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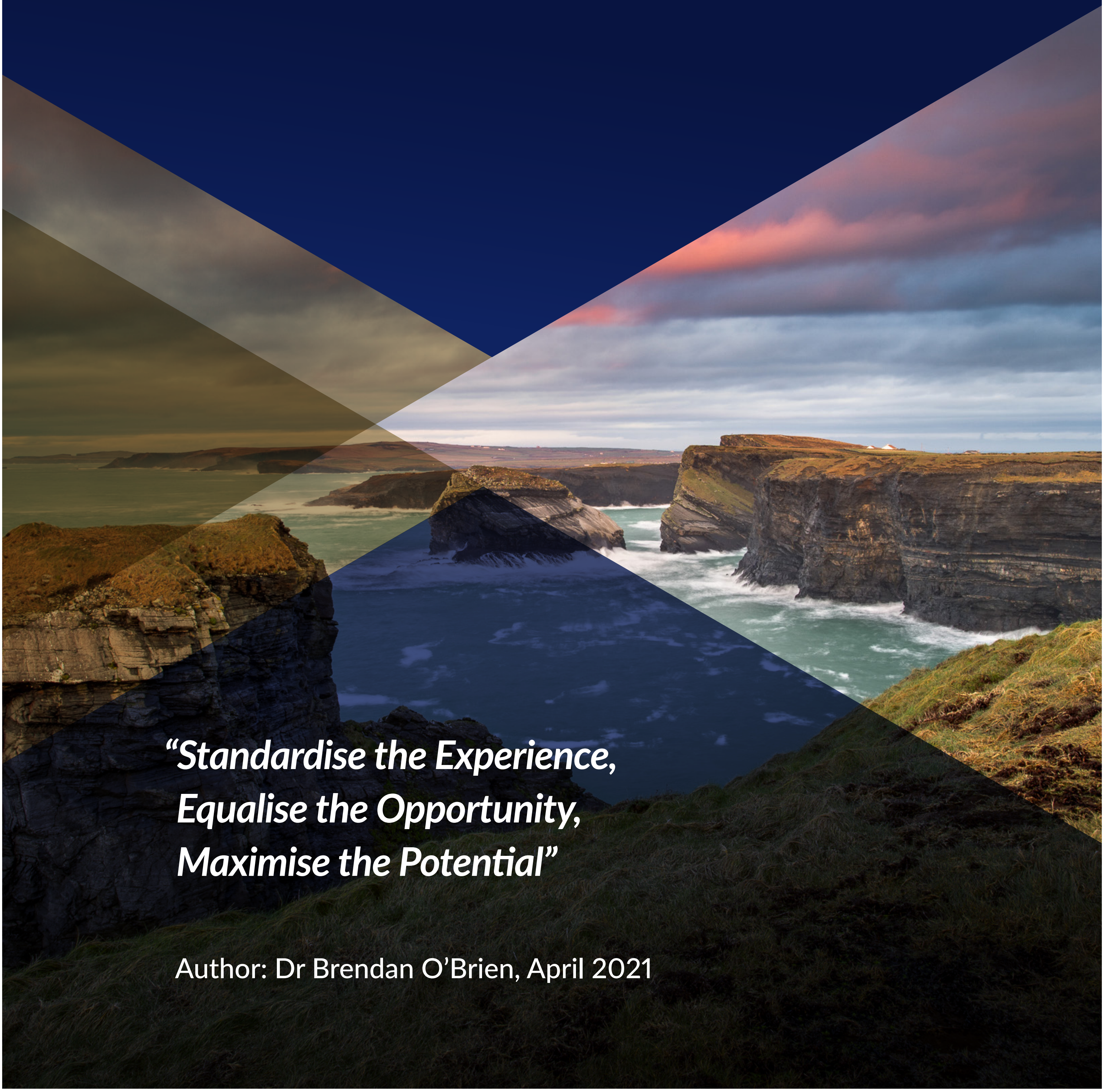
Creating an Atlantic Innovation Ecosystem

by Leveraging and Integrating Regional Assets



*"Standardise the Experience,
Equalise the Opportunity,
Maximise the Potential"*

Author: Dr Brendan O'Brien, April 2021

1. Executive Summary

1.1 Introduction

This report explores the potential for developing and promoting an internationally competitive innovation region along the Atlantic Coast. We propose a project-based approach to build on existing interactions, expand networks and create a community based on innovation.

