THE SMART ATLANTIC WAY

A roadmap towards a Smart Region

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Preface

Developing and executing a roadmap towards a Smart Region is a very challenging exercise, and one which is absolutely necessary in the current and future context of the early 21st Century. On the one hand, there are many burgeoning threats to the prosperity and welfare of all regions and places, ranging from the local to the global, including climate change, energy security, jobs and runaway technological disruption, as well as political upheavals. On the other hand, there are numerous and huge opportunities for taking advantage of these technological changes in order to develop the capacities of people and places, to raise standards of living for all, and to move decisively towards greater harmony between human development and natural systems on which all sustainable progress relies.

This roadmap, developed as part of the Smart Atlantic Way Initiative, is a robust, forward-looking and smart way to both counter these threats and grasp the many opportunities available. It derives from a diligent analysis of regional needs and aspirations within the broader national and European context, and stakes out a highly ambitious but also realistic and pragmatic way forward. It provides both a clear-sighted medium- and long-term vision, whilst also building-in sufficient flexibility and resilience in order to meet what will undoubtedly be radical and often unexpected changes in the years ahead.

At its core, this roadmap focuses on strong collaboration between all regional stakeholders: authorities, research institutions, businesses and communities of people. It aims to sustainably exploit and further develop all the assets and sources of innovation which the region possesses: both human entrepreneurship, creativity, community and culture, as well as the natural assets of geography and location that Western Ireland enjoys in abundance. It takes as its starting point the indivisibility of the regional space, both urban and rural, and how this must be seen and developed as an integrated and functioning entity. Similarly, it understands that all sectors of the economy, all stakeholders and all modes of life and living need to work holistically in a complementary manner rather than separately in silos. Thus, the critical importance of smart governance that goes beyond, but is anchored within, the roles of the various administrations. Importantly, the roadmap is fully compatible with and supportive of the United Nations' Sustainable Development Goals for 2030 and Ireland's commitment to these, as well as with European strategies and research and innovation frameworks up to 2020 and beyond.

Finally, this Smart Atlantic Way roadmap recognizes and aims to exploit the rapid advances in technology within the context of the Fourth Industrial Revolution as one of the main tools of inclusive innovation towards the goals of regional prosperity, welfare and sustainability.

Jeremy Millard, EU Policy Advisor, August 2018

Introduction

The concept of a Smart Region is a development framework which builds upon the Smart City model, and recognises that, in order for our region to achieve our Smart future potential, we need to consider the opportunities, benefits and challenges that Smart deployment can offer. We need to look beyond the traditional application in the urban context and move towards a Smart future that embraces both urban and rural regional settings.

The Smart Atlantic Way Initiative aims to build upon the progress made in the Smart Places Project. The focus of the 'Smart Places' Project was to better understand our regional Smart position, through examination of the stakeholders, available capacities, datasets, smart initiatives and innovation networks in the West, North West & Border area of Ireland. This includes the counties of Cavan, Clare, Donegal, Galway, Leitrim, Mayo, Monaghan, Roscommon and Sligo and involves relevant local authorities (nine County Councils and Galway City Council), which represents a population base of 1 million.

In this report, we set out to better understand the priorities for a regional approach, how far we are from achieving meaningful alignment across the region, what we need to do to progress towards the development of a Smart Region in order to achieve greater cohesion and strengthened rural economy in the Western Region. As we conclude this first report, our aim is not to provide a fixed and final position, but rather to enable broader and more informed engagement with national & international stakeholders in order to design the long term smart strategy for our place on the North-West of Europe.

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Section I - What is a Smart Region and why do we want one?

Smart Region, according to Smart Places
A high-tech intensive and advanced approach connecting people, information, governance and politics using new technologies to create an efficient, clean, energy secure, sustainable, eco-friendly, competitive and innovative region with an enhanced quality of life

A definition of the Smart Region concept, as adopted by the Smart Places project, is shown in the box on the right.[1] In simple terms a Smart Region is a large area, of mixed urban and non-urban use, where smart technologies have been deployed to benefit the economic growth, quality of life and wellbeing of citizens in the region. The rest of the report makes frequent references to "Smart Technologies." It is therefore useful to briefly describe what is meant by such technologies. We consider the technologies contributing to the development of a Smart Region to include any digital tools, infrastructures and processes that can support citizens, local government, decision-makers and businesses within the region to make better, more informed and agile decisions, as well as to put in place more effective, direct and assessable actions in relation to those decisions.

