

Realising the Benefits of Digital Technology

Citizen-led Innovation for Health and Wellbeing

A scoping report for Scottish Enterprise and The Health and Social
Care Alliance Scotland (the ALLIANCE)

August 2015



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1. Introduction

Citizens, people, you and me, are being encouraged to take part in shaping the public services that keep our cities working, our transport moving and improve our health and wellbeing. At the same time digital technologies are having a strong influence on how our services are delivered and managed.

The number of digital health and care products and services is growing. We can now wear devices to track our sleep and measure our vital signs while 3D printers are creating artificial limbs. So, how do we all get involved in shaping, or even creating, the products of the future that truly meet our health and care needs? How do we ensure that people, living with long term conditions and disadvantaged by inequalities in health, are participants and beneficiaries of digitally-enabled health and care? What does this mean for Scottish businesses? If people are to participate in this growing market, what role does the third sector play?

Scottish Enterprise and the Health and Social Care Alliance Scotland (the ALLIANCE) commissioned this report to begin addressing these questions. It aims to scope existing stakeholders in the digital landscape, describe the current role of the third sector and identify the benefits, opportunities and barriers to encouraging citizen-led innovation for health and wellbeing.

It was a timely enquiry. During the three month period of developing this report the Scottish Government held its Participation Week¹ and launched a National Conversation on health and social care services in Scotland², the Institute for Public Policy Research published its report Improved circulation: Unleashing innovation across the NHS³, the Innovation and Prosperity for Scotland conference took place in Edinburgh⁴, The New Reality report⁵ considered the need for the third sector to transform its approach to using digital tools, the NHS in England launched its innovation accelerator programme⁶ and the 2015 Lloyds UK Business Digital Index revealed that over half of charities are currently lacking basic digital skills.⁷

Interest in citizen participation and health innovation is growing rapidly, with digital tools and services at the heart of much of it. 2016 will be Scotland's Year of Innovation, Architecture and Design and Dundee will be the UNESCO City of Design.

This report shares examples of people-powered innovation and highlights the enablers and barriers which support and hinder Scottish businesses from tapping into the potential of our greatest assets - the ideas and life experiences of citizens. You and me.

2. Research

It's often said that innovation is messy - it's not a straightforward, linear process - and that the challenges of healthcare are 'wicked', that is they are difficult or impossible to solve because of their inherent complexity.

It is therefore fitting that the research for this report took a distinctly non-linear approach. Representatives of Scottish Government, third sector organisations, design schools, Universities and Scottish businesses shared their insights in wide-ranging conversations rather than structured interviews. The combination of healthcare, innovation, citizen involvement and digital technologies made for fascinating discussions that shared a sense of optimism and possibility.

The following key themes emerged during conversations and associated reading:

The role of digital technologies in health and care

Developing health and wellbeing markets is about more than creating digital healthcare solutions. What roles do digital technologies play? What does citizen-led health innovation look like?

Barriers and enablers to innovation

Sometimes good ideas remain just ideas. What stops them turning into reality and what can we do to foster innovation? Building design methods and principles into business processes and service delivery will play a vital role.

Digital skills and capacity

Digital technology is woven into all aspects of the product development process. Linking digital and entrepreneurial skills is key.

Getting participation right

Creating conditions that encourage participation is fundamental - understanding the environments and skills required for *everybody* to be involved in innovation is critical.

3. The role of digital technologies in health and care innovation

Digital health and care innovation is much more than developing technology-based products and services. Digital tools are now woven into many aspects of providing care services, including improving internal business processes, identifying opportunities, connecting buyers with sellers and crowdfunding. This section considers some examples from Scotland and across the world:

3.1 Creating marketplaces

In Scotland The Digital Health and Care Institute (DHI), Scotland's centre for innovation in Digital Health and Care, provides a place for business, academia, the third sector and citizens to come together to develop new solutions. The DHI provides access to expertise and test environments, business mentoring support, facilitation and source funding. It believes that the potential market opportunity in Scotland⁸ could mean engaging with more than 200 companies, potentially establishing over 200 innovation collaborations and up to 140 new products and services.

Living it Up is Scotland's online self-management hub⁹, providing access to innovative health, care and wellbeing services, local information, volunteering opportunities and products. The Scottish Centre for Telehealth and Telecare coordinates digital health programmes such as United4Health (for patients living with diabetes, COPD or heart failure) and Unwired Health.¹⁰

Gov.uk hosts a Digital Marketplace¹¹ that helps those in the public sector to find people and technology for digital projects, while further afield, in India, the Honey Bee Network¹² is collecting 'grassroot' ideas and traditional approaches to problem solving and matching the idea holders with potential investors and business developers.

Crowdfunding platforms such as Kickstarter¹³ and Indiegogo¹⁴ are new types of marketplace matching people with ideas and products with potential micro-funders. Etsy¹⁵ is a place for people to find handmade items, vintage goods and craft supplies, describing itself as a global community. Creative entrepreneurs use Etsy to sell what they make. Manufacturers who partner with Etsy sellers help them grow their business and Etsy employees maintain and nurture the marketplace.

Givey, a tool that allows users to link personal experiences and activities with donations to charity, has created Givey Projects¹⁶ a place to support new and emerging ideas that are designed to help others.

3.2 Sharing ideas

Alzheimer Scotland have developed [Dementia Circle](#)¹⁷ which aims to find, test and share everyday products that help people with Dementia stay independent for longer in their own homes.

[Enabled By Design](#)¹⁸ is a UK-based online community to share ideas and talk about existing products and services for independent living. It considers how these might be improved as well as exploring how people can 'hack' or modify things to make them more accessible and easier to use.

[Maker Nurse](#)¹⁹ is a network which aims to understand what 'drives nurses to innovate and bring nurse making to the forefront of health care', documenting examples of nurses in the United States who are 'quietly creating solutions to improve patient care'.

The web service IfThisThenThat (IFTTT) allows users to create combinations of digital services and apps that link together to provide tailored data. There is a large collection of hand-crafted '[recipes for healthy living](#)'²⁰ that users have shared.

3.3 Developing solutions

"Innovation is necessarily messy. Most of the time it doesn't take place in gleaming purpose-built labs with groups of geniuses hi-fiving each other as they surf the waves of change. Most of the time it involves flawed human beings making it up as they go along, starting before they are ready, and stumbling along the way."

Unexpected Innovation Lessons from the Do Lectures ²¹

"Life is messy and innovation can very often start at home."

Jeni Lennox, Dementia Circle

Contributors to this report suggested that we are already in an era of citizen-driven innovation, where understanding of how technology is being used to improve health and wellbeing is driving the development of new solutions. In the following examples, people have found solutions to real needs informed by lived experience, sometimes using digital tools in unexpected ways.

The DHI's Factory environment has resulted in products such as [MyLittleOne](#)²² which helps to alleviate stress when newborn babies are separated from their families.

[ALISS](#)²³ funded by the Scottish Government and delivered by the ALLIANCE, was developed with people across Scotland to respond to the need to find information about hyperlocal support.

[NightScout](#)²⁴ has been developed in the United States by a parent of a child living with type 1 diabetes, to convert real-time glucose readings from a standard monitor, into data for his mobile phone, laptop and watch. The Twitter hashtag of the project is #wearenotwaiting .

The developer of [Freewheel](#) realised that no fitness trackers had been developed for wheelchair users like himself, so he worked with his technology agency colleagues in Austin, Texas to build one.²⁵

[Go Here](#) is a mobile app and membership organisation²⁶ that allows people living with Crohns and Colitis in Canada to confidently go out, using the app to find nearby toilet facilities, reducing fear, anxiety and isolation. In Japan, [the Alchoo-Lock Bike lock](#)²⁷ has been developed requiring cyclists to take a breathalyzer test before they can unlock their bike.

Third sector organisations in Scotland are using technology creatively to develop digital solutions - two examples follow and other examples are included elsewhere in this report.

PAMIS Digital Passports

'The idea didn't come from us' admits Hannah Young, researcher at [PAMIS](#) a third sector organisation which provides support for people with profound and multiple learning disabilities, their families and carers.

Hannah had been working with a family to develop a paper version of PAMIS' Personal Passport, a short document that a person with communication difficulties can use to provide useful information such as their likes, dislikes, specific safety and feeding needs. A carer asked if they could have the same information in digital form, on a tablet - and the answer was... yes.

The purpose of personal passports is to give readers a deeper insight into the person's personality and character. PAMIS have used the extra dimensions that software can offer to create a digital version. By simply creating a slide deck version, including pictures and videos, [PAMIS' Digital Passports](#)²⁸ provide a richer experience for all concerned. Personal Passports acted as a paper prototype, enabling the vision of the digital version.

This is the type of a simple but transformative idea that is perhaps more likely to come from the third sector. PAMIS staff have first hand experience of the challenges faced by the people they support on a daily basis and are in a strong position to respond with solutions, modifying them when appropriate.

