Scottish Parliament Health & Sport Committee
Response to Call for Views on Technology & Innovation

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1. What do you consider have been the main successes of the existing Scottish Government’s eHealth and telecare/telehealth strategies and why?

The existing strategy has created a focus on the consideration and delivery of technologies to enable better ways of working and to consider the potential of alternative models of health and care delivery models. The establishment of governance and a national directive regarding specific initiatives under the guidance of the e-health strategy and programme boards taking an inclusive approach specifically within health, given the structure of boards and other funded initiatives is welcomed.

The approach taken in Scotland has received international recognition in the form of the EIP on AHA reference site status and significant acknowledgement, interest and information sharing requests from many other European, Asian and American systems and delivery agents. Demonstrating at that time, we were international leaders in the field.

Successful initiatives have been implemented well under this strategy and some examples include:

- Budget allocation and prioritisation
- Many new platforms, applications and initiatives successfully implemented such as:
  - HEPMA
  - Primary and secondary care data sharing and the key information summary and the emergency care summary being some specific examples
  - Clinical Change Leadership Group
  - Establishment of Data sharing and innovation programmes such as programmes of work hosted in partnership with e-health and NHS NSS ISD with organisations such as FARR, DHI and DataLab
- Improvement in the delivery of national programmes of work with improved communication, visibility and oversight through the e-health strategy board, SWANN implementation strategy updates as an example
- Improved dialogue with industry in relation to the art of the possible in collaboration with health and care providers being at the heart of creating the solutions
- Recognition and embracing innovation and collaboration as a key component part of the solution to future challenges

2. What do you consider have been the main failures of the existing Scottish Government’s eHealth and telecare/telehealth strategies and why?

It must be recognised that the importance of the role of ‘keeping the lights on’ is a critical one for all of the teams and personnel involved in the delivery of any health and care strategy. However, we must recognise that change is critical and absolutely necessary and as such we must make time and space to ensure that transformation and change occurs. Failing to do so ensures the sustainability challenge will continue to grow and we will have a health and care service which is completely unsustainable.

It is my view that one of the biggest challenges for the current e-health and telehealth/telecare strategies is that there are competing strategies which do not consider or align to the significant volume of other strategies or policies at play in this part of the sector. The Scottish Government policies and strategies below all impact in some way the area of digital health and care either advocating for, or promoting service change underpinned by innovation and technologies of varying degrees.

A selection of some of strategies, policies and frameworks expected to be delivered by Scottish Government departments or agencies are listed as:

- National Clinical Strategy for Scotland (Health and Social Care Directorate, SG)
- 2020 Vision (Health and Social Care Directorate, SG)
- Quality Strategy (Health and Social Care Directorate, SG)
- E-health strategy (Health and Social Care Directorate, SG)
- Technology Enabled Care Programme (Health and Social Care Directorate, SG)
- A National Telehealth and Telecare Plan for Scotland (SCTT, NHS 24)
- Economic Strategy (Enterprise, Environment & Innovation, SG)
- Innovation Scotland Forum (Enterprise, Environment & Innovation, SG)
• Scotland Can Do Forum (Enterprise, Environment & Innovation, SG)
• Skills for Scotland Strategy (Learning and Justice, SG)
• Scotland’s Digital Future – High Level Operating Framework (HLOF) (Communities, SG)
• Digital Participation: A National Framework for Local Action (Communities, SG)
• Civtech; Scottish Government Digital Directorate Accelerator programme
• Scotland’s International Framework (Strategy and External Affairs, SG)
• 2020 Vision for Scottish Lifesciences Strategy (Lifesciences Scotland)
• Digital Health Care (Highlands and Islands Enterprise)
• Research Strategy (Healthcare Improvement Scotland, NHS Scotland)
• Delivering Innovation through Research, SG Health and Social Care Research Strategy (Chief Scientist Office, SG)
• Local Government ICT Strategy (Scottish Local Governments)
• Scottish Local Government Digital Transformation Strategy (Scottish Local Governments)
• Numerous Procurement Policies (SG and NHS)
• Scotland’s Manufacturing Action Plan (Scottish Enterprise)
• Three SFC Innovation Centre delivery strategies associates with Health and Care
• Numerous Third Sector Policies
• Many others...

It should be noted that these documents, are very good documents in their own right, however many of them often focus on a single aspect of health and care provision or technology or the economy and the role that ‘digital’ should and could play.

This level of complexity within the strategy and policy context creates challenge, and when considered alongside the very busy, transformational change and innovation landscape, where there are tens and tens of agencies and other associated bodies. It is often unclear what the specific roles and responsibilities are for each of these organisations, along with competing agendas and a distinct lack of transformational change and digital health and care strategic leadership, makes it virtually impossible to achieve the significant advantages I know and believe can be delivered in Scotland. In addition, confusion between innovation and research and development continues to be an issue and clarity of each of the roles and purpose will be welcomed.

