

The background of the slide features two hands, one from the top and one from the bottom, gently cradling a glowing digital globe. The globe is composed of a network of white lines and dots, resembling a data network or a digital sphere. The hands are rendered in a soft, realistic style with a slight glow, set against a dark blue gradient background.

The Application of Digital Media Industry to W. Scotland, N. Ireland, & the Irish Border Health Service Regions

EOA Research Report Section - DIT Ireland on behalf of Ruby Consulting & Partners

RSS Fellow Michelle Cowley-Cunningham

Electronic copy available at: <https://ssrn.com/abstract=2624351>

Objective

- To outline emerging digital health technology enterprise and information sources in an Irish regional context
- The report will inform *EOA Research Report Section - DIT Ireland on behalf of Ruby Consulting & Partners*

Background

- Digital healthcare, the application of digital media communication technologies to health issues (e.g., in the use of smart devices to tell patients when to take medication, or to relay medical information about concurrent health measures to centralised monitoring systems), presents digital media and health industries with unique interdisciplinary possibilities to research and promote healthy lifestyles while managing illness and health risk.
- Digital healthcare technology development for eHealth systems will enable regional and national healthcare investment to respond to emerging health and ageing population trends.
- Prospective issues highlighted in the EU task force report '**Redesigning health in Europe for 2020**', are about ensuring that all EU citizens have consistent access to a high level of healthcare across the EU, and at a reasonable cost to national healthcare systems.
- Emerging technologies-enabled solutions such as digital healthcare, or eHealth, has the potential to bring together medical and healthcare professionals, social scientists, public health policy advocates, computational and computer scientists, and digital media platform experts.
- An emerging-technologies approach advocates investing in helping patients and clinicians optimise health management in new resource, cost-efficient, and patient independent-living ways.

Aims

The report outlines and details sources relevant to digital healthcare typologies and emerging eHealth development potential in three main EU peripheral regions: Western Scotland, N. Ireland (but not Belfast), and the Republic of Ireland Border (or North East) region.

- I. First, the current regional specific digital health, or eHealth, projects and relevant government policy per region will be summarised.
- II. Second, health research institute capacity and emerging digital hub companies will be regionally discussed.
- III. Third, broadband and telecommunications infrastructure development, and labour market intelligence will be outlined.
- IV. Fourth, specific media articles, policy documents, web organizational and relevant project addresses, and funding sources per region will be listed.

Finally, some conclusions are drawn in light of the regional information sources collated in this report.

Scope

- Potential regional eHealth will be outlined within national strategic policy attending to national framework endorsement of digital health enabled health solutions for emerging health problems.
- Both Western Scotland and N. Ireland are attended by the HealthCare UK Digital Policy document 'Digital Health' (2015, www.gov.uk/healthcareuk). This report will show that their policies intend to support digital health solutions for central systems and services, at both national and regional levels, local systems and services, and personal care solutions and services.



National and Regional Strategic Policy for the Digital Health and eHealth Agenda - Scotland

- Thus far eHealth development in Scotland has focussed on a selfcare patient-centric agenda, both in general, and within a whole-system (National Health Service NHS) model for diabetic, pulmonary, and cardiac diseases.
- Preliminary research has shown in general that 75% of people not only search online for health information, but half of those that do self-diagnose accurately. Self-help interest, initial studies suggest, may advocate that effective development and tele-healthcare delivery by health services, has the potential to reduce A&E visits by 15%, reduce emergency admissions by 20%, reduce bed days by 14%, while potentially reducing mortality rates by up to 45%.
- One of Scotland's major connected health initiatives '**CellNovo**', developed a mobile-connected diabetes management system, and similar connected health facilities are now in full operation with '**Scottish Connected Health**' for over 270,000 diabetic patients in the region.
- Moreover, projects focussed on the application of digital communication technologies to mental health issues have begun to generate community acceptance, through initiatives such as the Glasgow High '**SafeSpot**' local e-service, for teenagers suffering with mood disorders or related symptoms.
- Not to mention '**GreyMatters**' which provides online resource promoting real-time communication and non-hospitalised treatment supporting patients with long-term conditions such as dementia, hypertension and rheumatoid arthritis.