This includes technologies that are associated with the collection, management, processing and analysis of data associated with various aspects of the region, such as intelligent sensors and Internet of Things, data science, data management and machine learning approaches. This could also potentially include robotics and autonomous agents. It is derived from the similar Smart City concept, where a shared technological infrastructure is used to benefit citizens in a particular urban area. It however also recognises that cities do not exist in isolation, and that concentrating on the Smart City approach would be, at best, a missed and limited opportunity. The concept of a Smart Region is therefore much broader and considers smart technologies deployed throughout a larger geographical area, which can englobe urban as well as non-urban areas. As such, it also potentially addresses a set of priorities, typically addressed by Smart Cities (transport, energy, etc.), as well as collaboration between multiple local authorities, the business community, the academic community and the local community.

The concept of our Smart Region approach is one that considers what can be better achieved within our region, and how technology and expertise can be deployed to reach this ambition. It is important to first take a closer look at what are the expected benefits of what we now have named as 'The Smart Atlantic Way'.

1 http://smartplaces.insight-centre.org/

THE SMART ATLANTIC WAY

A roadmap towards a Smart Region

The main question when planning for a Smart Regional approach is "To what purpose?". Below we propose the benefits and the indicators of success. These indicators are related to two main categories:

- **Measuring the economic growth in the region, and**
- **Measuring of the wellbeing of its inhabitants.**

In order to frame the benefits and likely impact of the Smart Atlantic Way initiative, we need to consider the example on the righthand side of this page, which describes the experience of the Helsinki Smart Region in Finland.[2] As can be seen, while significantly bigger and substantially different from our region, there are also a number of similarities and overlaps, including the presence of a large coastal area and of a mixed urban and rural territory. The view promoted by the Helsinki Smart Region is that a Smart Region is a combination of the concepts of smart city and smart rural. The key focus of developing the region into a smarter one includes the various priority areas - health and well being, digitising industry, citizen city, smart minds, urban cleantech, which reflect the expected benefits of not only the deployment of smart technologies, but also of establishing a smart approach to business and industrial development, governance and the quality of life for the citizens of the region. As we are now designing and considering our own challenges and resources, we can use these international case studies to point towards the benefits that we can prepare for and set course towards in relation to the same priority areas, business, governance and quality of life.

Example: Helsinki Region
Helsinki Smart Region is the capital region of Finland with 26 municipalities and 1.6 million inhabitants. It includes 300km of coastline and highly qualified human capital. The region has an international airport and four international ports. With harsh Nordic weather conditions, an ageing population but long traditions in engineering, the Helsinki region is seen as a perfect testbed for urban services and activities. Different players from the whole Helsinki region - business, cities, public sector, research, education centres, start-ups and the citizen - create smart innovations and tests together. The region's smart specialisation strategy directs these various activities. The Helsinki region has in recent years applied the concept of Smart Specialisation in the development of the region. This has included identifying key priorities for a smart approach in the region, including industry digitalisation, clean technology, health and wellbeing and the "citizen's city".

Short term intended Impact & Benefits Improvement on aligned participation and focus from business, governance and public servants works towards an improved quality of life, governance, data infrastructure and sectoral connectivity. While Helsinki focuses on participation and well-being, the Highlands[3] of Scotland (see box on page 4) put stronger emphasis on connectedness (both of people, through smart mobility, and of data, through wireless networks) and efficiency (through the smart waste project). Both have participation and concertation with citizens and businesses at their core.

2 https://www.helsinkismart.fi/
3 http://enterprisinghighland.com/invest/smart-cities-projects

For example, a Hackathon[4] was organised recently that, based on data available in the broad Scottish Highlands region, was seeking innovative answers to questions such as **"How do we ensure that the rural economy is boosted by the data-led industrial revolution?"**

Or

"Are our young people supported to grow, innovate, create in the data space - are we preparing them for the jobs and lifestyles of the future?"

Those questions are, without a doubt, as critical in our Smart Region of Ireland as they are in the Highlands of Scotland. Importantly, what both examples show and what we have learned, is the need to prioritise investment into a coordinated Smart Regional approach, as well as for a focus on smart technology deployment and relevant infrastructure build out with a pipeline of projects that are relevant to the specific challenges and opportunities of this region. Both the Highlands and Helsinki have shown that the smart approach was accompanied with the creation of innovative platforms and digital infrastructures dedicated to empowering the citizens, businesses and organisations of the region to develop innovative solutions to their own challenges.