The current strategy fails to recognise the emerging consumer digital health markets and the ability to make use of the data and information many citizens have readily available within their own control. The economy, education and innovation strategies from within the Scottish Governments programme of work provide significant opportunities to realise the potential of collaborating with Scottish based business to enable faster innovation and delivery of transformation, however the perceived barrier of procurement and contract ‘lock out’ must be addressed. There is an opportunity to create a win-win mentality, enabling business to help our NHS and Care provision change at pace, and a pace citizens of all ages would welcome.

Interoperability and scalability, a once for Scotland approach is referenced in many places, however there has been limited success in this regard. The availability of digital technology and interfaces from public sector remains limited and quite frankly below an acceptable level. Communication remains one way and far too reliant on telephone and post, creating unnecessary waiting time for letters and appointments and inflating the perception of you have no access to the professional until you physically see them, which is expensive for non-urgent and unnecessary appointments. There is significant inconsistency in the levels of ‘digital’ available across the county creating variation and inconsistent patient experiences, and far too much dependency on individual preferences of digital access and technologies, we do not realise economies of scale or national standards in this current way of working.

Access to data and the information governance issues must be addressed, with inconsistent and often misaligned understanding of the ‘rules’ creating distinct disadvantages in progressing innovation and the ability to enable deep and meaningful insight across the system which empowers leadership teams and professionals to deliver deeply enhanced outcomes and for patients to experience significant improvements in outcomes.

There has been no recognition of the process of adoption and scaling of innovative digital health and care solutions, there is no single approach to user/patient centred design, proof of concept or pilots. Procurement continues to be a significant barrier for many smaller organisations (SMEs) not on the contract frameworks or programmes. As a result creates a perception of attempted work arounds and ‘pilotitus’ to short cut the system, which in some cases eventually leads to a reluctance to get involved if it doesn’t meet a personal professional need or desire.
Professionals often engaged in innovation and transformational change have to do so in their own time, and as a result of service delivery priorities, and limited down time, creates significant challenge in the engagement of available resources specifically for the purpose of considering the clinical and governance issues relating to change in patient engagement, pathways and protocols, slowing the whole change process down.

Going forward there needs to be a national unit with sole responsibility for leadership, coordination, and translation of these strategies, policies and frameworks into a national programme of work as a way of providing capacity, cohesion and excellent and consistent delivery to ensure improved efficiency, capacity and most importantly improved clinical and care services for the people of Scotland.

3. How well does the Scottish Government’s draft Digital Health and Social Care Vision 2017-2022 address the future requirements of the NHS and social care sector?

The vision is appropriate, realistic and safe and does address the short and some of the medium term future requirements of the NHS and social care sector. Currently, it doesn’t address some of the very tough challenges and decisions that need to be made, I believe citizens are aware that we are challenged, and I think we should use this opportunity to address our issues and make plans to progress. The vision doesn’t go far enough to recognise the challenge we face in the ongoing sustainable delivery of health and care services in Scotland. Digital technology, applications and those who manufacture them, have a considerable opportunity to invest and create significant capacity in the system, enabling people to be more accountable and responsible for their own health and wellbeing, creating improved healthier and wealthier citizens as a result whilst the NHS concentrates on managing illness and ‘hands on’ care more effectively.

Should we consider the NHS is not a ‘health and wellness’ system, it is an ‘illness’ system and we must ‘invest’ in health and wellness to prevent illness and plan spending on clinical and supportive care which improve the outcomes and support people in illness?

Data access, sharing, interoperability are all key issues which can improve citizen engagement in their own care and their experiences in working with the system, which is very welcome to see in the vision.

The changing demographic and aging population influence the vision; however, it may not consider younger generations and the acceleration of their digital adoption of technology and engagement. Our younger adults are already circumventing the system to access care through alternative systems, i.e. under 30’s accessing NHS24 rather than making use of their GP surgery, as it is a well-known fact that NHS 24 will triage you, and if you need to be seen by a doctor you will be, and within four-six hours, or you will be give great advice which you cannot readily receive during the day. The inability to web-chat or skype medical and care staff will become a deep frustration for younger generations and not recognising the changing attitudes and demands of all our citizens will only create a further critical issue for the government to address later, if it does not do so now.

I think we can be brave and bold, and recognise the role wider society can play through the use technology and digital means, and the fact that you have alternative services materialising which will compete for NHS attention, for example Push Doctor, you pay £26 and will be guaranteed to speak to a UK based English speaking doctor within 6 minutes who will also prescribe if that is the appropriate outcome. In many cases Push Doctor may refer the patient back to their own GP service, which may create further demand if not considered and managed well.

