

REQUEST TO DETI FROM THE ETI COMMITTEE

Following the ETI Committee visit to the BIO Convention from 23-26 June 2014, the Committee has requested an oral briefing from Invest NI on the economic impact of the Life and Health Sciences sector and a written briefing on the progress with the Connected Health Initiative.

DEPARTMENTAL RESPONSE

Life and Health Sciences Sector

2. Life and Health Sciences is one of the priority sectors that has been identified by the Northern Ireland Executive. In its Programme for Government 2011-2015, the Executive committed to growing the economy and to modernising the delivery of the local health service. In recent years, Northern Ireland industry, academia and government have made significant commitments to the development of Life and Health Science capabilities. However, globally, the sector is highly competitive and many other world regions are also concentrating on strengthening their offers.
3. The Life and Health Sciences industry is an important sector within the Northern Ireland economy. There are circa 130 companies based in Northern Ireland, employing around 7,500 people, with an annual turnover of over £900m. While the sector only represents 1.5% of the NI private sector employment, it contributes 12.5% of total NI exports.
4. The sector is predominantly focused on sales generated from foreign markets – around 80% of the estimated £900m annual turnover is generated through exports. In addition, the £4.5bn annual budget of the Health and Social Care (HSC) service has been recognised as a significant driver and of this £2.8bn is recycled back into the Northern Ireland economy. The HSC employs approximately 66,000 staff, equating to 9% of all employment in Northern Ireland, and creates approximately 10% of the total economic output.
5. Further developing Northern Ireland's reputation globally should be a key focus of all stakeholders involved in the sector.

Life and Health Sciences Strategy & Policy

6. Recognising the importance of the sector, DETI, with support from the MATRIX Panel, Invest NI and DHSSPS is developing a comprehensive Life & Health Sciences Strategy for Northern Ireland. The strategy development process has two distinct stages:

- (i) *MATRIX Life & Health Sciences Foresight Panel*, led by key industrialists, has been brought together by DETI to conduct a thorough capability analysis of all our strengths across the Life & Health Sciences sector (industrial, academic & clinical). This study will culminate in an assessment of the market and future technology opportunities in the sector over the next 10-15 years. Other partners include Invest NI, the universities, DHSSPS, HSC, leading clinicians and expertise from outside Northern Ireland, including Innovate UK (previously known as the Technology Strategy Board). The capability mapping and foresight analysis will be complete by November 2014.
- (ii) *DETI & DHSSPS-led Strategy Development Process*: The strategy will be designed to provide a framework for industry in Northern Ireland to grow, to support researchers and clinicians and, ultimately, patients through improved healthcare outcomes. The strategy will set out a vision where industry, the HSC (Trusts and Clinicians etc) and academia can come together to create a cohesive approach to Life & Health Science activities in Northern Ireland. The strategy is expected to be completed by early 2015.

Health Innovations & Life Sciences (HILS) Hub

7. In an effort to expand activity the Economy and Jobs Initiative established a Task and Finish Group in 2013, to exploit the economic opportunities from the Health and Social Care (HSC) sector.
8. The establishment of a HILS Hub (Health Innovation & Life Sciences Hub) is a key recommendation arising from the Task and Finish Group. It will be a focal point or 'nerve centre' for the life and health sciences sector in the region. It will stimulate interaction, innovation, networking and collaboration across the academic, business and clinical communities, facilitating investment and promoting economic opportunities.
9. A strategic assessment of how the HILS Hub might best be established and where it would most appropriately fit into the existing Health and Economic infrastructure in Northern Ireland was completed on 27 May 2014, with a final business case developed by end October 2014. It is proposed that the HILS Hub should:
 - Oversee the roll-out of the Life & Health Sciences Strategy for NI;
 - Address a wide-ranging information deficit throughout business, government, academia and the health sector;
 - Build local and global networking platforms across business, government and academia, and offer a unifying, objective brand to do so;
 - Act as a solutions, orientation, sign-posting and networking facilitator;
 - Focus on a small number of priority health subsectors only – areas of genuine strength and opportunity for NI;
 - Promote better links between DHSSPS/HSC/Trusts/ Academia and the private sector;
 - Facilitate a coordinated and strategic approach to EU funding opportunities;
 - Oversee and contribute to outreach events to raise awareness across the stakeholder base;

- Start late 2014 / early 2015, with a limited advisory function at the outset, but with a plan for growth & evolution over time.