Example: The Highlands
The Highland Council in Scotland are currently engaged in a number of projects supporting their cities in becoming smarter and better connected. Designed to use data and technology to enhance the region's environmental sustainability, it's economic development, and the well-being of it's citizens, these projects aim to turn Inverness and its region into a smart city and a Smart Region. They include the development of an open data portal, the use of sensor data to optimise waste collection routes, improvement in the transport network with a focus on smart public transport, and the deployment of public wireless networks across the region.

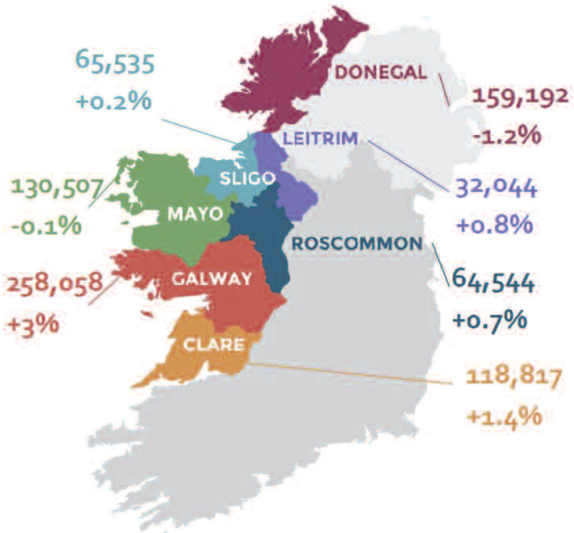

Figure 1. Represents the population of each county and how much this population has changed according to the last census between 2011 and 2016.

Our emerging Smart Region

The region considered by the Smart Places project, the West, Borders, & North-West of Ireland, has a total population of approximately one million people. As can be seen from the graph on the left[5], this population is unequally distributed between the different counties, with Galway being not only larger, but also having a significantly growing population, while others, such as Donegal, are both less populated, less dense, and have seen a decline in number of inhabitants between 2011 and 2016.

4 https://www.datafest.global/events-feed/2018/3/19/datafest-2018-digital-highlands-and-islands
5 This picture represents the population of each county and how much this population has changed according to the last census between 2011 and 2016. Source: https://www.wdc.ie/wp-content/uploads/WDC-Insights-GMIT-29-Nov-2017-online.pdf

Such differences in population and growth is the underlying challenge with respect to the creation of a cohesive and inclusive Smart Regional Approach.

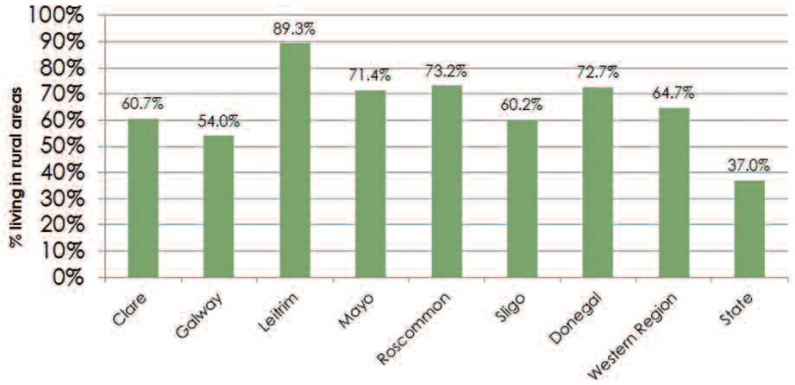

Figure 2. Percentage of population living in rural areas in 2016.

The challenge is also in the labour market and job growth. As job growth in the different counties is highly correlated to population growth,[6] it is not surprising that the larger urban centres have significant activities in sectors of growing economic importance and innovation (e.g. medical devices). The largest part of the territory covered by the region is essentially rural (see chart above[7]), thus contributing a large part of the country's agricultural products.[8] The WDC[9] region also has a lower percentage of people in the labour force, and in employment than the average in the state, as well as a proportionally higher number of retirees, with Galway city here, again, being significantly more similar to the national average than other parts of the region.[10] It is worth noting that, besides the agriculture, forestry and fishing sector, the region is also significantly more active than the average in the state in the industry and health and social work sectors.[11]

Figure 3. Key transport routes in the region.