Digital Health and eHealth Agenda – Northern Ireland

- Northern Ireland policy directives such as the '**N. Ireland: A Global Leader of the Digital Economy, A Sectoral Action Plan**' outlines their intentions regarding the digital economy development for N. Ireland with a strong focus on skills training, attracting global investment in the IT sector, and greater recognition of qualifications in the digital and IT sectors for that region (2014, in conjunction with Ulster Bank and Momentum: The Voice of the Digital Sector).
- While Telecommunications and ICT Health and Life Sciences provide one major area for potential development; there is a future aspiration by first focussing on skill set training rather than on a concurrent major program of initiatives in eHealth.
- That said with an NHS body of research and systems facilitation to draw from, within their national health systems framework, eHealth programs will become comparable once the skills training and digital and IT sector resources are in place.



Digital Health and eHealth Agenda – Rep. of Ireland

- The Republic of Ireland on the other hand has not only an EU policy directive agenda (2020) to accommodate, but a national policy document to work towards specific to their Health Service Executive system '**eHealth Strategy for Ireland**' (2013, Roinn Slainte- Department of Health, Ireland). This policy document outlines a comprehensive and detailed approach to implementing an eHealth program of healthcare solutions developed within a national framework.
- They note that eHealth (Electronic Health) involves not only the connected health agenda, but the integration of all healthcare information and knowledge sources via information technology systems ... *'including patients and their records, caregivers and their systems, monitoring devices and sensors, and management and administrative functions'* (p. 5).



Digital Health and eHealth Agenda – Rep. of Ireland

- The ‘**eHealth Strategy for Ireland**’ policy document provides a framework setting out what the eHealth framework intends to achieve, the actions or systems changes that need to be in place to realise eHealth strategies and objectives, the patient based and economic costings models advantageous to eHealth solutions, a framework for the evaluation of eHealth intervention effectiveness, and a life-cycle of eHealth solutions framework that evolves with technological intervention, without placing patients at untested risk.
- While forward-looking in its approach, a significant amount of systems restructuring will be required to realise the policy’s potential, particularly in changing working systems practice.



eHealth Research Capacity and Emerging Digital Sector Clusters

- For eHealth technology to fully realise the solutions that the outlined national and regional policies purport to be essential, the appropriate information technology resources, labour market skill sets, research and development opportunities, and eHealth specific enterprise must be in place.
- Next we take a look at how ready these regions are to implement the policies they endorse.

Emerging Digital Sector Clusters

- An analysis by region for Western Scotland, N. Ireland (¬Belfast), and the Republic of Ireland Border (or North East region) shows that the relevant enterprise can be located in each area, if only at strategic locations to link up with urban areas rather than rural.
- Western Scotland, and the Glasgow region in particular, are at the forefront of digital health research and digital hub creative enterprise clusters, in having **a Digital Health Institute** (<https://dhi-scotland.com/>) with a specific focus on exploratory, laboratory, and factory digital and eHealth roll-out programs, ranging in applications from clinical decision support platforms to mental well-being, a collaboration with **the Glasgow School of Art's Creative Media** hub, and a new creative digital hub at **Pacific Quay Glasgow**.
- Recent investment in the digital hub development initiatives (£6.6million <http://www.bbc.com/news/uk-scotland-26528176>) including funding remits with companies such as **IOMART Cloud Computing** has given a boost to the region presenting ample opportunity for digital and eHealth initiatives.