PAMIS have many ideas about how to develop digital passports. Cloud storage would make sense for example and PAMIS are talking with local companies in Dundee to explore this. But there is also potential to develop this as a commercial product with wider application for a range of conditions. Any revenues from such a development could help to sustain the venture.

A significant barrier is funding. Further development will take time and money and PAMIS are currently in the process of bidding for funds.

Carer's Link

One of the many challenges that carers face is having a break from caring duties and leaving the house. Carer's Link, who support carers throughout the East Dunbartonshire area, noticed that people were often not showing up to courses and events so staff used some in-house skills to create online materials that could be accessed from home.

Using some basic equipment, the team created videos and webcasts and gathered feedback from carers. The reaction to the Link and Learn service ²⁹ was very positive and they've continued to develop more materials, partnering with local services to create locally-tailored resources.

One participant said "Good to be included if not able to be there - participation was part of "me time" ! "

Having been awarded additional money from the ALLIANCE's IMPACT fund ³⁰, which aims to build capacity and encourage new approaches to self management, Carer's Link investigated the cost of working with agencies to improve the quality of their output but found it prohibitive. It seems that keeping it simple and in-house is the most cost-effective way to continue the service sustainably.

The service was recently nominated for a Community Impact Tech4Good Award. However it is a local service with no plans to venture beyond East Dunbartonshire. What might the potential be if this could be scaled further afield?

3.4 Sharing information and insights

In his book Where Good Ideas Come From: The natural history of innovation ³¹ Steven Johnson talks about networked innovation and the benefits of connecting people to develop ideas. He suggests that networks widen the pool of people that can come up with and share ideas:

"This is not the wisdom of the crowd, but the wisdom of someone in the crowd. It's not that the network itself is smart: it's that the individuals get smarter because they're connected to the network."

Bespoken is a Scottish online community ³² that 'seeks to share information, stimulate innovation and put disabled people at the heart of the design process'. Bespoken has been developed by the Blackwood Foundation, which provides accommodation and care for people with disabilities and has a focus on innovation and digital inclusion.

Blackwood's 2015 Design Awards ³³ have attracted interesting ideas from around the world including SAT, an adaptable bus interior, ³⁴ designed by a student from Aberdeen to improve inclusiveness and confidence for wheelchair users, eliminating social prejudices. She reflects:

“Bespoken has played a huge part in my design process; the forum allowed me to gain valuable insights from wheelchair users and understand what real life problems they face. It allowed me to ask questions and find out their thoughts and find out what a wheelchair user feels both physically and mentally. It allowed me to find out what the major problems are but also was interesting to learn about each individual’s problems.”

The ALLIANCE is a partner in The European Patients’ Academy on Therapeutic Innovation (EUPATI) ³⁵, a Europe-wide project aiming to provide online information to patients on medicines research and development and increase the capacities and capabilities of patients and patient organisations to be effective advocates and advisors in medicines research.

Sites such as Patients Like Me ³⁶, based in the United States, and the UK’s Patient Opinion ³⁷ not only provide a place for people to share stories and access support but also collect insights and contacts which can be used to help with product development. Patients like Me sells non-personal information to companies who are creating new products for the communities that the site serves.

The potential for these platforms to provide insights will be explored by Demos and The King's Fund in Could Online User-Generated Content Revolutionise Health Services? ³⁸ This exploration of citizen and patient generated data will consider the collection and analysis of these new data sets and how online communities can be integrated into health care.

3.5 Funding

Crowdfunding platforms such as Kickstarter¹³ and Indiegogo¹⁴ provide new models for funding and testing the viability of ideas as well as opportunities for individuals and organisations to pledge support and money towards development.

Cards for Mindfulness

Buddhify, a successful mindfulness app developed in Scotland, has responded to user feedback and stories of how meditation has helped with areas such as pain control, by creating new tailored guided meditations. Multiple digital channels allow Buddhify to work directly with people who benefit from the app to improve it.

Its creators Mindfulness Everywhere³⁹ recently tested out an idea on Kickstarter - Cards For Mindfulness⁴⁰ a set of 48 cards which have an inspiring phrase or idea on one side and a more detailed exercise related to that phrase on the other.

During May 2015, 1,627 backers pledged more than £54,000 (more than twice the target amount) to fund the production of the cards. As the process passed a 'stretch' goal, 100 sets of Cards for Mindfulness will be gifted to the Mental Health Foundation.

The cards were chosen as the tactile quality of a physical product provided a different approach to practicing mindfulness as well as a practical way to spread the word.

Digital technology provided an ecosystem of development, feedback and funding mechanisms, that has allowed this small Scottish company to respond to people's needs and provide access to products that their users told them improved their health and wellbeing.

3.6 Transforming third sector service delivery

"Start working out how tech-enabled services can help your organisation deliver its core purpose - but beware, unless you're also working to digitally transform yourselves as an organisation, you may be trying to run before you can walk."

The New Reality report

The New Reality report⁵ is an excellent resource for the third sector. The report identifies the opportunities and challenges of using digital technologies. It highlights the changes in culture, skills and business models that are required if third sector organisations are to take advantage of the ways in which digital technology can transform their services and business processes.

Similarly, New Philanthropy Central (NPC) a charity think tank and consultancy is exploring the potential for third sector organisations to develop digital tools for internal use in their Digital Transformation programme.⁴¹ The outcomes will provide a useful resource for the Scottish third sector.

3.7 Future opportunities in digital health and care markets

While the high-tech world of digital health promises a world of new technologies such as drug screening using organs-on-chips⁴² and 3D printed customized medicines⁴³, it is likely that citizen-led innovation will employ technologies to address day-to-day care needs. Contributors to this report suggested that near-future opportunities are likely to revolve around immediate needs such as care provision.

Who cares⁴⁴ suggests that future digital technologies may have a role in building networks of care which improve connections between older people and their carers, and increasing engagement with the community. Refilling the Innovator's Prescription: The new wave of medtech⁴⁵ predicts that new products which integrate with existing healthcare products and services, such as mobile apps, show the strongest promise.

There will be significant opportunities for businesses, charities and social enterprises to improve the lives of those living with dementia and their carers, through innovation.⁴⁶ It cites Remember Me⁴⁷ which suggests that in dementia care alone, the growing gap between funding for care and the number of likely diagnoses will stimulate innovation in products and services that help people to live independently and navigate the health and care systems. Tools are already emerging in this area such as FutureGov's Lantern⁴⁸ which helps people find local care services, Buddi⁴⁹ a personal emergency response wristband and Jointly⁵⁰ a mobile and online application created by carers for carers, developed by Carers UK. It is designed to make caring easier and less stressful by combining group messaging with other useful features such as medication lists. NESTA's Living Map of Ageing Innovators⁵¹ is a growing list of products and services being developed in this space.

Students at the Universities of Glasgow and Strathclyde have responded to the dementia care market by creating Mindmate app, working with Dementia Carers Voice, based at the ALLIANCE, to explore its development and adoption. MindMate was a recent winner of The Young Innovators Challenge, run by the Scottish Institute for Enterprise.⁵²

Organisations are developing a visions for the future which explore potential uses of technology. NESTA's optimistic take on a future health system The NHS in 2030: a people-powered and knowledge-powered health system⁵³ provides a vision of healthcare in which, not surprisingly, digital technology plays a leading role.

D Health, a company that brings together investors, healthcare companies, third sector organisations and citizens to design future healthcare products through its Catalyst service is looking to 2018 to consider the fast-changing world of wearable technologies.⁵⁴

The consumer collaboration consultancy C Space suggests that asking people 'What is going to happen?' not 'What are *you* going to do?' can give insights into future products and services.⁵⁵

3.8 Reflections on the role of digital technologies

- Digital technologies can play many roles in health innovation - from raising funding to helping organisations to operate more effectively. This increases the opportunities for people to participate in a way that suits them.
- In addition to providing feedback and therapeutic support, services and forums that connect people can provide insights and spread and amplify ideas. Looking in new places such as crowdfunding and maker spaces to learn how people are innovating and using technology to develop, make and spread their ideas would be useful.
- Digital technologies that transform health and care don't have to be complicated. Innovations that will make a difference to people's lives are likely to help them to live independently, build networks of care and navigate the care system. The third sector are in a strong position to help citizens to articulate these needs.
- Gazing into the near and far future will help us to develop ideas about how to begin responding now.

4. Barriers to innovation

'Whilst we are good at inventing and developing new technologies, the spread of those inventions within the NHS has often been too slow, and sometimes even the best of them fail to achieve widespread use.'

Improved circulation: Unleashing innovation across the NHS.³

What barriers hinder the development and spread of health and care innovations?

Bloomberg⁵⁶ gives examples of small businesses that have found it hard to work with the complexity of the NHS. Having come up with the idea for Sleepio after developing insomnia, the creator took the business to the United States where the market is potentially less complex.