Consideration must be given to the cultural challenge that persists which may continue to be a barrier to change and we must have a very clear top down and bottom up inclusive approach to the process of change.

A vision must be beyond our imagination and NHS Scotland has been a visionary in the past, it must do so again in the future. We need increased levels of coordination, convergence and conviction to a truly ambitious and sustainable strategy and vision that stays ahead of the citizens and what they need and want.

4. Do you think there are any significant omissions in the Scottish Government’s draft Digital Health and Social Care vision 2017-2022.
The phraseology of the vision has been specifically designed to engage the citizen which I think is welcome, however it is limited in its potential ambition and as a key motivator for existing staff in service delivery. As stated above it makes no reference or inference to the very many already in place strategies and creates the potential for more misalignment and duplication. This vision and subsequent strategy should support the coordination of effort and taxpayer’s contributions to deliver a significantly enhanced service offering which generates greater efficiency and productivity.

More reference to social care and third sector would be welcome along with the recognition that digital technologies purchased by the citizen could be recognised and accessed where appropriate to aid better decision making and insight.

The vision needs to be more specific around the ‘how’ and ‘when’ we will achieve success. Workforce, technology and open platforms for innovation, research and development and inclusion of the Scottish economy industry partners to create a cohesive approach and for those businesses can create agility and speed to solution for maximum impact for the citizens of Scotland. 2022 may be too late for some of what we need today.

Better use of people resources across the whole system should be addressed, home and family carer networks, third and private sector. For example, home carers visit their clients often two or three times per day as well as community nurses and other professional practitioners. Home carers with the use of digital technologies such as blood pressure cuffs, diabetes test monitors, wound sensors, thermometers etc. can complete vital signs checks and submit to the nurse for consideration on whether a home visit is necessary, therefore creating nurse capacity and adding a few minutes to a carer visit they are making anyway.

We have a digital skills shortage and we must address this in companionship with industry and other public sector departments.

NHS England created an NHS Digital Directorate and appointed a CEO with a digital background to be a recognised and industry thought leader and champion of digital transformation, adoption, and scalability across all of the NHS in England, and to yield better outcomes and increased value for money on spend, faster and more effectively. The vision must address where our leadership will come from.

We must not create any further new agencies when we already have national agencies like National Services Scotland and with a great deal of the insight and national delivery capability, we have the potential to utilise a national unit already in place for the cause of cohesion, inclusion, consistency, impact and efficiency.

5. **What key opportunities exist for the use of technology in health and social care over the next 10 years?**

Any vision or strategy that goes beyond ten years within the world of technology will always be limited and constricted by the pace in which the sector is moving. There are many opportunities that present themselves now and for the next few years will start a great transformation in how many countries across the world consider access and utilisation of health and care systems. Some of these opportunities may include such as these below however, are not limited to:

- **Big and Small Data**
  - Insightful analytics from remote monitoring of conditions creating interventions before events
  - Ability to see changing behaviours and associated predictive analytics which provide deep and wide pattern understandings influencing budget and change agendas
  - Genomics and population health, healthy towns and cities which will result in education programmes and prevention strategies with treatment programmes creating whole scale improvements
- **Prescribing and medicine adherence**
  - Polypharmacy issues with adherence in multi-morbidities can be effectively monitored and reacted to with effective data access and family support which will create a reduction in unnecessary admissions
- Condition monitoring through gamification in mobile applications whilst monitoring medication adherence will alert to accuracy of prescribing and improvement / stability of condition

- **Mental health and childhood wellness**
  - Consumer applications utilising gamification and monitoring of online activity highlighting potential cyber bullying and grooming activities
  - Educational support online creating peer engagement in other schools promoting online help and promoting inclusivity and community
  - Gamification of wellness and health activities such as exercise, mental health wellness and mindfulness

- **Remote patient monitoring**
  - Use of sensors, data and mobile based applications will make significantly better use of resources in home visits and real-time person support
  - Smart housing, enabling people to stay in their own homes for longer
  - Social engagement tools, like smart dining rooms will increase companionship and inclusivity for vulnerable and isolated adults and children

- **New models of care**
  - Alternative methods of access, as stated above, younger generations cheating the system currently, adapt this to create more affordable and efficient access methods
  - Replication of the ‘fit home’ project in the Highlands, retrofitting homes with enhanced care models which limit unnecessary visits however increase awareness of patterns of living and declining health
  - Enhanced service provisions (Push Doctor and others)
  - Remote or mobile health and care services, making use of enhanced platform and communication channels

- **Decision support**
  - Enhanced clinical decision making through the use of application based technologies
  - Better utilisation of the internet of things and connected devices for professionals i.e. Scottish Ambulance Service and remote workers