Emerging Digital Sector Clusters

- While N. Ireland remains committed to information technologies skillset training and qualification recognition within their digital sector, they have recently invested in linking up with forerunners in the digital health and eHealth cognate information technology industries, such as with world leading digital economies like Estonia (<http://www.northernireland.gov.uk/news-dfp-240315-hamilton-announces-digital>), and the New York initiative.
- The Western Scotland network, including the **Digital Health Institute** has links to the N. Ireland policy drive, and the development of their own digital media hubs such as the **Creggan Enterprises Digital Media Arts Studio** could provide potential should a suitable project present.



Emerging Digital Sector Clusters

- The Republic of Ireland Border (North East region) presents a challenge in that the north east region presents a fertile breeding ground for eHealth and digital health technology investment, but limited link up between this enterprise, research institute capacity, health service systems, and digital hub development, beyond the national eHealth policy's intent.
- That said, the resources and the framework do exist, for example in the potential link up of the **Dundalk Institute Netwell Centre**, the **Boyne Research Institute**, the **Health Service Executive** hospital network and outpatient providers, and local creative media digital hub companies such as **MorSolutions**, or **Dell Financial Services** funding frameworks.

Broadband and Telecommunications Infrastructure and Labour Market Intelligence

- Broadband infrastructure provision for Western Scotland, N. Ireland (↪ Belfast), and the Republic of Ireland is up to date with regard to internet and telecommunications providers. That said, high-speed broadband and telecommunications drives have had to be endorsed as political propositions in both Scotland and N. Ireland to ensure consistency and quality of service across each region.
- Labour market indices per region indicate that there is no predicted future shortage of qualified information technology graduates, but computer literacy remains a proportionate challenge for the ageing population; those often most likely to be predicted to benefit from eHealth technology solutions.



Conclusions and Regional Challenges

There is a growing regional divergence in the uptake of eHealth technologies at the day-to-day implementation and emergence level, not only in Scotland but in N. Ireland.

In comparison with the Rep. of Ireland's roll out strategy outlined in their eHealth Strategy for Ireland Policy Document to 2020, present links between large investment announcements in regional digital media hubs, and tangible successful digital technology interventions for healthcare are not yet determined.



A disconnect between digital media and healthcare experts and their respective projects remains to be overcome in each region.

Direct and monitored investment in interdisciplinary cross sector research projects, for the purpose of measured intervention with direct comparison to traditional healthcare methods, is required.

Conclusions and Regional Challenges

A background image showing two hands, one from the top and one from the bottom, holding a glowing, spherical digital network of nodes and lines. The hands are positioned as if supporting or presenting the sphere. The overall color scheme is dark blue with white text and glowing elements.

- Overcoming the differences between private sector ethos for digital media enterprise and innovation, and the public sector policy agenda ethos regarding legislative and healthcare efficiencies, will remain a challenge.
- That said, while labour market intelligence shows that there is no shortage of digital age skillsets per regional population, an apt skillset training agenda is not compulsory for the medical professionals who will instruct patients in eHealth technology usage.
- In sum, the uptake of innovative eHealth technologies by the health service sector will require sustained and consistent professional development.
- The networking commitments to develop efficient and effective eHealth policy from concept to policy implementation is enthusiastically underway.

Media Articles, Policy Document Downloads, & Regional Industry Websites:

Scotland UK

- The UK: Your Partner for Healthcare Solutions/ Policy Document on Digital Health https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/402227/Healthcare_UK_Digital_Health_Jan_2015.pdf
- Pacific Quay Glasgow: Creative Digital Media Cluster <http://www.bbc.com/news/uk-scotland-scotland-business-22116672>
- NHS Health Scotland <http://www.healthscotland.com/index.aspx>
- Scottish Centre for TeleHealth & Telecare: Database of Ongoing Projects <http://www.sctt.scot.nhs.uk/database/>
- SafeSpot, Glasgow High School Mental Health Project <http://safespot.org.uk/>

Media Articles, Policy Document Downloads, & Regional Industry Websites:

Scotland UK

- Healthy Working Lives Brand Tracking: wave 3 2014 <http://www.healthscotland.com/documents/24893.aspx>
- Digital Asthma Self-Management Interventions: A Systematic Review Morrison, D., Wyke, S., Agur, K., Cameron, E., Docking, R., MacKenzie, A., McConnachie, A., Raghuvir, V., Thomson, N., and Mair, F. (2014) Digital Asthma Self-Management Interventions: A Systematic Review. *Journal of Medical Internet Research*, 16(2), e51. (doi:10.2196/jmir.2814)
- BBC Click Website (Computer & Digital Advances Scientific Reports): <http://www.bbc.co.uk/programmes/b006m9ry>
- Digital Health Institute Scotland <https://dhi-scotland.com/who-we-are?locale=en>
- University of Glasgow (see Digital Humanities and Digital Health Search Results) <http://www.gla.ac.uk/>
- Grey Matters UK (Dementia eHealth) www.greymattershc.co.uk
- The Scottish Government Website: <http://www.gov.scot/#slide/4>

Media Articles, Policy Document Downloads, & Regional Industry Websites:

Scotland UK

- Skills Development Scotland: Labour Market Intelligence <https://www.skillsdevelopmentscotland.co.uk/>
- Glasgow hosts national digital conference: <http://www.bbc.com/news/uk-scotland-scotland-business-27605460>
- Scottish digital sector gets £6.6m boost to attract jobs: <http://www.bbc.com/news/uk-scotland-26528176>
- IOMART Cloud Computing Company Glasgow <http://www.iomart.com/>
- State Aid Public Consultation: Broadband Infrastructure Provision in Scotland: <http://www.gov.scot/Publications/2015/02/4674>
- Scottish Connected-Health (Diabetes Project) www.sci-diabetes.scot.nhs.uk
- Grey Matters UK (Dementia eHealth) www.greymattershc.co.uk
- Cell Novo UK (Diabetes Connected-Health) www.cellnovo.com

Media Articles, Policy Document Downloads, & Regional Industry Websites:

Northern Ireland (→ Belfast)

- N. Ireland Executive Website <http://www.northernireland.gov.uk/index.htm>
- NHS Health & Social Care Trust N. Ireland <http://online.hscni.net/>
- Responding to the Connected Health Agenda: QUB Conference <http://www.qub.ac.uk/cm/gp/ConnectedHealthAndMedicalEducation.htm>
- Digital Health Institute Scotland- Northern Ireland Connected Health Ecosystem: Medicines Optimisation <https://dhi-scotland.com/events/33>
- Momentum Digital Action Plan for N. Ireland 2014 <http://www.momentumni.org/getdoc/5b9eb664-b17e-41ef-a178-1d4a52acb598/DigitalAction-Plan-Cover---Copy.aspx>
- Enterprise, Trade and Investment Minister, Foster, has announced details of a major £17million investment to improve the broadband infrastructure across Northern Ireland. <http://www.northernireland.gov.uk/news-deti-020315-foster-announces-major>

Media Articles, Policy Document Downloads, & Regional Industry Websites:

Northern Ireland (→ Belfast)

- Creggan Enterprises Digital Media Arts Studio: <http://www.northernireland.gov.uk/index/media-centre/news-departments/newsdsd/news-dsd-nov-2012/news-dsd-301112-mccausland-opens-digital.htm>
- Skills needed for jobs of the future should be considered now - Farry <http://www.northernireland.gov.uk/news-del-200315-skills-needed-for>
- Finance Minister Simon Hamilton MLA today announced a digital partnership with the Estonian government. <http://www.northernireland.gov.uk/news-dfp-240315-hamilton-announces-digital>
- Health Minister Edwin Poots will travel to the United States today for high-level talks about developing a ground-breaking collaboration network with the New York Health Department (NYHD). <http://www.northernireland.gov.uk/index/media-centre/news-departments/newsdhssps/news-dhssps-november-2013/news-dhssps-131113-health-minister-in.htm> Newry Institute of Further Education
- <http://www.src.ac.uk/courses/course-type/full-time-courses/health-and-social-care>