The Institute for Public Policy Reform looks at this problem in detail ³. It considers why, in a time of constrained funding when technological innovation should be a powerful tool for improving healthcare, there is evidence that the UK is lagging behind embracing innovative technologies. The report states that, while 59 per cent of all UK citizens have a smartphone and 84 per cent of adults use the internet, only 2 per cent of the population report any digitally-enabled transaction with the NHS.

The report presents useful analysis of internal 'market forces' in NHS England and suggests barriers to spread and adoption of innovation:

4.1 Search friction

The NHS is not a single entity but a large, fragmented collection of thousands of individual organisations including nearly 11,000 GP surgeries. Buyers and sellers simply find it hard to find each other.

4.2 Principle-agent problem

Most healthcare technology is procured based on the priorities of the healthcare provider, however if procurement was based on the wishes and needs of people using the technology, development might well be steered in a different way.

4.3 System Disincentives

Even when innovative ideas are put into practice, they may present a funding disincentive - for example an idea that reduces the number of surgical operations by half may also reduce the hospital's income, if payment reflects activity.

4.4 The cost of innovation

Almost all innovations require an upfront investment and this can be a disincentive for funders.

4.5 People empowerment

While people empowerment might be seen as a way of increasing the ability of people to demand innovation, the report suggests that this is currently an underdeveloped aspect of the empowerment agenda which tends to focus instead on rights, voice and choice.

Further barriers were cited in other reports and during conversations:

4.6 Funding and funding models

Funding was an issue raised by many contributors to this report. The Kings Fund and Health Foundation describe the need for a fund that would support a system in which innovation and new models of care can flourish.⁵⁷

Who cares concludes that 'Social entrepreneurs are at the forefront of designing new technologies that can improve the informal care market, but they are being held back by a lack of investment'⁴⁴ while the ALLIANCE's Building on IMPACT report³⁰, notes that funded self-management projects have highlighted 'difficulties with sustainability, despite a desire to tackle it.'

4.7 Opportunities to meet and share ideas

One of the biggest barriers cited by contributors is that people in different sectors don't have an opportunity to meet each other or citizens to explore opportunities together. This was echoed as the 'strongest overarching theme' emerging from the People Driven Digital Health and Wellbeing event in May 2015⁵⁸ which called for more opportunities for people from different backgrounds and situations to connect, network, learn and re-imagine health and care enabled by digital tools and services.

4.8 Power and language

Citizen-led innovation will only happen if spaces are created where the power balance is equalised - where citizens, health and care professionals, public servants and business owners have an equal voice and use a shared language. Even the terms 'user', 'service user' and 'user needs' may frame the conversation in unhelpful ways.

4.9 Time and Skills

The Lloyds UK Business Digital Index⁵⁹ an in-depth survey of 2,000 Lloyds Bank and Bank of Scotland customers, found that over half of UK charities currently lack basic digital skills,

compared to less than a quarter of small and medium sized businesses, where basic skills include using digital tools to communicate, provide information or undertake transactions.

Time and a lack of people or skills were cited as significant hurdles to embracing digital technology.

Digital Participation in Action⁶⁰ translated these figures into a Scottish context. Over 20,000 charities and voluntary organisations in Scotland are lacking basic digital skills, rising from 51% in 2014 to 52% in 2015. The report points out that organisations that embrace digital opportunities 'grow faster, innovate more and do a better job of meeting the needs of their clients and customers'.

4.10 Spaces for innovation

When asked about examples of innovation being embedded into business practice, a number of contributors described Scotland as being 'behind the curve', and cited the need to create spaces for innovation to flourish inside organisations.

4.11 Reflections on barriers to innovation

- The barriers to innovation are complex.
- We need to explore 'search friction' in the Scottish health sector. There are mutual benefits for both businesses and the third sector through strengthening connections between people with ideas and those who can develop and market them. The third sector can play a role in building a demand for innovation through the self management and people powered health and wellbeing agenda.
- Some third sector organisations and Small and Medium-sized Enterprises (SMEs) in Scotland lack the skills required to take advantage of the opportunities that digital technologies bring.

5. Enabling innovation

So, what allows innovation to happen? What support is available to help Scottish businesses and the third sector to overcome barriers to innovation?

5.1 Funding streams and models

While funding is a challenge, there are sources of finance which support innovation. Organisations that have offered funding and support through competitions and design challenges with a focus on health and wellbeing include [Google](#)⁶¹, [The Design Council](#)⁶², [Innovate UK](#)⁶³ and [NESTA](#).⁶⁴ The [Interface Health Excellence Challenge](#)⁶⁵ is a global competition to find the world's 'most innovative' health entrepreneurs.

Since 2013 the [ALLIANCE IMPACT fund](#)³⁰ has allocated £6 million to third sector organisations to develop and strengthen new project ideas that support self management as well as building upon existing approaches.

The Scottish Council for Voluntary Organisations (SCVO) [Digital Participation Challenge Fund](#) supports projects that enable groups and organisations to digitise content, build digital networks and improve the digital skills of their members.⁶⁶ The [funded](#) projects include initiatives to [support the deaf community](#) to develop their digital skills and explore the use of [personal data stores using the Mydex platform](#).

Contributors to this report suggested that, in addition to funding sources, new models for funding and business should be explored. NESTA suggests⁴⁶ that social investment - investment that seeks social as well as financial return - will help to sustain health and care innovations in financially-constrained times. In Scotland, organisations such as [Social Investment Scotland](#)⁶⁷ could provide guidance to these new approaches and the outcomes of the Glasgow-based research [looking at the potential for microcredit to improve public health](#) will provide useful insights.⁶⁸

5.2 Building third sector skills

Contributors to this report commented that third sector organisations can learn from business processes and technology development techniques such as [agile approaches and user-centred design](#) and this theme is being explored in NPC's [Digital Transformation programme](#).⁴¹

[The New Reality](#) report⁵ offers guidance on how third sector organisations can use digital technology to transform their processes and service delivery, including advice on innovation which is explored further in 5.5.

In Scotland, the [Digital Participation Charter](#)⁶⁹ provides a framework for organisations to support digital participation partly through building their own skills, while their [Digital Intern programme](#)⁷⁰ is helping to build basic digital skills inside organisations, through a partnership with [Scotland IS](#). This is similar to Northern Ireland's [Techies in Residence](#).⁷¹ Social media skills are important too and [Third Sector Lab](#) brings people together from Scotland's third sector and public services to explore its use.⁷²

In June 2015, Google announced [support for Nonprofits in Scotland](#)⁷³ giving third sector organisations access to a suite of premium Google services for free to help them improve their reach and work more effectively and efficiently.

Organisations such as [Startbright](#),⁷⁴ [Ready for Business](#)⁷⁵ and [SenScot](#)⁷⁶ provide practical business-related information and tools for start up social enterprises in Scotland. [FirstPort's Vital Spark programme](#) is encouraging people in Argyll to respond to local needs with social enterprise ideas, providing entrepreneurs with one to one business training, mentoring from industry experts, funding and free workspace.⁷⁷

In the United States, [the Non-profit Technology Network \(NTEN\)](#) is a community of technology professionals with the common goal of helping nonprofits to use all aspects of technology more effectively.⁷⁸

5.3 Building business sector skills

Over 80,000 SMEs in Scotland lack basic digital skills⁶⁰. So, what support is available to businesses in Scotland and what skills might SMEs benefit from?

[The Tech Partnership](#)⁷⁹ is working with the Scottish Government, Skills Development Scotland and Highlands and Islands Enterprise to develop digital skills, while [CodeClan](#) is Scotland's first dedicated digital skills academy⁸⁰ which aims to teach young students to code and develop software development skills.

Events such as [CanDo Scale](#)⁸¹ aim to develop the skills of entrepreneurs in Scotland with an internationally relevant idea, while in September 2015, Scotland's innovation summit [Venturefest](#)⁸² is aiming to strengthen the connectivity between innovators, investors and entrepreneurs.

[Citrus Mind](#)⁸³ is a Network Integrator for Scottish Enterprise in the Digital Health and Care sector in Scotland, connecting the ecosystem of hardware and software companies, professional services, third sector enterprises and service infrastructure providers.

5.4 Developing design skills

In addition to developing digital skills and awareness, there is also a need to build design skills in the business and third sectors. Resources such as Bright Idea Scotland's [Innovators Checklist](#)⁸⁴ or Innovate UK's [Advice and Guidance on Innovation](#)⁸⁵ appear to have little guidance on co-production approaches.

However, in some areas of Scottish public services and third sector there is an increasing awareness of the benefits of co-production and person-centred design. Through networks such as the [Co-Production Network](#),⁸⁶ movements such as [ULab](#) and the ALLIANCE's [Health and Social Care Academy](#) and [People Powered Health and Wellbeing programme](#)⁸⁷ opportunities exist for the business and third sector to learn together and develop a shared language and joint approaches to designing with citizens.