This proposal builds on the global standing of sectors such as Life Sciences and AI, Big Data & Analytics, emerging sectors such as Agtech, Fintech, Cleantech[1] and Advanced Manufacturing & Robotics, our renowned culture and creativity, and the opportunities presented by the transition to a low carbon economy.

This project-based approach, built firmly around a sense of place, will facilitate the emergence of a cohesive Atlantic Innovation Region (AIRe[2]).

> **To achieve regional transformation – take measured risks, innovate quickly & openly, measure the impact and iterate to improve.**

1.2 Context

We engaged with global multi-nationals, Irish multi-nationals, SME's, Start-ups, Educational & Academic bodies, Local Government, Development agencies, Public bodies, Industry groupings, European bodies, Public/Private investors, Hubs and Accelerators, Clusters, as well as overseas incubators and business networking groups.

There is a clear appetite among senior stakeholders supporting this approach, and Appendix V includes a full list of contributors. Furthermore, it aligns with IDA[3], Enterprise Ireland[4], Project Ireland 2040[5], Our Rural Future[6] and the WDC's strategic objectives.

1. Including Circular Bioeconomy, www.shannonabc.ie/bioeconomy
2. Aire in Irish meaning care or attention, https://www.teanglann.ie/en/eid/aire
3. 'Invest to advance regional development' of IDA's 2021-2024 strategic plan
4. Enterprise Ireland 2021 strategic objectives – including to '*Maximise the number of new start-ups from ambitious and diverse entrepreneurs in all regions*'.
5. Project Ireland 2040
6. Rural Development Policy 2021-2025 – Our Rural Future, Department of Rural and Community Development, 2021.

> **Only by acting together can every part of the region benefit by standardising the experience, which will equalise the opportunity for all and maximise the wider potential for everyone and every business.**

1.2.1 Stronger together, leveraging strengths & sense of place

The fundamental tenets within this report are:

- Leverage existing competences, developments, and initiatives.
- Build a community of innovation across the region – integrating activities, supports and programs to get the 'best of the best' functioning together efficiently, and
- Root our competitive advantage in a 'sense of place' that is synonymous with Ireland's Atlantic coast, our people, creativity, culture, and ingenuity.

1.3 Key Sectors

The analysis of the region shows two clear dominant specialist sectors:

1. Life Sciences,
2. AI, Big Data & Analytics.

In addition there are four emerging specialist sectors:

- i. Cleantech,
- ii. Agtech,
- iii. Fintech,
- iv. Adv Mfg & Robotics(Industry 4.0[7])