Opportunities in Stratified Medicine

10. Stratified Medicine aims to provide early and accurate diagnosis and select the right drug, at the right dose, at the right time for patient. It is recognised as an area of strategic importance by the MATRIX Life and Health Sciences Panel. NI's two universities and the research centres within HSC are involved in ground breaking research in Stratified Medicine focusing on oncology, ageing, immunity and immunology. The Almac Group Ltd and Randox Laboratories are two of the three largest indigenous UK companies in this sector, both with significant expertise in diagnostics.
11. Northern Ireland has recently made significant investments in this area many supported by Invest NI. These include: Almac QUB Integrated Drug Discovery Unit (£13.5m), NI-Molecular Pathology Laboratory and NI Biobank (£3m), Experimental Medicine Centre at QUB (£36m), Centre for Stratified Medicine in Ageing at UU (£11.5m) and the NI Clinical Research Facility (£4m).
12. Stratified Medicine will benefit patients, provide cost-effective solutions for the NHS and other healthcare providers and create major commercial opportunities for NI businesses. The development of Stratified Medicine will require a new business model in which pharmaceutical and diagnostic companies collaborate. This is an opportunity for our strong base of indigenous diagnostic companies to take full advantage of this growing opportunity.
13. Innovate UK has launched a programme of UK Catapults, a network of world-leading technology and innovation centres which will focus on an area which has already been identified as strategically important in global terms and where there is genuine potential for the UK to gain competitive advantage. A Catapult in Stratified Medicine is planned for 2015 and Northern Ireland is bidding to host the catapult promoting its R&D strengths, infrastructure and industrial expertise in stratified medicine.

Infrastructure Deficiencies

14. There are three key area that impact on the potential growth of the sector:
 - i. **Lack of an Experimental Medicine Hospital:** Current infrastructure does not have dedicated equipment for clinical research. There is a lack of imaging equipment, clinical research nurses as well as dedicated laboratory space for undertaking clinical trial and translational research. The setting up of an experimental medicine hospital would make it possible to conduct trials of the highest quality, on a large scale. It will support advances in treatments for a various cancers, improve collaboration with industry and also bring the innovative treatments to the NI patients.
 - ii. **Pathology Infrastructure:** The Northern Ireland Molecular Pathology laboratory is running at full capacity. Significant investment in pathology

infrastructure is required to ensure that the laboratory remains ahead in UK and Ireland as an exemplar laboratory.

- iii. **Skills Deficit:** To further develop precision medicine in Northern Ireland the skill shortage in Bioinformatics and Biostatistics, Health Economists, Reimbursement Expertise and Regulatory Expertise must be addressed including visa issues.

REQUEST TO DETI FROM THE ETI COMMITTEE FOR A WRITTEN BRIEFING ON PROGRESS WITH THE CONNECTED HEALTH INITIATIVE.

As part of the ETI Committee involvement at the BIO Convention 2014, it has sought an update on activities within the Connected Health Initiative.

DEPARTMENTAL RESPONSE

1. There are numerous terms which encapsulate the application of technology within healthcare and includes: Connected Health, Digital Health, eHealth, mHealth, telecare, telehealth and telemedicine.
2. These terms broadly agree on the provision of health and care services by way of hardware and/or software devices, remote monitoring devices, devices that assist independent living, remote communications by healthcare professionals and mobile and IT solutions that are designed to improve an individual's healthcare or monitor it. Additional benefits for health system providers are greater efficiency and improvements in quality of health care.
3. In 2011 a review of the provision of local health and social care services was undertaken under the banner of 'Transforming Your Care'. This review outlined a range of proposals on how improvements could be made to health and social care services so that they are structured around the needs of patients, with a greater emphasis on delivery in the primary and community care settings. Within this, digital health provision was identified as a key strand moving forward.
4. This digital focus is reflected in unique aspects for Northern Ireland which places it at the forefront of medical care within the UK. It already has an Electronic Care Record which pulls together key details about patient care from existing systems and makes them available to authorized staff wherever the patient is located, ensuring that their information is available, as needed, by those looking after them.
5. Northern Ireland has also adopted the largest mainstreamed telehealth service procurement in the UK, involving an £18 million remote tele-monitoring contract awarded in 2011 to TF3 (a consortium of Tunstall, FoldHousing and S3). This scheme will support over 8,000 patients with heart and respiratory conditions, diabetes and those who have suffered a stroke.