- **Mobile device strategy**
  - The BMJ conducted a survey in October 2015 which stated ‘92.6% of the doctors and 53.2% of nurses found their smartphone to be ‘very useful’ or ‘useful’ in helping them to perform their clinical duties, while 89.6% of doctors and 67.1% of nurses owning medical apps were using these as part of their clinical practice. Doctors and nurses were using short-message-script messaging (64.7% and 13.8%, respectively), app-based messaging (33.1% and 5.7%), and picture messaging (46.0% and 7.4%) (p=0.0001 for all modalities) to send patient-related clinical information to their colleagues. Therefore, 71.6% of doctors and 37.2% of nurses wanted a secure means of sending such information.’ The poignant note here is that whilst there are no NHS approved apps in the UK currently this will change, so the opportunity to engage, innovate, lead and inform is significant.

- **Electronic Health Record**
  - Nationally adopted and citizen owned
  - Secure and accurate data management (Mayo Clinic – great example)
  - Open and secure API to enable innovation and interoperability

We should never adopt new applications of innovation unless we are clear there are significant benefits associated with doing so, therefore, clear performance measures are required throughout the process of transformational change, adoption and delivery to ensure we improve outcomes and the finances required to deliver the services we choose, across health, care and third sector.

### 6. What actions are needed to improve the accessibility and sharing of the electronic patient record?

The capability is readily accessible to achieve this, many other countries have excelled in the delivery of this application of technology. For quick and effective progress to be made we need:

- One digital health and care nationally integrated and connected platform should be created. It must be owned by the public sector to avoid exclusion and there must be a clear and unequivocal statement of intent on its
purpose, data and information sharing governance. The application much include citizen access and connectivity of consumer devices which will reduce pressure on the system to provide technology (essentially Bring Your Own Device (BYOD) if you’d like) that is readily available online and in shops and pharmacies today.

- Innovators, academics, industry, and others as appropriate should have access to the platform for the sole benefit of improving digital health and care offerings based on permissions and authorised use which will benefit the economy and job creation in Scotland.
- Culture shift is required to adopt and engage with the process and specifically to engage users (patients and professionals) in the development of services to ensure all developments have the patient centred requirements and the best possible chance of success.
- We need a united agreement with all partners that we want to make NHS in Scotland the most forward-thinking service there is, citizens will buy into owning their own data and allowing family access to that at vulnerable times will be empowering, creating a society more engaged in health and care.

7. What are the barriers to innovation in health and social care?

The main barriers are documented throughout the above, however a summary of these can be described as:

- Strategic leadership is as important in innovation as it is in the delivery of services within digital health and care and this should be the same leader who influences both agendas with industry, academia, public and third sector to work as Team Scotland rather than to compete within it, and as a result to significantly improve our potential in public sector delivery and to create a circular economy as a result
- Appetite for risk. Currently most if not all the burden of cost and risk in digital health and care innovation sits with industry partners, this must be addressed if we wish to promote the opportunity that the emerging digital health and care economy offers, which is significant in system transformation but also for the economy and jobs, Scotland is significantly better placed than others to realise this potential if all partners are equal
- There are significant numbers of ‘actors’ in the digital health and care landscape in Scotland leading to terms such as ‘cluttered landscape’ and a what the roles and responsibilities are for each are unclear. There are too many ‘owners’ and no visible strategic coordination or prioritisation of detailed fiscal spend or effort seems present across directorates or wide landscape. If this is the case, this must be addressed. We need a shift change in thinking and one front door to innovation through an organisation like NSS with joined up thinking around change, transformation, or data integrity and security, procurement, adoption and spread and ongoing maintenance. This is critical.
- Too much focus on health and not enough on the integration agenda and shifting the balance of care, third sector, carers and family care all have a massive role to play too and should be encouraged to actively engage, in the strategy and programme boards as key members where appropriate to do so
- The lack of access to the systems for innovators (GP, Hospital, Care and Third Sector systems) and its users and patients and the notable absence of an innovation and secure sand pit environment on a national platform that enables interoperability to be considered from the outset.
- Funding of innovation and acceleration is disparate and very difficult to obtain. Often funding programmes are decided within the confines of what those teams know and can be very small sums, rather than consider what they don’t know and what is possible and the true cost and risk of moving forward.
- Current legal, funding and procurement mechanisms are severely restricting and few are aware of alternative mechanisms available, such as the pre-development and innovation procurement rules.
- There is a significant lack on focussed approaches and techniques for user centred design and collaboration to create specific solutions for specific problems, often ‘we’ buy solutions and try and fit them to the problem, this should be reversed. Demonstrating real leadership would come through making bold statements that we will not procure what industry tells us we need, instead we will buy what we collaborate and co-design to address and deliver positive outcomes to our specific needs.