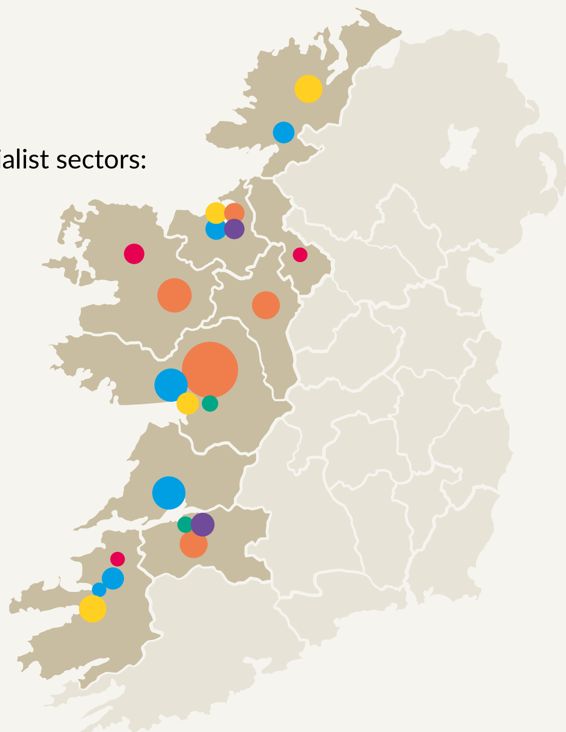


Figure 1: Established & Emerging Specialisms

7. Ireland's Industry 4.0 Strategy 2020-2025, Supporting the digital transformation of the manufacturing sector and its supply chain, Future Jobs Ireland, Developed by the Department of Business, Enterprise and Innovation, 2019

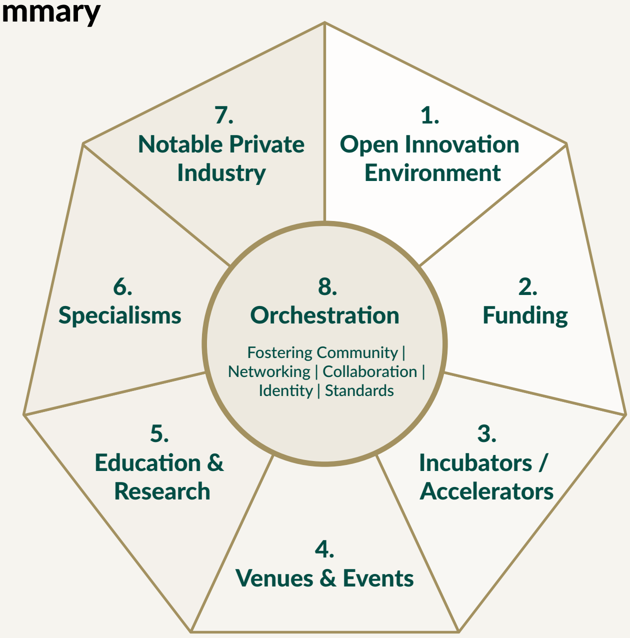


Figure 2: The 8 core components of AIRe

1.4 Potential for an Atlantic Innovation Region (AIRe)

This vision to spearhead a region-wide collaborative ecosystem is ambitious yet achievable. A vibrant innovation ecosystem, the Atlantic Innovation Region, running from North to South along the west coast of Ireland, can significantly impact the region and the country. This vision understands that "*it takes human ingenuity, a pioneer's spirit and a real long-term vision to fully exploit (its) potential*"[8].

The ambition is to build a World Class Place-based Innovation Ecosystem. Vibrant, notable and high performing innovation ecosystems contain many components, and most of these are already in place to some degree across the region.

However, in addition to these, internationally leading regions contain a strong central Orchestration[9] function. This function enables the ecosystem to flourish, build cohesiveness, identity, and an enduring sense of community nationally and internationally.

Significant work is needed to make this vision a reality. We outline a medium to long term action plan to leverage the existing activities, build stronger integrations and fill in the gaps.

This proposal is to create a cohesive approach that builds a world-class Atlantic Innovation Region (AIRe).

8. Committee of the Regions, Regional Innovation Ecosystems. CoR guide: Learning from the EU's Cities and Regions, European Union, 2016, doi:10.2863/64485.
9. Rissola, G. and Haberleithner, J., Place-Based Innovation Ecosystems. A case-study comparative analysis, EUR 30231 EN, Publications Office of the European Union, Luxembourg, 2020.