5.5 Creating spaces for innovation

Where spaces for innovation are being created, new ideas are flourishing:

In Scotland, [Scott and Fyfe](#), a textile designer and producer based in Tayport has placed 'innovation, diversity and partnership' at the heart of the company's ethos, having worked with the Glasgow School of Art to [develop a culture of innovation](#) inside the organisation.⁸⁸

"An important tool for innovation is space for reflection. Space in terms of both physical and mental. A physical space away from the normal working environment which allows you to think differently. A mental space where there is time and creative freedom to understand, adapt and grow the business into today's fast markets." (Scott and Fyfe)

The DHI hosts [Experience Laboratories](#) '... a safe environment where users (service users, carers, clinicians, practitioners and third sector), businesses and researchers can collaborate and rapidly prototype in response to health and care challenges.'⁸⁹

[Techshop](#) in the US provides a space for makers to work together.⁹⁰ Ford have created a partnership with the organisation to allow employees access to a space in Detroit. 'The future of innovation lies in the hands of customers and employees who identify automotive design problems. Giving those employees passes to a hackerspace is a giant step toward finding solutions.' [according to the CEO of Ford Global Technologies](#) 'An idea on paper is easy to kill, but when you create a prototype of it and a supervisor can see it and experience it, it's harder to say no.'⁹¹

The [Little Devices group](#) at The Massachusetts Institute of Technology has created a maker lab which explores the use of cheap technologies, such as those used in toys, to create affordable health solutions that work in challenging locations such as developing countries. An associated course [Maker Lab: Creating Technologies to Re-invent Health Care](#) aims to teach affordable prototyping and design strategies for health technology and medicine that can be applied to improve patient care.⁹²

The New Reality report's [section on innovation](#)⁵ is a useful resource for organisations wondering how to start doing things differently. The report describes two useful models that non-profits can use to create spaces for innovation:

Create your own startup - borrowing culture and techniques from start up companies, internal development teams work in a completely separate environment. Teams are not asked for an immediate return on investment and are allowed to fail fast and aim learn quickly.

Establish an internal Research and Development programme - create a separate environment that allows cross-department teams to tackle challenges together, free from the constraints of the organisation and with protected time and budget. An example is Shelter's Innovation Lab which gathers staff for two days to develop ideas around a challenge and then two further days to design and build a working minimum viable product.

In Scotland, the third sector is beginning to experiment with these approaches:

SCVO Labs

SCVO Labs ⁹³ is experimenting with a new approach and describes it on its [website](#):

'Unlike other projects, we're structured and run like a startup. This gives us the space we need to move fast, to try new things and to give our users our complete attention. We're inspired by those who put bravery and creativity before playing it safe...'

The first product will be a feedback platform for charities and good causes in Scotland.

'We want to make it easier for people to talk about their experiences with charities and good causes, to celebrate all the good things that are happening in civil society in Scotland, and share authentic, meaningful and open feedback as a way to encourage improvement. In the process, we also hope to make it easier for others to find out about charities and good causes they might be interested in, and to see what people are saying about them'

Carr Gomm Futures

Talking about change is one thing, doing something about it is another. [Carr Gomm](#) ⁹⁴, a Scottish charity providing social care and support, decided to do something.

Working with leading Scottish service design agency Snook, they have created a space inside the organisation called Carr Gomm Futures, a new place for ideas to emerge and flourish. During a series of workshops, staff used service design principles and methods and learned to appreciate the value of prototyping, the benefits of making small changes and need to involve people from all levels, across the organisation.

Digital tools will ensure that staff across Scotland are involved, bringing yet more benefits as ideas from even the remotest office are being heard.

So what are the benefits of this new approach? First, it will help to keep senior levels of the organisation in touch with the front line challenges and successes. Second, it will allow ideas from every part of the organisation to be heard. Perhaps most importantly, it will encourage testing of low risk, small changes. Gregory Hill-O'Connor, Futures Lead at Carr Gomm reflects, "it's the day-to-day things that make a difference to the people we support."

Developing innovation partnerships The New Reality report⁵ also cites the advantage of developing innovation partnerships, bringing digital skills and approaches in from experienced, external organisations. In Scotland, Carr Gomm is using this approach to develop its Click Go service:

Carr Gomm's Click Go

In 2014 Click Go⁹⁵, an online tool developed by Carr Gomm, was shortlisted for the Google Impact Challenge awards. The charity, based in Edinburgh, was the only Scottish representative in the final 10 projects.

Click Go provides a simple approach to a complex and growing challenge - how do we enable and empower people who require support to live independently and navigate the care system?

Carr Gomm's Chief Executive believed that the organisation could tap into emerging digital tools and Click Go was developed to allow more control to those who access support services, enabling people to communicate with Carr Gomm, request appointments, manage their social care budget and record progress towards personal goals.

Original funding from Scottish Government allowed the organisation to develop the idea with around 100 people that they support, gaining valuable feedback and shaping ideas for future development. Importantly, they developed the idea with a technology partner who provided their scheduling software, ensuring that the tool communicates directly with the appointment handling system back at the office.

A cash injection from the Google Impact awards⁶¹ allowed Carr Gomm to overhaul Click Go completely, working with a new technology partner Planys Cloud in Dunfermline. According to Chloe Burton, Click Go's project lead, this has been a learning experience for the agency as it hadn't worked on social care-related applications before. The partnership with Carr Gomm allowed developers to work directly with people who would directly benefit from the service. "If you're used to using technology it's hard to get in the mindset of those who aren't."

Rather than focus on a condition, Click Go provides reassurance and control over day-to-day issues. A photograph and profile of support workers in the appointment schedule means that the supported person knows who and what to expect. A record of Self Directed Support budget expenditure gives greater control over budgets and the ability to record progress towards a personal outcome provides a new way to record, discuss and measure service impact.

There are additional benefits for Carr Gomm. The tool communicates directly with their scheduling software so office support is now more efficient and using digital tools has introduced new staff skills. Other providers who don't already have a digital information management system can use Click Go's back office system to manage their rotas and securely store information about people who are being supported.

There is no shortage of ideas for further development. There is potential for including other care services into scheduling and payment tracking and the development of a subscription service that will help to sustain Click Go's development. Click Go is available to other providers and individuals to make choice, control and independence a reality for everyone. In addition, 'big data' collected through the system will facilitate reporting at a local and national level. Local authorities will have access to aggregated data reporting on individual budget spend against outcomes, in order to target management decisions and see which people should be prioritised for attention.

The disempowerment which is often associated with social care is likely to be best described through lived experience. Third sector organisations are in a unique position to witness and describe this and work directly with people to articulate what might help.

A combination of Carr Gomm's appreciation of the real-life challenges faced by service providers and users, funding opportunities and the advent of digital technologies has brought about a solution that can develop new partnerships, new skills and perhaps new funding models. Most importantly, the people that Carr Gomm support are being reassured through Click Go.

5.6 The importance of design

"Having a digital strategy will soon seem as ridiculous as having an electricity strategy."

This quote from Kay Boycott, CEO of Asthma UK in [The New Reality report](#)⁵ observes that having a digital strategy separate from the broader organisational strategy is becoming less relevant. It should just be the way that we do things. Perhaps this is also true for design.

One contributor to this report recommended that if searching for examples of innovation in business 'look for businesses where design is valued'. Others noted that good design is key and that getting people and designers into a room at an early stage is important.

A proposal to bring design skills to Scotland's health and wellbeing sector was developed in 2012. [Matchable Health](#)⁹⁶ was proposed as a brokerage service, linking service design students with health and wellbeing organisations.

A fundamental aspect of building design principles into our approach to innovation is understanding human behaviour. Scottish service design agency Snook [describes it](#)⁹⁷ as 'the generation of a deep and holistic understanding of the service user experience'.

One contributor to this report urged "Don't start with user needs, start by understanding people's lives." This is echoed in NESTA's [NHS in 2030](#)⁵³ which imagines a health service which takes human behaviour 'seriously', where insights into behaviour help redesign health services, products and treatments that reflect how people live their lives.

The importance of understanding behaviour in the context of digital health products is illustrated in the short film [Uninvited Guests](#),⁹⁸ which imagines the frictions between an elderly man and his future 'smart' home. Created by Superflux Lab for the [ThingTank](#) project, the film shows the potential conflict between products developed for perceived needs and the realities of life. 'In a world where 'smart objects' will increasingly be used to provide care at a distance, how will we live with these uninvited guests?'

The following Scottish example highlights the importance of design in developing a product which can make a difference to people's daily lives:

S'Up Spoon

Grant Douglas has a degree in computer science, two jobs ... and shaky hands. Living with cerebral palsy means that eating with unwanted movements can be a challenge but, in 2014, Grant had an idea for a [different type of spoon](#) that might just help.⁹⁹ A chance connection with a graduate intern at [4c Design agency](#) in Glasgow resulted in various prototypes and finally a marketable design.

