The Living Labs

Fig 6 – Summary of RCE Living Labs (x5)

Living Lab 1: Supported Self-Management

Research has shown that early intervention for health indicators can delay or prevent the development of long term conditions putting certain conditions into remission. This LL looks to tackle those early indicators by creating innovative digital tools which combines health and lifestyle data transfer from patient direct to the clinical dashboard with secure asynchronous messaging between patient and clinician. This allows the clinician to efficiently and effectively support the patient remotely to manage their diet and lifestyle with the end goal of reducing the risk of disease progression. Prototype development is nearing completion and subject to information governance requirements being met, this will move to real work evidence stage in the autumn.

The first phase of testing and evaluation will focus on Connect + patients with type 2 diabetes, prediabetes, obesity and non-alcoholic fatty liver disease (NAFLD) under the care of a Moray dietician.

Ongoing consultation and development locally and nationally have highlighted a further two opportunities areas:

Prevention and Remission of Type 2 Diabetes

- Development and testing of a prevention and remission tool for type 2 diabetes in high-risk groups to be delivered using the national Decision Support Platform within the Right Decision Service which is currently transitioning from DHI to Healthcare Improvement Scotland. Supported by the team developing the new SIGN guidelines for this clinical group, the tool will facilitate their implementation into practice and fill existing gaps identified. The development of the innovation through the RCE is expected to form the basis for national scale up.

Menopause Management Tool

- Increased local demand for menopause support and treatment – Early scoping has identified clinical interest and commitment from GP's and prescribing pharmacists for tools with similar capability as those being currently developed. Further research and co-design

scoping will be carried out with citizen and professionals May-Oct 23. Simulation funding has been held to develop prototype this winter if taken forward.

Living Lab 2: Long Term Condition Management

NHS pathway

The main purpose of this Living Lab is to identify opportunities to develop innovative digital solutions to create efficiencies when diagnosing and managing long term conditions across acute and primary care services. Scoping workshops will be run in May and June 23 to identify the key challenges faced by Dr Grays and the broader NHS Grampian and GP practices in Moray. Preliminary discussions suggest support in the direction of a generic virtual diagnostic hub rather than a single clinical pathway with access deprivation being a key national issue increased in complexity by Moray's additional rural challenges. It is anticipated the at the creation of new digital tools and pathways will allow diagnosis and medication titration to be achieved with fewer clinical points of contact and in a shorter time period. This may include services such as dermatology, diabetes and cardiology

Following problem definition and service mapping it is likely that a competition will be run to find innovative solutions taking the preferred solution through simulation and RWE over a 12- 18-month period commencing summer 2023.

Community pathway:

This element of the programme, currently being scoped, will focus on the ongoing and person centred, holistic management of long-term conditions in the community post diagnosis with the following key aims identified to date:

- Supported self-management - access to the right information at the right time – this will build on the collated services platform already under development and will take this further as an early link to clinical services to give the citizen enhanced tools and information to maintain function and independence and the ability to make informed decisions about their changing needs.

- Chronology – Putting the citizen at the heart of owning, developing and sharing their data and story to manage their health and care needs via a PDS. This will also facilitate inter disciplinary sharing of interventions at the discretion of the individual.

- Scoping of digital solutions to support the triage and management low to medium level Occupations Therapy referral to reduce waiting times and maintain function independence.

- Supporting hospital at home - Exploring innovative telehealth monitoring approaches to support hospital at home pathways, facilitate earlier discharge and develop a more predictive/preventative approach through monitoring of key indicators of long term conditions personalised to the individual.

It is likely that these will progress to simulation stage later this year following a period of scoping and co-design.

Living Lab 3: Care in Place

Care in place seeks to identify and develop digital tools and pathways to assist with the entry point to social care and in particular social work assessment when care services are required. Early engagement highlighted the need to support frail older people and their informal carers, through access to resources, improved communication and information sharing between all involved in supporting the citizen.

Commenced in April 22 and following a series of stakeholder, citizen and informal carer consultation the assets shown below were agreed for development and include the setup of key shared assets that the other living labs will utilise. It is the collation of the PDS data prior to the point of assessment that will enable digital population of much of a social care assessment without the service user or their carers having to recall and repeat their journey. Allowing intervention to be user-centred and take into account their story, priorities and preferences.

A PDS will also be developed for the informal carer to allow them to access the help and support they need to stay well and maintain their role including digital referral using their stored data to refer to carers support services and assessment. The Carer PDS will have the capability to linking to the cared for person's PDS with the appropriate consent. This linked circle of care will allow improved communication between the service user and their key supports /services.

This Living Lab is nearing the end of the simulation phase with a DPIA approved for integration into social care systems. It is expected to move to the real-world evidence stage for testing and evaluation at the end of summer 2023.