1.5 Key Recommendations to initiate AIRe

AIRe is ambitious and requires a long term vision. However, here are six short-term recommended projects to kick things off. *(See Table 1 below)*

1.5.1 Immediate actions[10]

The following steps are required to mobilise this set of projects:

a. Establish a programme office, having programme & project management skills with appropriate resources.
b. Identify flagship projects that align with national strategies. *(Early candidates are in appendix III)*
c. Build stakeholders' working group(s) to drive the wider AIRe vision into a concrete funded plan.

Key Recommendations	
1	Establish the AEC Region as Living Lab, become an active member of the European Network of Living Labs (Enoll).
2	Support the development of 3 flagship anchor Hubs* across the region — with RDI/Kerry & Portershed/Galway in place, A NW hub in Donegal in partnership with Catalyst NI is a candidate.
3	Leverage and expand existing successful programs and initiatives across the region, using the Hubs, Anchor hubs, and emerging initiatives as catalysts.
4	Actively build communities, collaborations and establish national and international Networking connections with industry groups, international bodies, Irish diaspora groups etc.
5	Build the central ***Orchestration*** capabilities and provide the necessary resource.
6	Plan an international multi-day summit-seminars, exhibitions, competitions, investor forum, education, thought leadership, night summit etc.

Table 1 Initial projects to mobilise AIRe

10. Based upon what is known today, a set of recommended activities and timelines are included in the Action Plan. It is important to note that the Action Plan is a living document and will evolve and be refined during its lifetime.

* This report designates Anchor Hubs as the key large hubs spread across the region where bigger programs etc. could be offered and accessed by all other hubs in a "hub & spoke" model.

1.6 Expected Outcomes & Potential impact

The impact on the regional economy can be significant. For example, by achieving the targets for more futureproof jobs, retained graduates and increased business travel, a combined €1.135Bn[11] is injected into the AEC regional economy per annum.

> "Standardise the Experience, Equalise the Opportunity, Maximise the Potential"

#	Metric	%		Target	Value (€m)
1	Employment in future proof sectors[1] increased by:	20%	or	7,925	555
2	Increased number of start-ups and scale-ups by:	25%	or	300	
3	Greater investment in the region, both public and private, by:	20%	or	300m	300
4	Increased EU funding for transformative projects by at least:	30%	or	250m	250
5	Retain greater graduate talent in the region by:	50%	or	9,886	494
6	Business and conference trips to the region[2],[3] increased by:	15%	or	55,650	89
7	Vibrant and growing innovative community of 5000+ with 20+ international links,				

Table 2 Expected results over five years

1.7 The WDC as the Orchestrator

Regions may compete with cities, such as Dublin, London or Boston, to become the new powerhouses for business progress and societal innovation[12]. The WDC can become the orchestrator that enables this region to stimulate new social structures, businesses, innovations, partnerships, communications and initiate and foster a vibrant ecosystem across the region with global links and recognition.

11. Growing employment by 7,925 is worth €554m, retaining 10,000 graduates is worth €492m, and increasing business travel by 54,761 is worth €89m.
12. Markku Markkula, President of the European Committee of the Regions, 2016