"Initially, S'up was designed just for me as a social project ... then after realising the difference it made to me, we decided to go into production"

Grant tried raising funds on [Kickstarter](#) to put the spoon into production but that didn't raise enough initial capital. 'Failure to achieve funding from Kickstarter did delay the project as we had hoped to get the spoons on the market by December 2014, but this didn't happen until April 2015'. This was only achieved through getting support from four private donors and finding a cheaper way to get them produced, using a different material.

On the [S'Up website](#) Grant explains the pricing (£15) to potential buyers:

'We have invested many \$10,000s into its development, like many of the 'best designs' it is simple and so on the face of it looks 'just like a plastic spoon', the reality is that value (and cost) lies in the hundreds of hours of development time and 'failures' in order to get something that we believe works well for those with shaky hands.'

The design process is clearly important ""The product designer must work very closely with the person/people who is going to use it and each and every prototype has to be user tested." S'Up Spoon is now attracting interest worldwide and Scottish Enterprise has supported the venture by facilitating a strategy day.

"S'Up would've probably never happened without technology especially the internet, I hope that we can start to live in an age where designers can start to design mainstream products that are accessible to all."

"It has given me back my independence to eat and enjoy a whole meal without sharing it with my clothes or surroundings."

5.7 Reflections on enabling innovation

- The Design world can bring skills, expertise and insights to the world of digital health, long before a line of code is written.
- There are sources of finance to foster innovation but there is a need to develop new, sustainable funding and business models.
- Digital skills need to be developed in the third sector and SMEs. Are there more opportunities for skill sharing such as digital intern programmes?
- Creating cultures of innovation inside organisations will be important if organisations are to realise the benefits and potential of digital technologies. Creating internal spaces for innovation and collaborative spaces for cross-sectoral interaction will provide more opportunities to allow citizens to participate.
- Third sector organisations are experimenting with new ways of working but awareness needs to be raised and examples shared more widely.
- If we are to put people at the heart of the development of healthcare products and services, businesses and third sector organisations will need to build design principles and approaches into their processes.
- A system that links Scottish service design students with health and social care projects could help to develop these skills. A blueprint for a brokerage service already exists¹⁰⁰ and could be considered for implementation.

6. Opportunities for citizen participation

A lack of opportunity for people in different sectors to meet each other and citizens to explore ideas together was cited as a major barrier to citizen-led innovation. This section further explores the important subject of participation.

The need to build participation of people into service redesign is at the heart of public policy, but creating the right conditions for people to join in and to have a voice is a challenge. When designing new models of care, we need to learn new ways of working together with people if we are to reap the benefits of participation which contributors described.

So, what do we mean by participation? In 'Patient Participation In Health Care Consultations: Qualitative Perspectives'¹⁰¹ patient involvement is categorised as 'basic, often delegated tasks' and described as a precursor to patient participation, which 'requires a narrowing of the information/competence gap between professional and patient, with some surrendering of power by the professional'. This is especially relevant in Scotland which has a record of inequalities in health.

6.1 The value of participation

People who have experience of living with health conditions are more likely to be able to describe a real problem rather than a perceived problem. People who live with multiple conditions, for example, are more aware of the 'bigger picture' and may have insight into how a product or service can make a difference to their lives. It's this valuable insight which business and developers can harness to create innovative solutions.

Contributors suggested that people are in a good position to drive the pace of change. With the rise in device ownership and a better understanding of the possibilities that technology brings to different aspects of their lives, many people have a good understanding of how technology can be used to maintain and improve their health - or in some cases, how to develop their own ideas. This is the theme of 3 Generations Of Smart Cities¹⁰², which suggests that we have moved from a technology-driven phase, through a city-led/technology enabled phase to a third phase of embracing 'citizen co-creation models' or citizen-led use of technology. Importantly, the author notes that Smart Cities 3.0 appear to be 'grounded more in issues of equity and social inclusion'.

An IPPR report¹⁰³ states that 'Empowerment over one's health and care is both a good thing in and of itself, and because it tends to produce better outcomes for patients'. The ability to exercise control, better self management and resulting financial savings as well as higher patient satisfaction are all cited as outcomes from engagement.

Contributors to this report suggested that being involved in the design and development of a product fosters a sense of ownership which may, in turn, lead to people adopting and championing its use.

The responsibilities associated with encouraging participation must also be considered. Patients Included has a charter that provides 'conference organisers with a means of demonstrating that their events are committed to incorporating the experience of patients as experts in living with their condition while ensuring they are neither excluded nor exploited'¹⁰⁴.

For third sector organisations and businesses wishing to co-develop new health solutions, learning how to enable participation could bring benefits in terms of better insight, the development of better products that truly address the health challenges of daily life and possibly 'people-powered promotion'.

6.2 A national view of participation

In the first half of 2015, during what the Democratic Society described as Scotland's participation 'spring'¹⁰⁵, a bigger conversation about participation took place. The Scottish Government's Participation week¹ was held in June 2015 with 26 events involving around 600 people. It was aimed at those involved in public services, to 'provide space to think about how we put people at the centre of our work, why this matters and explore what we really mean by participation.'

One of the themes was new models of democracy, exploring the example of a 'Ting' or an 'assembly', an idea borrowed from a Norse tradition where spaces were created across the country for decision-making. The idea of creating 'Tings' in Scotland, as potential collaborative spaces for people to come together to define and address problems that need solving, is currently being considered.

On 5th August, 2015, the Health Secretary Shona Robison launched a National Conversation on health and social care services in Scotland, in partnership with the ALLIANCE². The National Conversation is an opportunity to explore what services should look like 10-15 years time with a focus on capturing citizens' ideas.

To support improvement and to empower people to be equal partners in their care at an individual, local and national level, Our Voice¹⁰⁶ aims to ensure that people who use health and social care support and services, unpaid carers and the wider public can engage purposefully with providers.

6.3 Enabling participation

Conversations for this report revealed several examples of companies and public bodies working with design partners such as Glasgow School of Art to understand more about the art of engagement, which is entirely different from traditional consultation with focus groups. Digital processes and tools are changing the way in which we participate. Digital forums and social media provide opportunities for continual contact, creating a new cycle of participation. Instead of consulting groups every six months or so, we can now be in touch regularly, testing ideas and gaining feedback.

While digital platforms are providing new ways for everybody to get involved in product development, design and funding new technologies, Labs, Camps and Hacks are bringing diverse groups of people together in the same physical space to develop ideas and fix everyday problems. Examples of this range of participation models include:

6.3.1 Living Labs

The [European Network of Living Labs](#) (ENoLL) describe Living Labs as user-driven innovation environments, where users and producers co-create innovation in a trusted, open ecosystem that enables business and societal innovation.¹⁰⁷

In March 2015, the World Bank and ENoLL published [Citizen-Driven Innovation - A guidebook for city mayors and public administrators](#)¹⁰⁸ which documents 15 case studies from labs around the world.

In July 2015, NESTA hosted [LabWorks](#) an annual event that brings together the growing international network of innovation labs.¹⁰⁹ At this event NESTA launched a [Health Lab](#) which will focus on using social and digital innovations to significantly improve health and ageing.

Edinburgh, Dundee, Glasgow, and Napier Universities and the Edinburgh College of Art and Glasgow School of Art are collaborating through the [Edinburgh Living Lab](#).¹¹⁰

6.3.2 Hackathons and innovation camps

Hack events continue to bring developers, designers and citizens together to develop ideas and solutions. In September 2015 the [Association of Chief Officers of Scottish Voluntary Organisations](#) will hold [Charity Hack Scotland](#) in Edinburgh¹¹¹, to consider how technical innovation can improve the work of the third sector in Scotland. Digital challenges will be set by six charities: [Drake Music](#), [Breast Cancer Now](#), [The Carnegie Trust](#), [CVS Inverclyde](#), [Carers Trust](#) and [Visibility](#).

[NHS Hackday](#)¹¹² and [UKHealthCamp](#)¹¹³ address specific health issues, while in Scotland [Cyclehack](#)¹¹⁴ is developing new ideas around encouraging cycling and [Edinburgh Apps](#)¹¹⁵ aims to 'change the city, by providing creative, customer driven solutions to city challenges'.

[Bethnal Green Ventures](#)¹¹⁶ which grew from Social Innovation Camp, an early innovation movement, is an accelerator programme which aims to foster the '...huge potential for the online world to radically improve things that really matter in the offline world'. The University of Edinburgh's Design Informatics group hold occasional [Collider events](#)¹¹⁷ to link computational and design thinking by bringing informaticians, designers and problem holders together.