In terms of infrastructure, the region's transport network focuses on the connection out to the rest of the country, and on the key centres of employment in the region, including Galway, Sligo and the cluster around Letterkenny, Derry and Strabane.

As shown Figure 3[12], this focus in transport infrastructure is reflected also in the data connectivity infrastructure deployed in the region.

6 https://dbei.gov.ie/en/Publications/Publication-files/County-Employment-Overview.pdf
7 https://www.wdc.ie/wp-content/uploads/WDC-Insights-GMIT-29-Nov-2017-online.pdf
8 https://www.ifa.ie/cross-sectors/economics/value-of-agriculture-2016/
9 https://www.wdc.ie/
10 https://www.cso.ie/en/media/csoie/newsevents/documents/census2016summaryresultspart2/ & https://www.wdc.ie/census-2016-principal-economic-status-in-the-western-region/
11 https://www.wdc.ie/employment-by-economic-sector-in-western-counties-whats-happening/
12 https://www.nwra.ie/publications/#regional-planning

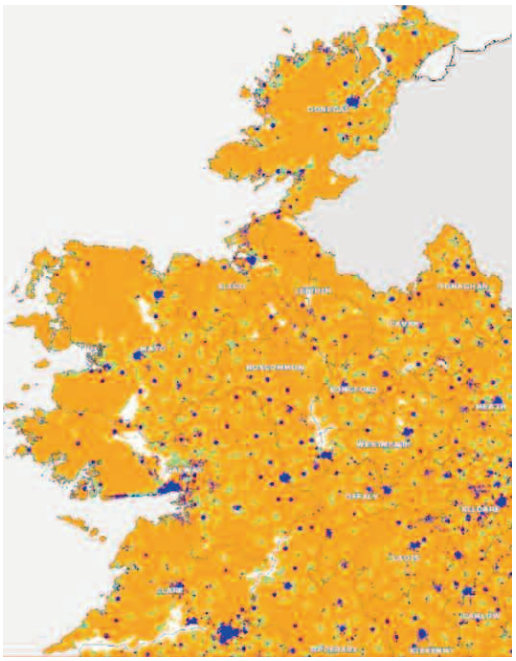

Figure 4. Broadband heatmap in the region. [13]

Considering the strong reliance on rural space and agricultural activities, but also the presence of areas highly attractive to tourism,[14] environmental sustainability is key to the region. As can be seen in Figure 5[15] a large portion of especially the coastal areas in the North-West of Ireland are considered protected areas.

These brief insights represent only a highlevel summary on some key profile aspects of our region. This gives us a brief look into the challenges that our region is facing in relation to the need for economic growth in a place where traditional sectors such as agriculture and industry are prominent, outside of urban innovation centres. This underlines the need for a Smart Strategy enabling the urban, inter urban and rural populations of our entire region to participate in building out and growing on our Smart Regional Approach, with a view to growing a Smart Ecosystem that is 21st century ready.

How far are we from a Smart Region?

In order to understand how we can participate in and benefit towards realising the benefits of a Smart Regional Approach, we conducted a series of online surveys and workshops with stakeholders, to understand how "ready" we are for the deployment of a smart approach, and to analyse the strengths, weaknesses, opportunities and threats that are being perceived by those stakeholders. The details of those surveys and workshops, and of their analysis are described within the "Smart Places Region Readiness Report".[16]

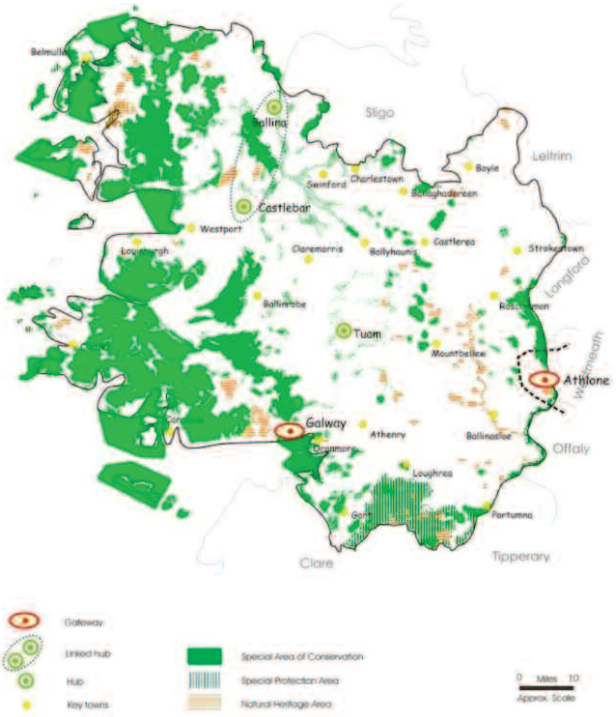

Figure 5. Environmental designation in the region.