- A website to help people start their story, find services and self-refer
- A Directory of Services that all organisations can jointly update
- A Personal Data Store to allow citizens to bring their story
- A Carer Support App to help with care and support planning
- A social work app to help with assessments and view and reuse someone's story

Fig 7 – RCE key assets and infrastructure

Fig 8 – LL3 – Timeline as per Innovation model

Living Lab 4: Smart Housing/Smart Communities

Scoping work will be carried out between June and December 23 to identify opportunities to work collaboratively with the MGD Housing Mix project, which will see the creation of new smart enabled homes within a new community in Moray. Interest has been shown in the development of a community hub which would support digital health and care monitoring, responding and support, but would also provide a place-based asset for social and skills development activities. It is envisaged that a hub would be able to support the community to have equitable access to all the living lab assets.

It is likely that simulation activities to develop innovative solutions to incorporate telehealth, next generation telecare and activity monitoring into a working prototype to demonstrate the art of the possible will be activated prior to the new builds commencing.

Living Lab 5: Mental Wellbeing

Mental wellbeing covers a broad subject matter and is relevant to many for different reasons at several points in their lives, whether that's a young person with anxiety, a parent with a new medical diagnosis, or an older person feeling lonely and isolated. This living lab has had broad stakeholder engagement in the early scoring stages with many competing priorities areas and age groups that would benefit from digital intervention.

The pandemic has had a significant impact on the mental health of the population, with isolation, loss of routine, health anxiety or financial stresses contributing to a rise in referral rate to both wellbeing and mental health services. As a result, many are having to wait for long periods for assessment, support or treatment and a substantial, with a rise in suicide rates noted in Scotland.

 Two workshops are planned for July 2023 with service provider's and citizens to explore the challenges to identify and prioritise where greatest impact and benefit can be made.

Early intervention and self-management are important to protecting mental health, so it is likely that MWB will be incorporated into codesign, tools and assets of all the living labs, whether that is sign posting to useful services or websites through the self-management platform being developed, digital support to diagnose, titrate medication or long term support to live well with an enduring mental illness, the potential application is widespread.

Definition work will be progressed within each problem area agreed to be in scope of this phase of the RCE and may include:

- Self-help resources to stay well
- Social prescribing

- Young person's services
- Neurodiversity
- Enduring mental illness

Moray Wellbeing Hub are a close partner to this work in Moray and have been supported by the RCE team to secure external grant funding for their service.

Skills and Workforce Development

This work package addresses digital skills shortages and digital skills gaps in Moray to support the simulation work and activities relating to the RCE Living Labs and service changes

This being delivered through:

- Raising awareness of jobs and career opportunities associated with the digital health and care sector

- Funding of curriculum development research

- Supporting the upskilling and reskilling of the workforce and citizens in Moray

- Supporting change management and design innovation skills development relating to digital transformation of health and care services in collaboration with our GSA Innovation School colleagues

- Working with local and national education providers to ensure that skills development provision is responsive to the changing needs of a digitally enabled health and care service

Engagement is directed to:

- Local and national stakeholders (including teaching staff at school, college and university level, policy makers, health and social care practitioners, and third sector organisations)

Connectivity and inclusion

In addition to upskilling the workforce and the potential for development of new digital technologist/support roles, the RCE are also seeking to understand and facilitate a reduction in the inequity of broadband and mobile signal in a rural community such as Moray. We are working with the 5G innovation Centre and will be testing a 5G mast within the DSE. There will also be the opportunity for small grant funding for local telecommunication companies to work with us to innovate and test solutions.

The RCE understand that there can be many barriers for people accessing digital services, and we seek to find ways of making the asset we develop accessible to everyone. We are therefore exploring options for device use or loan services and the practical support that may be required to setup or use these and the right environments to foster confidence through third sector services and Moray libraries.

Upscaling

DHI have significant experience, of scaling up digital assets both nationally and internationally. As one of Scottish Governments Innovation Centres, insights and assets from DHI projects are frequently used by Scottish Government to influence policy, strategic development and are often used as pathfinders and use case examples for scaling up. It is the aim of RCE, that the most appropriate and promising assets developed (backed by evaluation and evidence) can be transferred to other areas, particularly those which face similar challenges to Moray of rural living.

DHI have partnered with Highland and Grampian on a number of successful projects over the last 10 years. As Moray citizens do on occasion receive services from NHS Highland, the RCE are keen to work with neighbouring partnerships for knowledge exchange, co-design input to our developments and to explore any digital innovation collaborative opportunities that may present.

To be kept up to date with RCE activities please sign up to our Citizen Panel at: https://www.dhi-scotland.com/projects/rce-moray/