6.3.3 Pop-up Culture

3space works with property holders to make empty commercial space available free of charge for community use.¹¹⁸ This creates temporary experimental spaces for organisations to test out ideas and work with communities.

Know Sugar used empty retail space in Dundee to engage with the public about sugar levels in food¹¹⁹. The project was a collaboration between Design in Action,¹²⁰ Scottish service design agency Snook¹²¹ and business strategy and innovation firm, Ideality.¹²²

6.3.4 Business

D Health brings together investors, healthcare companies, third sector organisations and citizens together to design future healthcare products through its Catalyst service, a subscription based, membership programme which promotes 'at scale' digital healthcare.¹²³

6.3.5 Digital platforms

The web is a perfect environment to develop places for people to participate in different ways. Cancer Research UK has taken a citizen science approach through Cell Slider which allows people to contribute online by 'spotting' cancer cells¹²⁴ while NHS England has created NHS Citizen to enable people to play an active role in the future of the NHS.¹²⁵

Cloud-based innovation software IdeaScale¹²⁶ offers users the chance to suggest, vote for and discuss ideas. It is now developing a new service IdeaBuzz¹²⁷ which will enable users to take part in challenges set by organisations - contributing through participation rather than by funding.

Enabling citizen participation in Tayside

A 2011 Department of Health report¹²⁸ called for "... a stronger relationship with the scientific and academic communities and industry to develop solutions to health care problems and get existing solutions spread at pace and scale in the NHS."

An outcome of this report was the development of Academic Health Science Networks which aim to link academia and industry with the NHS, to identify high impact innovations and spread their use at pace and scale throughout their networks.

The first Academic Health Science Partnership (AHSP) in Scotland is in Tayside, a collaborative project between NHS Tayside and the University of Dundee. The AHSP has three main workstreams - research, education and lifelong learning and is planning to put "Healthcare Design" at the centre of the project.

A member of the AHSP team, Rod Mountain an Ear Nose and Throat surgeon at Ninewells Hospital, is championing the development of the AHSP through engagement with patients, carers, local citizens, the arts and humanities and the third and private sectors. The AHSP aims to create a physical space for a healthcare design and innovation hub in the foyer of Ninewells Hospital. Rod comments:

"Communication with patients and the wider public is so important - we need to showcase our AHSP activities that improve patient care and also provide a space where public, staff and patients can be encouraged to bring novel ideas forward for investigation, research and development. We need to change traditional healthcare convention, turn our medical thinking through 180 degrees and ask our patients for their ideas on how to improve patient care."

Rod's vision is to design systems and services that combine all these local Dundee talent and resources in a public and virtual space, and sees the third sector playing a vital role in making this happen.

Rod is keen to develop ideas by simplifying processes and providing an environment where the third sector and industry can work together. "When I was trainee in Edinburgh 20 years ago it was easy to take an idea forward and carry out baseline research - now it's just too complicated by bureaucracy and by very limited structural support for the individual health service entrepreneur."

Tapping into local expertise at the [Duncan of Jordanstone College of Art and Design \(DJCAD\)](#)¹²⁹ and organisations such as [Creative Dundee](#),¹³⁰ Rod has seen the significant value that design brings to improving health and social care and hopes to introduce more people to the benefits of service design thinking.

"The future benefits of linking service design expertise with health and social care needs can't be underestimated".

Rod has teamed up with experts in entrepreneurial skills in the University of Dundee and DJCAD and is intending to link these activities within the Healthcare design and innovation hub on the Ninewells site. Joint working with the private sector is being explored with [Saltire Foundation](#)¹³¹ and [Entrepreneurial Scotland](#).¹³²

Collaboration in Dundee is facilitated by local geography. Ninewells hospital, DJCAD, the University of Dundee are in close proximity with other key players, including a thriving computer gaming industry. “Dundee is the right place at the right time, a place where we can really develop and showcase the benefits of partnerships between healthcare and design, bringing genuine innovation to improving our patients' care and develop joint projects that boost the Scottish economy.”

Dementia Circle

While caring for her grandmother who was living with Dementia, Jeni Lennox and her family struggled to find help for some everyday challenges. A chance visit to Ikea where she found a clear, easy open, food container and a meal in a restaurant that used hand-made dishes, helped identify products that could make a difference. Knowing the challenges of holding a cup steady in ageing hands and witnessing the indignity of adults having to drink from children's cups, Jeni hatched a plan with ceramicist Garnet McCulloch at Fireworks to produce a two handled stoneware mug. Not only did the mug steady hands, it introduced a bit of fun with 'a guid wee cuppa' inscribed on the side. The design of the mug is designed in high contrast colours so that it stands out on a white table. The mug is white inside to make it easier to see how much tea or coffee is left.

Tapping into a series of personal experiences like this, Jeni and Alzheimer Scotland have developed [Dementia Circle](#)¹⁷, which aims to find, test and share everyday products that help people with Dementia stay independent for longer in their own homes.

Jeni suspects that people in a similar position maybe developing useful solutions that are likely to help others. "Life is messy and innovation can very often start at home ...a big step forward would be to share solutions that people have already found."

Jeni and Alzheimer Scotland are working on a physical version of Dementia Circle. They are planning to use a vacant shop in Ayr to create a space where local people can come together to experience, test, compare and help develop products that might be useful to them.

Jeni, who is trained as a designer, firmly believes that getting users and designers into a room at an early stage is absolutely fundamental.

6.4 Reflections on participation

- People bring insights and stories of the daily challenges of living with health conditions. Innovative solutions are created when this valuable insight is linked with business and development.
- Participation in its widest sense is being discussed in Scotland. The National Conversation on health and social care services in Scotland brings an opportunity to engage with people about wider participation in designing products and services.
- Research reveals that models of citizen participation, events and networks exist in Scotland. However, awareness of these needs to be raised, particularly those that provide citizens an opportunity to participate.
- There are a number of forthcoming events in Scotland which will provide Scottish Enterprise and the ALLIANCE immediate opportunities to explore the nature of citizen participation. Charity Hack Scotland and Edinburgh Apps will take place in Edinburgh in September 2015 and the launch of the first Academic Health Science Partnership in Tayside soon after.

7. Key messages

This report reveals the complex and vibrant nature of innovation and the potential for citizen participation. What are the key messages emerging from this work?

Digital technologies + citizens = innovation

- People bring insights not just ideas
- People-powered innovation is likely to begin at home and address local needs.
- An understanding of living with a condition is more likely to lead to solutions to real, rather than perceived, needs.
- Digital technologies can play many roles in health innovation - from raising funding to helping organisations to operate more effectively. This increases the number of opportunities for people to participate.
- Digital technologies that transform health and care don't have to be complicated. Innovations that make a difference to people's lives are likely to be those that help citizens to live independently, build networks of care and navigate the care system.
- Health and Social care integration is likely to create conditions for citizen-led innovation.
- Citizens have the clearest idea of how a new product or service will impact on their life and this will include social aspects of health and wellbeing. The third sector is in a strong position to articulate this and build demand for innovation through the citizen empowerment agenda.
- Gazing into the near and far future might help us to develop ideas about how to respond now - should we be asking what Scotland's third sector will look like in 2025?
- Events such as [Charity Hack Scotland](#)¹⁰⁷ provides an immediate opportunity for the ALLIANCE and Scottish Enterprise to get involved in and learn more about the links between technology, the third sector and the potential for citizen-led innovation.

We need new models

- Getting people together in power-neutral, creative spaces that combine a rich combination of skills, expertise and experiences is key. This will be tested in Scotland in the near future and should provide an opportunity to learn more about fostering innovation.
- There is a requirement for agile funding models, not just new sources of money, to implement and sustain new ideas
- Creating cultures of innovation inside organisations is vital to realising the benefits and potential of digital technologies. Creating internal collaborative spaces for cross-sectoral interaction will provide more opportunities for citizens to participate.
- Understanding the process of citizen participation will bring benefits in terms of deeper insights and development of better products that truly address the health challenges of daily life.
- Third sector organisations are experimenting with new ways of working but awareness needs to be raised and examples shared more widely.

We need new skills

- Some third sector organisations and SMEs in Scotland lack the skills required to take advantage of the opportunities that digital can bring.
- In addition to digital skills, there is a need to improve the design skills in third sector organisations and SMEs to enable people-powered innovation.
- People can only contribute to innovation if they have an opportunity and skills to participate.
- There is an enthusiasm to share skills and explore new partnerships, business and funding models but there is little awareness of the opportunities to do so.
- Businesses and third sector organisations can share skills. Third sector organisations can learn more about business practices and developing technology, while businesses can draw on the third sector's experience of working with people, the value of lived experience and the development of ideas at a local level.

Good ideas already exist - we need to share them

- A major barrier to the adoption and spread of innovation in health and care is likely to be the complexity and fragmentation of the market. Awareness of organisations such as the DHI and environments that connect ideas, innovators, developers and customers will be key to developing a digital health and care market.
- Environments that spread and amplify grassroots ideas can provide insights for business development.
- Marketplaces may develop in unexpected places. There is a need to learn from new players such as crowdfunding services and maker spaces.