13 *Smart Places Region Feasibility Study - Internal Baseline Study, Smart Places team, 2017. Image attributed to SEAI.*
14 *http://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/3_Research_Insights/4_Visitor_Insights/Regional-tourism-performance-in-2016-(Revised-March-2018.pdf?ext=.pdf*
15 *"Regional Planning Guidelines – West Region" at https://www.nwra.ie/publications/*
16 *"Smart Places Region Feasibility Study - Readiness Report", Smart Places team, 2018*

In the context of our existing study, it was agreed to highlight key examples of smart initiatives that represent a step forward towards establishing our Smart Region, and increase our collective readiness to participate. The description of these examples is based on four priority areas, that are emerging as areas of work where the Regional Smart Approach has already shown some adoption across stakeholders: Governance, Business, Sustainability and Community.

Example: Roscommon County Council Open Data Portal
This Open Data Portal has been made available by Roscommon County Council for the purpose of promoting innovation and transparency through the publication of data relating to the County of Roscommon in open, free and reusable formats, as well as through stats, graphs and apps.

Smart Governance: As we progress towards a local and regional interconnected region, we can learn from the e-Government Unit of the Insight Centre for Data Analytics at the Data Science Institute of NUI Galway and the 2018 International Conference on on Theory and Practice of Electronic Governance (ICEGOV[17]) which took place in Galway, with experts from around the world. In building and learning from existing smart-city initiatives, and in order to create a future-ready regional environment, with the critical infrastructure and intelligent, efficient and interconnected online services, we need to consider how our administrative structures and processes could work across multiple local government agencies and departments. This appears as an important prerequisite to success in these initiatives. A model of governance for multi-agency initiatives can be viewed as a foundation corner stone in creating smart regions. Smart platforms will ensure that policies and decisions become more transparent and approachable, and enable with online social media and open data empowering people to connect with local authorities on issues that are important to them, and the local authorities to focus on areas of core significance for the region, in collaboration with the citizens of the region.

Various initiatives have shown ways through which citizens can become more connected and more engaged with their region, including alert systems such as the one in Monaghan[18] or rich information portals, such as the Webcasting site in Roscommon.[19] Using open and public data about the local area to create engaging ways to inform governance and participation is also more and more on the agenda, as demonstrated by Roscommon County Council through their Open Data Portal[20] (box above).

17 http://www.icegov.org/
18 https://alerts.monaghancoco.ie
19 https://roscommon.public-i.tv/core/portal/home
20 http://data-roscoco.opendata.arcgis.com/

From the Annual Budget and Local Election results to Local Area Plan zonings and planning data, the portal not only ensures the Council is satisfying its obligations under the National Open Data Strategy, it also makes useful and popular, datasets available for anyone to view, analyse, and incorporate into their own products and services under an open licence. A recent example being the incorporation of the Councils' Event Calendar into the MapAlert service, proactively keeping citizens up to date on local events of interest while promoting the local economy at no extra expense to the Council itself.

Smart Business: There are many advantages and many challenges in establishing a business in our region. While several hubs for innovation exist in specific fields, such as medical devices and IT services, it is important to enable those businesses to stay connected, with each other and the rest of the world, and to benefit from the deployment of smart technologies. In other words, businesses nowadays have to become smart businesses, able to exploit data about not only their own activities but also about their environment, other stakeholders in the region and the skill-base available locally in order to meaningfully engage with those aspects, and benefit as much as possible from their embedding in the region. This applies as much to large high-tech companies as to more traditional small businesses. Part of the Smart Region Approach therefore includes a shared platform enabling entrepreneurs, developers and business managers, as well as those who interact with them, to connect and to access, the data, the technological know-how and the local organisations to support the deployment of smart solutions answering to their specific business needs. The Smart Region approach can therefore help deliver greater economic growth in the region.