Media Articles, Policy Document Downloads, & Regional Industry Websites:

Northern Ireland (↗ Belfast)

- R. of Ireland Border Counties (North East ↗ periphery)
- Health Service Executive HSE Ireland (English Language Version) <http://www.hse.ie/eng/>
- eHealth Strategy Policy Document HSE Ireland <http://www.hse.ie/eng/about/Who/OoCIO/ehealthstrategy.pdf>
- Irish Government Website: <http://www.gov.ie/>
- Department of Health Ireland <http://health.gov.ie/>
- Dundalk Institute of Technology <https://www.dkit.ie/>
- Netwell Centre, Dundalk Institute of Technology (Home Health Technologies) <https://www.dkit.ie/research/centres/netwell-centre>
- Dundalk Institute of Technology School of Informatics & the Creative Arts <https://www.dkit.ie/informatics-creative-arts>

Media Articles, Policy Document Downloads, & Regional Industry Websites:

R. of Ireland Border Counties (North East → periphery)

- Dundalk Institute of Technology School of Health & Sciences <https://www.dkit.ie/health-science>
- Drogheda Institute of Further Education (Community & Healthcare Training) <http://www.dife.info/index.php/community-and-health-care>
- School of Statistics & Computer Sciences Trinity College Dublin <https://www.scss.tcd.ie/>
- Becton Dickinson & Co., Donore Rd. Drogheda <http://www.idaireland.com/en/newsroom/bd-celebrates-50-years-in/>
- Boyne Research Institute (North East Research Institute for Local Epidemiology) <http://www.boyneresearch.ie/>
- Mor Solutions Digital Strategists <http://morsolutions.com/>
- CTI Solutions Drogheda & Dundalk: Cloud Computing <http://ctibusinesssolutions.com/services/cloud-based-services/>

Media Articles, Policy Document Downloads, & Regional Industry Websites:

R. of Ireland Border Counties (Dublin)

- The Digital You <https://www.scss.tcd.ie/news/index.php?id=32>
- Silver Cloud Mental Health Platform: <https://www.silvercloudhealth.com/uk>
- Dell Financial Services Announce 10million Euro Funding for Start-Ups 2014 <https://www.dkit.ie/computerservices/dell-reveal-%E2%82%AC10m-technology-fund-irish-start-ups>

Research Funding for R. of Ireland, UK (W. Scotland & N. Ireland)

EU

- EU Framework Funding for Innovative and Sustainable Health Systems http://www.welcomeurope.com/european-funds/third-health-programme-3-innovativeefficient-sustainable-health-systems-913+813.html#tab=onglet_details

Republic of Ireland

- Enterprise Ireland <http://www.enterprise-ireland.com/en/Start-a-Business-in-Ireland/Startups-from-Outsidelreland/Key-Sectors-and-Companies-in-Ireland/ICT-sector-profile.html>
- Irish Research Council Horizons Scheme <http://research.ie/scheme/new-horizons-research-project-scheme-advance-notice-call>
- Irish Research Council Enterprise-Academia-Social Engagement Schemes <http://research.ie/enterprise>
- Science Foundation Ireland: Industrial Partners Research <http://www.sfi.ie/working-with-enterprise/programmes-with-industry.html>
- Health Research Board Ireland <http://www.hrb.ie/research-strategy-funding/>

Research Funding for R. of Ireland, UK (W. Scotland & N. Ireland)

UK

- UK Future Technologies Fund http://www.eif.org/what_we_do/resources/UK_FTF/
- Medical Research Council: Population & Systems Medicine <http://www.mrc.ac.uk/funding/science-areas/population-systems-medicine/>
- Science and Technologies Facilities Council <https://www.stfc.ac.uk/178.aspx> The British Council (Education in Science and Technologies Section) <http://www.britishcouncil.org/education/science/newton/stem-education-programme>