Model for Atlantic Innovation Region

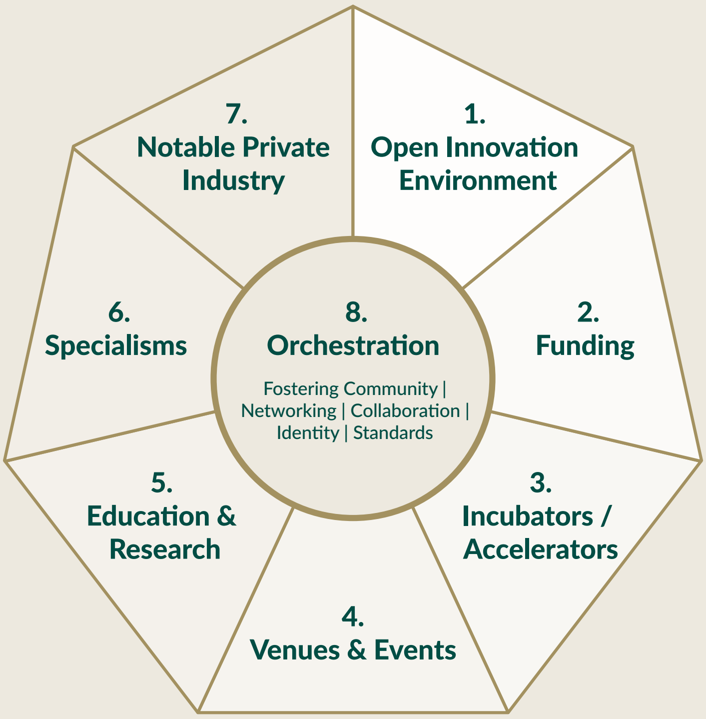


Figure 3 Key Components of Atlantic Innovation Region

1. Open Innovation

Build a region where innovation is enabled to thrive, whether from large multinationals or tiny start-ups. Enable an open, collaborative, and stimulating culture, where new ideas or initiatives can be tried and tested before scaling internationally.

2. Funding

Multiple funding options are available in the region, yet the investment level, value and volume, is significantly less than the Dublin region. Work to stimulate and improve the quantity and quality of projects, initiatives and start-ups at all stages of the innovation journey.

3. Incubation/Accelerators

Excellent foundation network of 100+ hubs across the regions of which have the potential for incubation and acceleration. Some work to build anchors, leverage best practices, integrate offerings, and develop region-wide cohesive collaboration and networking activities.

4. Venues & Events

The region has an abundance of venues. But very limited notable international industry or networking events.

5. Education & Research

Very strong education and research capabilities, with three Universities, four Institutes of Technology (with the emerging CUA) and multiple research institutes

6. Specialisms

Strong specialisms in 'Life Sciences' and 'AI, Big Data & Analytics.' Emerging specialisms in Advanced Manufacturing & Robotics Agtech, Cleantech & Fintech with enormous growth potential.

7. Notable Private Industry

The region has globally recognised industry leaders, both FDI and indigenous, with a strong cohort of scaling SME's.

8. Orchestration

Key for high performing innovation ecosystems. It enables the ecosystem to flourish and build cohesiveness, identity, and an enduring sense of community nationally and internationally.

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2. Introduction

In late 2020, the Western Development Commission (WDC) commissioned this report to explore the potential for developing and promoting a sustainable, internationally competitive region of connected communities that work smarter and live better along Ireland's western seaboard. The basis for this is to build on the existing work to date, leveraging and integrating existing initiatives and adding new aspects to create a cohesive vision with a phased and achievable plan. The scope of this report covers:

- The identification of the existing innovation initiatives underway and the international competitive advantages of the region and its key sectors,
- An assessment of the future needs of multinationals and SMEs to facilitate support from the private, public, academic and community players,
- A review of funding mechanisms available for businesses from idea to internationalisation,
- A proposal for the growth of a western seaboard initiative, key enabling projects, including an appropriate action plan

While preparing this document, we held multiple meetings with a mixture of stakeholders across the region. These included large international multi-nationals, Irish multi-nationals, SME's, Start-ups, Academic bodies, Local Government, Development agencies, Public bodies, Industry groupings, European bodies, Public/Private investors, Hubs and Accelerators, as well as overseas incubators and business networking groups. We include a full list in *Table 13 Contributors to this report"*.

This document aims to show what is needed, what is currently underway, what might be possible and a plan to create a holistic place-based innovation environment along the western seaboard.