8. Recommendations

1. An event should be arranged to discuss this report. Contributors welcomed the suggestion of meeting to develop models for citizen participation in health innovation.
2. Develop a 'Designing for Business' innovation lab within the third sector to bring people and staff together from relevant sectors to develop ideas, explore people-powered innovation and consider new business and funding models. This would create opportunities to hack the innovation process not just develop new ideas. This could be approached through a partnership between the Health and Social Care Academy and the DHI?
3. Consider the existing proposal for a brokerage service that would link Scottish service design students with health and social care projects.⁹⁶
4. The Academic Health Science Partnership in Dundee is launching soon. The ALLIANCE and Scottish Enterprise should learn from this work and consider the potential for the third sector and business to link with this initiative.
5. Explore near-future opportunities for the ALLIANCE and Scottish Enterprise to get involved in, and learn from, events that combine digital technology, the third sector and the potential for citizen-led innovation such as [Charity Hack Scotland](#).¹⁰⁷
6. Further explore the 'search friction' barrier, through brokering connections in the market, putting people with good ideas in touch with those who can develop them, improving the development and adoption of innovative products.
7. Consider how the planned National Conversation on health and social care events might offer an opportunity to learn more about citizens' views on participating in digital technology innovation.
8. Explore how [Our Voice](#)¹⁰³ will contribute to realizing the benefits of digital technology.
9. Articulate the digital skills gap in third sector organisations and explore how these can be addressed.
10. Consider producing shared guidance for business and third sector on principles of co-production and design, and how citizen and third sector experience can influence development of start-ups and product design.
11. Gazing into the near and far future will help us to develop ideas about how to respond now. Organise an event to develop a vision of the Scottish third sector in 2025.

9. Acknowledgements

This paper was written by Andy Hyde with guidance from Christine Hoy, Primary Care Development Manager, the ALLIANCE. We thank the following people for sharing their insights and ideas for citizen-led innovation for health and wellbeing:

Jane Ankori, the ALLIANCE
Ian Blewett, Scottish Enterprise
Joanne Boyle, Digital Health and Care Institute
Chloe Burton, Carr Gomm
Euan Cameron, Cohesion Medical Ltd
Steve Dodsworth, D Health
Grant Douglas, S'Up Products
Sarah Drummond, Snook
Joyce Duncan, ACVO
Gillian Easson, Creative Dundee
Kevin Geddes, the ALLIANCE
Lucy Gunatillake, Mindfulness Everywhere
Emma Goodlad, the ALLIANCE
Bill Grant, Citrus Mind
Gregory Hill-O'Connor, Carr Gomm
Lynne Huckerby, NHS24

Sally Kerr, Edinburgh Council
Jeni Lennox, Dementia Circle
Leah Lockhart, Scottish Government
Moira Mackenzie, NHS24
Cat Macaulay, Scottish Government
Rod Mountain, NHS Tayside
Irene Oldfather, the ALLIANCE
Alister Reid, Carers Link
Blythe Robertson, Scottish Government
Chris Speed, Edinburgh College of Art
Alex Stobart, Mydex
Lesley Thomson, Scottish Government
Arno Verhoeven, Edinburgh College of Art
Ian Welsh OBE, the ALLIANCE
Chris Yiu, SCVO
Hannah Young, PAMIS

10. References

1. Scottish Government Participation Week, (2015) <https://worktogether15.wordpress.com/>
2. Creating a Healthier Scotland, (2015) <http://healthier.scot/2015/07/06/>
3. Quilter-Pinner H and Muir R (2015) Improved circulation: Unleashing innovation across the NHS, Institute for Public Policy Research
www.ippr.org/publications/improved-circulation-unleashing-innovation-across-the-nhs
4. Innovation and Prosperity for Scotland (2015)
www.nesta.org.uk/event/innovation-and-prosperity-scotland
5. Dodd, J. The New Reality (2015) <http://thenewreality.info>
6. The NHS Innovation Accelerator www.england.nhs.uk/ourwork/innovation/nia/
7. The Lloyds UK Business Digital Index (2015)
<http://resources.lloydsbank.com/insight/uk-business-digital-index/>
8. Scotland's Opportunity, Digital Health and Care Institute
<https://dhi-scotland.com/scotlands-opportunity?>
9. Living it Up <https://portal.livingitup.org.uk>
10. Scottish Centre for Telehealth and Telecare <http://sctt.org.uk>
11. The Digital Marketplace www.gov.uk/digital-marketplace
12. Society for Research and Initiatives for Sustainable Technologies and Institutions
www.sristi.org/hbnew/aboutus.php
13. Kickstarter www.kickstarter.com
14. Indiegogo www.indiegogo.com
15. Etsy www.etsy.com
16. Givey Projects www.givey.com/project
17. Dementia Circle www.dementiacircle.co.uk
18. Enabled By Design <http://enabledbydesign.org>
19. Maker Nurse <http://makernurse.org/>
20. IfThisThenThat: recipes for healthy lifestyle
<http://ifttt.com/recipes/collections/60-recipes-for-a-healthy-lifestyle>

21. Saltmarsh, E. (2011) Unexpected Innovation Lessons from the Do Lectures, Stanford Social Innovation Review
www.ssireview.org/blog/entry/unexpected_innovation_lessons_from_the_do_lectures
22. Digital Health and Care Institute: Case Study - MyLittleOne <http://dhi-scotland.com/case-study-factory>
23. A Local Information System for Scotland (ALISS) www.aliss.org
24. The Nightscout project www.nightscout.info
25. Chaos Theory, Introducing Freewheel: The World's first wheelchair fitness tracker
www.chaoticmoon.com/chaos-theory/introducing-freewheel-worlds-first-wheelchair-fitness-tracker/
26. Crohn's and Colitis Canada - Go Here <http://go-here.ca>
27. Springwise - Bike lock requires cyclists to take a breathalyzer test
www.springwise.com/bike-lock-requires-cyclists-breathalyzer-test/
28. PAMIS digital passports www.pamis.org.uk/_page.php?id=85
29. Carer's Link - Link and Learn service <http://carerslink.org.uk/learning-hub/>
30. Building on the IMPACT: An interim report from the Self Management IMPACT Fund 2013-2015, the ALLIANCE (2015)
www.alliance-scotland.org.uk/what-we-do/self-management/self-management-impact-fund/
31. Johnson, S. Where Good Ideas Come From: The natural history of innovation - Allen Lane (2010) and TED Talk www.ted.com/talks/steven_johnson_where_good_ideas_come_from
32. Bespoken www.bespoken.me
33. Blackwood Design Awards 2015: And then there were six...
www.bespoken.me/forum/topics/blackwood-design-awards-2015-and-then-there-were-six
34. Blackwood Design Awards 2015: Transformers! Accessible buses in disguise
www.bespoken.me/forum/topics/transformers-accessible-buses-in-disguise
35. The European Patients' Academy on Therapeutic Innovation www.patientsacademy.eu/index.php/en/
36. Patients Like Me www.patientslikeme.com
37. Patient Opinion <https://www.patientopinion.org.uk/services/nhs-scotland>
38. Could Online User-Generated Content Revolutionise Health Services? DEMOS (2015)
<http://www.demos.co.uk/projects/online-health-forums>
39. Mindfulness Everywhere <http://www.mindfulnessseverywhere.io>

40. Cards For Mindfulness
<http://www.kickstarter.com/projects/rohanganatillake/cards-for-mindfulness>
41. New Philanthropy Capital's Digital Transformation programme
<http://www.thinknpc.org/our-work/projects/digital-transformation/>
42. Reardon, S. 'Organs-on-chips' go mainstream, Nature (2015)
<http://www.nature.com/news/organs-on-chips-go-mainstream-1.17977>
43. Robinson, A. Welcome to the complex world of 3D-printed drugs, The Guardian (2015)
<http://www.theguardian.com/sustainable-business/2015/aug/21/welcome-to-complex-world-of-3d-printed-drugs-spritam-fda>
44. Mountain, K. Who Cares, NESTA (2014) <http://www.nesta.org.uk/publications/who-cares>
45. Bland, J. Refilling the Innovator's Prescription: The new wave of medtech, NESTA (2014)
<http://www.nesta.org.uk/publications/refilling-innovators-prescription-new-wave-medtech>
46. Ógáin, E. Dementia care: how social enterprises are developing products and services. The Guardian (2015)
<http://www.theguardian.com/social-care-network/2015/apr/20/dementia-care-social-enterprises-products-services>
47. Ógáin, E, Mountain, K. Remember Me, NESTA (2015)
<http://www.nesta.org.uk/publications/remember-me>
48. Lantern <http://www.thisislantern.com>
49. Buddi <https://www.buddi.co.uk>
50. Jointly
<https://www.carersuk.org/help-and-advice/equipment-and-technology/our-products-for-carers/jointly>
51. Living Map of Ageing Innovators <http://ageinginnovators.org>
52. Brook, J. Care Industry News (2015)
<http://careindustrynews.co.uk/2015/08/glasgow-students-receive-6k-to-launch-app-that-will-enhance-life-for-dementia-sufferers/>
53. Bland et al, The NHS in 2030: a people-powered and knowledge-powered health system, NESTA (2015)
<http://www.nesta.org.uk/publications/nhs-2030-people-powered-and-knowledge-powered-health-system>
54. DHealth <http://www.dhcl.org/service.php/14/The-Catalyst-.html>
55. Wittes Schlack, J. Ask Your Customers for Predictions, Not Preference. Harvard Business Review (2015)
<https://hbr.org/2015/01/ask-your-customers-for-predictions-not-preferences>