Initiatives to support smart business development have grown rapidly in the last few years in the region, including the establishments of strong, technology-startup networks (e.g. BioInnovate[21], TechInnovate[22]), a network of enterprise centres, and a network of the Business Chambers - Atlantic Economic Corridor, which represents the forefront of start ups, SMEs, and FDI companies. In addition, a number of business incubators and accelerators exist to support small companies and startups in establishing themselves in the region (e.g. Portshed[23] and the IIBC[24] in Galway and Castlebar). It is also worth mentioning that national programmes to support innovation, such as New Frontiers[25], and initiatives such as CoderDojo[26] for training in technology from a young age have a strong footing in the region. Finally, this region of Ireland is rich with Universities and Institutes of Technology, with a continuous pipeline of young people educated in technology- and innovation-related careers, as well as an incoming, international, research population resident in the region.

21 http://www.bioinnovate.ie
22 http://www.techinnovate.org/
23 https://portershed.com/
24 http://www.gmit.ie/iibc/
25 http://www.newfrontiers.ie/
26 http://coderdojo.com/

Sustainably smart: While our economic growth and support to businesses in adopting a smart approach is critical, it is important for our Smart Region to ensure that such growth is sustainable, both economically and environmentally. This strongly relates to the area of smart business, public and private stakeholders, as we prepare to minimise the environmental impact of our activities. As we manage and conserve environmental resource in a sustainable way, especially in agriculture and tourism, the deployment of smart technologies, including the monitoring and analysis of data associated with environmental factors as well as with the activities affecting them have started to show promises in the way of a sustainably smart approach.

Example: SmartBay
SmartBay Ireland supports the national marine test facility for the development of innovative products and services for the global maritime sector. This includes the trial and validation of novel marine sensors, prototype equipment and the collection and dissemination of marine data to national and international users of the facility.

Projects such as SmartBay[27] (see below) are representative of the need for our region to manage our relationship with the ocean, as part of its "smart rural" priority. The large presence of coastal areas has also led to the region being strongly involved in marine renewable energy[28] in addition to hosting the largest wind farm of Ireland.[29] Recognising the importance of preserving both the natural landscape of this part of Ireland and of encouraging healthy living, the region has also been leading the establishment of sustainable transport solutions i.e. greenways, rail, public transport - we have the longest greenway[30] along the coast in Ireland.

These and many other initiatives exist across the region that can support the deployment of a Smart Regional Approach. These initiatives remain however localised and disconnected. Core to the concept of Smart Region, is to enable the benefits in a technology-supported approach across the whole region. In working towards this, we therefore propose a set of recommendations towards a base framework that will enable such a smart approach in our region along those priority areas.

Smart Communities: With our region comprising of mainly rural communities, economic activities are centred around farming, fisheries and forestry. According to the "Smart Places Readiness Report", economic activities in our communities are steadily growing by harnessing digital technologies with considerable attention to environmental costs and impacts of the initiatives. The increasing deployment of broadband connectivity in our communities is enabling inhabitants to participate in innovation activities originating in other more urban regions.

27 http://www.smartbay.ie/
28 http://www.marine.ie/Home/site-area/infrastructure-facilities/ocean-energy/marine-renewable-e nergy
29 https://www.coillte.ie/irelands-largest-wind-farm-enters-commercial-operation/
30 http://www.greenway.ie

So overall, a solid foundation for innovation and use of digital technologies in agriculture, fisheries, forestry, marine has been laid over the past few years. Future smart community initiatives are expected to include growth of networks of enterprise centres, innovation centres and digital hubs to strengthen the local community economies and revert migration of our youths from our region to other parts of the country.

Section II - Towards a Truly Smart Region

An article co-authored by members of the Smart Places project[31] describes the development of a Smart Region in three phases: 1- Improvisation, 2- Governance and 3- Optimisation. Our region, as described in the previous sections, can be considered in the improvisation phase: Great initiatives exist that help make the region smarter, but those are specific to a sector or an area, with limited connections with other sectors or areas. Relying on those initial projects, our goal is to initiate a Smart Region Framework with key stakeholders, so to move our region to the second stage, governance, with a cohesive and coordinated Smart Regional Approach across the region. This will allow us to develop, to consider, to discuss and to respond to the challenges and opportunities specific to the region, while we are building a Smart capacity base, that is underpinned with proven leadership. Based on the analyses and studies conducted within the Smart Places project and summarised in this report, we propose five pillars to form the Smart Regional Framework. These pillars are our priority areas of work in the short to medium term, which will guide and support the establishment of our Smart Regional Approach.