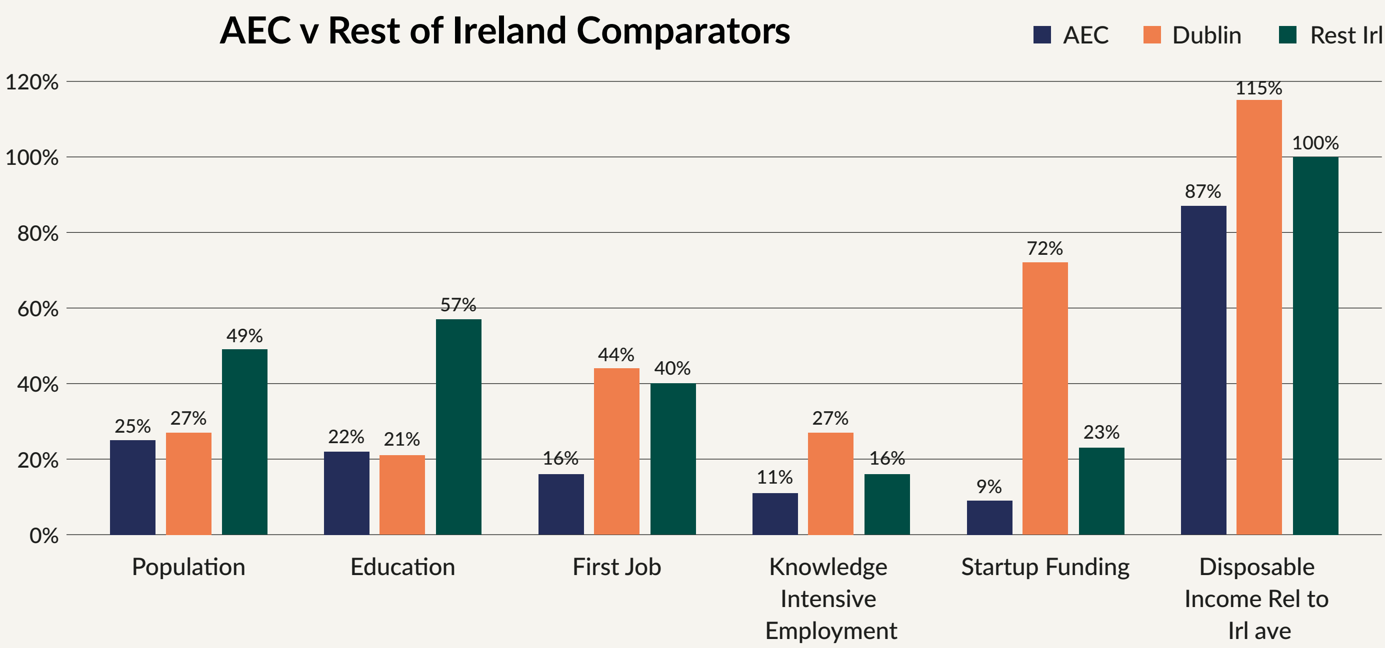

Figure 4: Comparing AEC economic indicators

2.1 Why is it important to do this?

The AEC region lags behind Dublin and other parts of Ireland in many economic and development indicators. Some of those related to this report include:

- Only 16% of graduates getting their first job in the region, despite 22% studying in the region,
- Only 9% of start-up funding going to the region,
- The average disposable income is only 87% of the national average, and
- Only 11% are employed in Knowledge Intensive13 roles compared to 27% in Dublin.

To bridge these gaps, the development of a region-wide approach will support business growth and competitiveness. It will provide an entrepreneurial environment necessary to foster innovation among start-ups and SME's and enable regional economies to build stronger links with Multi-National Organisations (MNO's) and create opportunities for more people to stay and work in the region. Together these actions will forge a more viable area for new start-ups, businesses to locate, families to grow, and visitors to return.

13. Regional impact of COVID-19: Western Region & Atlantic Economic Corridor Reamonn Lydon & Luke McGrath, Economic Letter, Central Bank of Ireland Vol. 2020, No. 10

Introduction

The key aims of the proposal presented in this report are to:

- Grow new and existing businesses to commercialise innovative products, technologies and services.
- Enhance business accelerators and incubators' effectiveness, services, standards, and consistency to support entrepreneurs, start-ups, social innovators, and companies with high potential.
- Support initiatives or projects led by individuals or organisations to promote business productivity, drive global competitiveness, increase investment and enhance talent attraction.
- Build vibrant, robust and wide networks nationally and internationally.
- Foster the development of a world-class innovation ecosystem.