56. Stayley, O. How the NHS Is Locking Out Britain's Digital-Health Startups. Bloomberg 2015
<http://www.bloomberg.com/news/articles/2015-08-14/how-britain-s-nhs-is-killing-digital-health-startups?>
57. Making change possible - A Transformation Fund for the NHS Kings Fund/Health Foundation (2015)
http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/making-change-possible-a-transformation-fund-for-the-nhs-kingsfund-healthfdn-jul15.pdf
58. People Driven Digital Health and Wellbeing : How can we unleash people driven digital health and wellbeing? 2015
<http://mhealthhabitat.co.uk/pddigitalwhitepaper/>
59. UK Business Digital Index 2015, Lloyds UK
<http://resources.lloydsbank.com/insight/uk-business-digital-index/>
60. Digital participation in action, The Scottish Council for Voluntary Organisations (SCVO)
<http://digital.scvo.org.uk/about/annual-report-2015/>
61. Google Global Impact Awards <https://www.google.org/global-giving/global-impact-awards/>
62. The Design Council design challenges <http://www.designcouncil.org.uk/design-challenges>
63. Innovate UK <https://interact.innovateuk.org>
64. NESTA challenge prizes. <http://www.nesta.org.uk/our-projects/centre-challenge-prizes>
65. The Interface Health Excellence Challenge <https://dhi-scotland.com/news/58>
66. Digital Participation Challenge Fund, The Scottish Council for Voluntary Organisations (SCVO)
<http://digital.scvo.org.uk/resources/challenge-fund/>
67. Social Investment Scotland <http://www.socialinvestmentscotland.com/>
68. The Yunus Centre for Social Business and Health, Glasgow Caledonian University
<http://www.gcu.ac.uk/grameenandgcu/yunuscentre/professorcamdonaldsoninterview/>
69. Scotland's Digital Participation Charter, The Scottish Council for Voluntary Organisations (SCVO)
<http://digital.scvo.org.uk/charter/>
70. Let's Get Digital | Digital interns The Scottish Council for Voluntary Organisations (SCVO)
<http://www.scvo.org.uk/jobs-employability/digital-interns-with-lets-get-digital/>
71. Building Change Trust - Techies in Residence <http://www.techinres.com>
72. Third Sector Lab <http://thirdsectorlab.co.uk/>
73. Google launches free service for Scottish charities, Third Force News (2015)
<http://thirdforcenews.org.uk/tfn-news/google-launches-free-service-for-scottish-charities>

74. Startbright <http://www.startbright.co.uk/>
75. Ready for Business <http://readyforbusiness.org/>
76. SenScot <http://www.senscot.net/index.php>
77. Vital Spark, FirstPort <http://www.firstport.org.uk/projects/vital-spark>
78. Non-Profit Technology Network <http://www.nten.org/about-nten/mission/>
79. The Tech Partnership in Scotland <https://www.thetechpartnership.com/scotland>
80. CodeClan <http://codeclan.com/>
81. Scotland Can Do Scale <http://www.cando.scot/scale/>
82. VentureFest Scotland 2015 <http://venturefestscotland.co.uk>
83. Citrus Mind, Network Integrator for Scottish Enterprise in the Digital Health and Care sector in Scotland <http://www.citrus-mind.com>
84. Bright Idea Scotland - Innovators Checklist
<http://www.brightideascotland.com/content/bright-idea-guide/>
85. Innovate UK Advice and Guidance on Innovation
<https://www.gov.uk/innovation-get-support-and-advice>
86. Scotland's Co-Production Network www.coproductionscotland.org.uk/
87. Health and Social Care Alliance Scotland (the ALLIANCE) <http://www.alliance-scotland.org.uk>
88. Scott and Fyfe, Tayport, Scotland <http://www.scott-fyfe.com/innovation.aspx>
89. Digital Health Institute <https://dhi-scotland.com/laboratory?locale=en>
90. Techshop <http://www.techshop.ws/>
91. Ford + TechShop: Getting Employees to Tinker, Wired Magazine, 2012
<http://www.wired.com/2012/05/ford-techshop/>
92. The Little Devices Lab, Massachusetts Institute of Technology <http://littledevices.org>
93. SCVO Labs <http://labs.scvo.org.uk/>
94. Carr Gomm <http://www.carrgomm.org>
95. Click Go, Carr Gomm <http://www.clickgo2.com>
96. Matchable Health <http://matchablehealth.wordpress.com>

97. Lean and Service design. Understanding the difference. <http://wearesnook.com/lean-and-service-design-understanding-the-differences/>
98. Uninvited Guests, Superflux <http://www.superflux.in/work/uninvited-guests>
99. S'Up Products <http://www.sup-products.com>
100. Matchable Service Blueprint https://matchablehealth.files.wordpress.com/2012/07/matchable_finalblueprint_sd_ver3.pdf
101. Collins, S. et al. Patient Participation in Healthcare Consultations, McGraw Hill 2007
102. Cohen, B. 3 Generations Of Smart Cities, Fast Company
<http://www.fastcoexist.com/3047795/the-3-generations-of-smart-cities>
103. Muir R and Quilter-Pinner H (2015) Powerful people: Reinforcing the power of citizens and communities in health and care, IPPR.
<http://www.ippr.org/publications/powerful-people-reinforcing-the-power-of-citizens-and-communities-in-health-and-care>
104. Patients Included <http://patientsincluded.org/>
105. Webster, N. Scotland's participation 'spring'; what are the Scottish Government doing? DemSoc (2015)
<http://www.demsoc.org/scotlands-participation-spring-what-are-the-scottish-government-doing/>
106. Our Voice, the ALLIANCE
<http://www.alliance-scotland.org.uk/what-we-do/policy-and-campaigns/current-work/our-voice/>
107. European Network of Living Labs <http://www.openlivinglabs.eu/aboutus>
108. Citizen-Driven Innovation - A guidebook for city mayors and public administrators
www.openlivinglabs.eu/news/official-version-citizen-driven-innovation-handbook-out
109. LabWorks London 2015
<http://www.nesta.org.uk/event/labworks-2015-global-lab-gathering-london>
110. Edinburgh Living Lab <http://www.openlivinglabs.eu/node/140>
111. Charity Hack Scotland
<http://www.eventbrite.co.uk/e/charity-hack-scotland-tickets-13900708393>
112. NHS Hackday <http://nhshackday.com/>
113. UKHealthCamp <http://ukhealthcamp.com/>
114. Cyclehack <http://www.cyclehack.com/>
115. Edinburgh Apps <http://edinburghapps.net>
116. Bethnal Green Ventures <http://bethnalgreenventures.com>

117. Edinburgh University Design Informatics <http://www.designinformatics.org>
118. 3space <https://www.3space.org/pages/about>
119. Know Sugar
<http://dundee.stv.tv/articles/289054-know-sugar-lifestyle-service-invited-back-to-dundee-wellgate-before-october/>
120. Design in Action <http://www.designinaction.com/>
121. Snook <http://wearesnook.com/>
122. Ideality <http://www.ideality.eu/>
123. D Health catalyst <http://www.dhcl.org/service.php/14/The-Catalyst-.html>
124. Cell Slider, Cancer Research UK <http://www.cellslider.net/>
125. NHS Citizen <https://nhs-citizen-refine.yrpri.org/pages/28>
126. IdeaScale <http://ideascale.com>
127. IdeaBuzz <http://ideascale.com/ideabuzz/>
128. Innovation Health and Wealth, Accelerating Adoption and Diffusion in the NHS (2011)
www.gov.uk/government/news/accelerating-adoption-of-innovation-in-the-nhs
129. Duncan of Jordanstone College of Art and Design <http://www.dundee.ac.uk/djcad/>
130. Creative Dundee <http://creativedundee.com/>
131. Saltire Foundation <http://www.saltirefoundation.com/>
132. Entrepreneurial Scotland <https://www.entrepreneurialscotland.com/>