Health and Economic Opportunities

6. DETI has been working closely with the DHSSPS to deliver economic and health benefits by maximising the impact of our local Health and Social Care (HSC) sector. This work was formalised in a Memorandum of Understanding between DETI and the DHSSPS which was launched in 2011. The Memorandum looks at a number of strategic areas including targeted research and development, innovation funding, promoting the Connected Health agenda and collaborating with Europe and North America.
7. Significant progress has been made across a number of key areas. Within Research & Development, the Connected Health Innovation Centre (CHIC)

was launched in 2013 by Minister Foster at the University of Ulster. The Centre, with £5m of supported committed from Invest NI, represents a new approach to funding R&D, placing greater emphasis on collaboration and industry leadership.

8. During its first year of operation, CHIC has secured involvement from 26 companies, completed 6 e-health projects and has a further 7 under way. All of these projects involve a minimum of three participating companies, with healthcare experts and leading clinicians providing collaborative insights.
9. In another key area of collaboration, the European Connected Health Alliance (ECHA) has been supported to develop a network of Ecosystems to bring together industry, academia and health professionals to build partnerships and examine areas of mutual benefit. The Northern Ireland Ecosystem meets once per quarter attracting around 150 attendees to each meeting. A key dynamic of the Ecosystem model is the promotion and alignment to international networks. At present Connected Health Ecosystems have been established in Scotland, across England, France, Spain, Greece with further expansion planned in China later this year.
10. Finally many of our local companies have recognised the market opportunity and developed new innovative healthcare solutions. Kainos, for example, has developed its flagship Evolve Electronic Medical Records product that automates the creation, capture and handling of medical case notes. It is used in more than 70 hospitals, and supports healthcare providers on their journey to becoming a paperless NHS. Another local company, TotalMobile, has enabled Virgin Care to become one of the first NHS providers to equip staff with tablet computers, giving nurses access to all of the essential information they need while visiting patients at home.

Economy & Jobs Initiative

11. Following additional recommendations produced by the Task and Finish Group a number of activities have been undertaken in order to advance the connected health agenda locally, and includes:

Connected Health Integration Platform

12. The Connected Health Integration Platform (CHIP) is a software platform, linking the existing Electronic Care Record (and other data sources) with a range of applications running on smart devices such as telephones, tablets and computers. The rationale is that CHIP-based applications will enable patients, carers and clinicians to:
 - access a range of information;
 - monitor and manage health conditions; and
 - conduct service transactions and interactions
13. The potential benefits include increased efficiency, effectiveness, quality and safety of health and social care through the use of CHIP-based applications; and economic benefits through opening up markets for software application developers.

14. In order to facilitate cooperation and collaboration on a range of connected health solutions, including a CHIP, an MoU between DHSSPS and New York State Health Department was signed in April 2014 and preliminary discussions are underway with the New York eHealth Collaborative to explore the development of a CHIP and promote greater interoperability between the EU and US in the field of eHealth. Although still at an early stage, this work has the potential to generate significant economic benefits for Northern Ireland.

International Health Analytics Centre

15. The Task & Finish Group recognised that the capturing and structuring of clinical data in digital form and the emergence of effective analytical tools presents an opportunity to transform healthcare decision making. Following its report, Invest NI supported the establishment of a collaborative network made up of industry, academic and health professionals. This network has considered big data and health analytics, and the study defined opportunities that exist for the local health and social care system and economy of Northern Ireland.
16. The network proposes to establish NI as a reference centre for data analysis and, with support from Invest NI, has moved to a second, larger phase looking at proof of concept cases in three health priority areas. The first of these will examine laboratory results from Altnagelvin/C-Tric. The network will be led by the Northern Ireland Science Park with Dr Maurice O'Kane the lead Clinician in this initial project.
17. It is also expected that as a result of the Matrix, Foresight and Strategy work which is mapping out the complete health and life sciences sector locally (planned for delivery by January 2015) that further connected health activities will be identified and delivered.

Prepared by: Invest NI, Life Sciences, Electronic and Consumer Products
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