Vision & Objectives

The vision of the Smart Atlantic Way (SAW) initiative is to co-develop the enabling collaborative mechanisms and digital infrastructure to optimally harness available resources, capacities and natural endowments distributed across the region and to create new capacities as well as value chains which will strengthen our regional economy and address other priority challenges.

To realise this vision, the SAW initiative has adopted the following set of objectives:

1) Work with local authorities, businesses, civil society, academia, representatives of inhabitants and other stakeholders to identify areas which will lead to economy of scope and scales in the region; and determine the needs of these stakeholders in developing the capacity to participate and lead Smart Region initiatives.

2) Establish a Regional Knowledge Hub and a Data Infrastructure to provide access to technical expertise, knowledge and data resources for enabling the initiation, development and sustainability of stakeholder-driven SAW initiatives.

31 *O'Brolchain et al., Examining the feasibility of a Smart Region approach in the North West Atlantic and Borders Region of Ireland, ICEGOV 2018.*

3) Develop a Governance Framework to guide the appropriation of decision rights in SAW initiatives, provide mechanisms for coordination and monitoring of ongoing initiatives at community, local authority and regional levels for effectiveness and attainment of associated regional goals.
4) Facilitate creation a network of businesses and nonprofit entities engaging in region-wide value ccreating initiatives and an active community of stakeholders to engage and support emerging initiatives.

These objectives are realised through the five pillars of SAW activities described below.

Priority 1: **Smart Regional Observatory**
Priority 2: **Data Infrastructure and Services**
Priority 3: **E Governance**
Priority 4: **Smart Business Network**
Priority 5: **Smart Communities**

Priority 1: Smart Regional Obersvatory

In order to craft a vision for our sustained and integrated regional smart future, we propose to establish a "Smart Region Hub". In the first instance, this will be a Think-Tank and an observatory in order to mobilise expertise, knowledge and to inform policy with regard to planning for deployment of a Smart Region approach. This Think-Tank will frame engagement with the business sector, the local government, the R&D sector and our regional communities.

The role of this Smart Region Hub is to prioritise and enable the deployment of our Smart Regional approach, by first identifying the strategy and priorities in pursuing this ambition, as well as enabling the dynamic and transparent monitoring of important indicators in the region. In becoming the main center for the Smart Region Approach, the hub should also represent the central point where smart initiatives converge to become more cohesive and coordinated. This hub will enable multi-sectoral, multi-level and sector-specific collaboration as a central tenet of the Smart Region Approach.

The Smart Region hub does not require to be physically located in one particular place, however it will be positioned and conceived virtually as a "centre" acting in consultation with stakeholders from across the whole region.

Priority 2: Data Infrastructure and Services

While the framework for a Smart Region goes well beyond the technological aspect, data is at the basis of the smart approach we are promoting here. A data infrastructure is a shared technological platform where data can be collected, processed, shared and analysed from across the region. It represents a set of facilities and smart services that support stakeholders in the region in obtaining and using data. This goes across the three priority areas described in the previous section: 1- It should enable transparency by providing citizens with easy access to the same information base as local authorities and other organisations, opening the door to innovation in governance.

2- It should enable businesses to easily obtain processable data that are valuable to their activities, as well as to use smart services (data analysis, data mining, predictive analytics, etc.) on their own data, openly or privately; 3- It should support the processing of data from sensors (deployed automatically or not) to monitor sustainability indicators, including for example air and water quality, energy consumption, etc.

A key point here is that a data infrastructure is not limited to open data portals deployed by local authorities (see examples earlier in this report). It does mean however that it needs to integrate, in a shared dataspace, existing initiatives in data collection and publication through a federated approach. Here, we will extensively rely on the expertise and know-how of the Data Science Institute and the Insight Centre for Data Analytics in NUI Galway to, in several phases, put in place a technological platform enabling such data federation, and to make available to regional stakeholders the tools and services to access, share and exploit data from the region.

Priority 3: E Governance

One of the missions of the Smart Region Hub should be to create a framework, including tools, guidelines and best practices, for a coherent deployment of smart governance across the region. This pillar will identify common ways for local authorities in the region to engage local citizens and residents on the basis of (open) data collected through the data infrastructure. Initiatives under this pillar will also provide best practices with respect to training staff and educating citizen to the benefits of the smart approach, as well as to the way in which they can leverage the benefits.

As shown above, practices and tools for smart governance are already being established within and outside the region, but in a disparate and isolated way. Creating the suggested framework for smart governance should therefore be achieved through collaboration with and between those local authorities, taking the best approaches from some places and supporting others in adapting them and deploying them.

In addition, initiatives under this pillar will provide the necessary governance frameworks for coordinating and integrating initiatives across and within all five SAW pillars for cohesion, effectiveness and optimal use of resources in the region.

Priority 4: Smart Business Network

Part of the role of the Smart Region hub should also be to enable and maintain a network of businesses that both benefit from the smart approach, and enable it. In order to do this, we need to consider developing tools such as Organisational Network Analysis (ONA[32]) to explore and dynamically visualize where, when and how to involve potential stakeholders, to identify new business opportunities, new product-services and new business models for our region. ONA is originated by the social sciences, and is an important tool to document outputs and relationships. 'True' innovation networks are often invisible in traditional value chains, hierarchical organisation and process charts. ONA analysis and visualisation software facilitates quantitative or qualitative analysis of 'true' networks, by describing features of a network either by numerical or visual representation.

32 https://en.wikipedia.org/wiki/Organizational_network_analysis

This ONA will identify the network strengths and weaknesses, key influencers which facilitate or hinder the flow of knowledge and information, bargaining power and other social behavioural aspects that affect responsiveness to changes, and project performance in general. Smart technologies and methods are relatively new to traditional businesses, while they are at the foundation of many startups and innovative SMEs. The goal of the proposed network will therefore be to enable the exchange of practices and know-how between companies and sectors, as well as to facilitate collaborations. The Smart Region can maintain and engage with such a network by identifying specific (for example sector-based) projects with members from relevant companies and to progressing these towards funding for their implementation. This would form an engine for innovation, and deepen the integration across the region, as mentioned earlier in this report.

Prioirty 5: Smart Communities

Building on the progress made so far in our communities in the area of innovation and the use of smart and digital technologies in supporting core economic activities, SAW initiatives under this pillar will involve Local Enterprise Offices and community stakeholders across the region to scale these economic activities and develop new ones. The Smart Community pillar will importantly actively engage communities to identify their specific needs as basis for developing initiatives in the areas of protection of vital local services (e.g. community policing), tourism and cultural facilities by exploiting digital and smart technologies[33,34].

33 https://www.chg.gov.ie/app/uploads/2017/01/162404-rural-ireland-action-plan-web-2-1.pdf
34 http://www.per.gov.ie/wp-content/uploads/NDP-strategy-2018-2027_WEB.pdf

Conclusion - a Smart Region in its infancy

Our Smart Region in the North-West of Europe has great assets that can be used to make it compete with the most advanced economies in Europe and the World. This will require time, leadership commitment and investment. We strongly believe that, with the recommendations above being translated into a strategy for the region, concrete policies and projects with significant investment, our objectives of economic growth, quality of life and wellbeing are more likely to be achieved in the long term. In transport for example, we can expect the deployment of real-time sensors on the road and other networks to help direct traffic and inform citizens of better routes, places to park, to help reduce congestion and optimise the use of the infrastructure. Working with the relevant institutions, equipping the maritime and agriculture sectors with increasingly smart technology, allowing a faster access to global information about the market and weather conditions, and being able to predict effects of changes in real time will help make the whole region more sustainable and economically stable. The availability of a smart data infrastructure will support innovative SMEs in developing new digital products that make greater use of the available data, making the region more attractive to them and support economic growth. We also hope that the deployment of such technologies to support eParticipation, the engagement of citizens with the challenges and issues of the region, will help making this part of Ireland more inclusive and to reduce inequalities.

Making the North-West of Ireland a Smart Region is a project that needs to be considered in the long term, and the proposed work in this report is only a starting point to enable the necessary engagement from all stakeholders. Based on the studies conducted, we however conclude that it is feasible and that existing initiatives are already contributing to our Smart Region. At this time coordination, investment, and leadership will focus on this regional opportunity, as a driver towards further developing our Smart Regional Approach.

THE SMART ATLANTIC WAY

A roadmap towards a Smart Region

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