2.2 Expected Results

While the vision is ambitious, it is possible, over time, to bridge the gaps and realise the potential value across the region from Donegal to Kerry.

#	Metric	%		Target	Value (€m)
1	Employment in future proof sectors[1] increased by:	20%	or	7,925	555
2	Increased number of start-ups and scale-ups by:	25%	or	300	
3	Greater investment in the region, both public and private by:	20%	or	300m	300
4	Increased EU funding for transformative projects by at least:	30%	or	250m	250
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6	Business and conference trips to the region[2],[3] increased by:	15%	or	55,650	89
7	Vibrant and growing innovative community of 5000+ with 20+ international links,				

Table 2 Expected results over five years

1. Artificial Intelligence, Big Data & Analytics, Life Sciences, Advanced Manufacturing & Robotics, Agtech, Clean-tech & Fintech – see definitions and further details – Section 4.6
2. Based upon 2019 figures – It needs to be reset given the effects of Covid-19 (see Appendix II – Research)
3. Business Tourism Average spend = €1600/trip: Ref: https://www.failteireland.ie/Business-Tourism.aspx

The impact of making progress in these areas on the regional economy can be significant. For example, by achieving the targets for a) more futureproof jobs, b) retained graduates and c) increased business travel, a combined €1.135Bn[14] can be injected into the AEC regional economy per annum (targets 1, 5 & 6 above).

The vision to spearhead a region-wide collaborative ecosystem is ambitious yet achievable. It is based on the understanding that "*it takes human ingenuity, a pioneer's spirit and a real long-term vision to fully exploit (its) potential*".[15] In recent years, there has been a rapid shift towards a knowledge-based economy. However, success requires connecting the stakeholders of citizens, businesses, administrations and academia, taking an international perspective, being always on the cutting edge of innovation, and taking the initiative.

Regions can compete with cities, such as Dublin, London or Boston, to become the new powerhouses for business progress and societal innovation[16]. In this context, the WDC can become the orchestrator that enables this region to stimulate new, social and business, innovations, partnerships, initiating and fostering a vibrant ecosystem across the region with global links and recognition.

2.3 Stronger together

Our consultations with stakeholders show that each community, from the northern tip in Donegal to the southwestern end of Kerry, faces the same challenges of economic decline, marginalisation, talent migration, etc. However, through a cohesive region-wide initiative, those same challenges can be better addressed as outlined in this document. Indeed, the combined economies of scale allow better choices and more significant benefits to attract people and businesses to start-up, set up and scale along Ireland's western seaboard.

By acting together, every part of the region can benefit by creating a standardised experience that will equalise the opportunity for all and maximise the broader potential for everyone and every business.

14. Growing employment by 7,925 is worth €554m, retaining 10,000 graduates is worth €492m, and increasing business trips by 54,761 is worth €89m.
15. Committee of the Regions, Regional Innovation Ecosystems. CoR guide: Learning from the EU's Cities and Regions, European Union, 2016, doi:10.2863/64485.
16. Markku Markkula, President of the European Committee of the Regions, 2016.

3. The Region in Context

The WDC's remit covers the seven counties, Donegal, Leitrim, Sligo, Roscommon, Mayo, Galway and Clare, and its strategic themes for 2019-2024 are; Regional Promotion, Regional Leadership and Sustainable Enterprise.

One project recently established by the WDC is the Atlantic Economic Corridor (AEC) which also includes Limerick and Kerry within its remit. The AEC aims to build and increase collaboration that maximises its assets, attracts investment and creates jobs and prosperity in the region.

A major initiative of the AEC is the Enterprise Hubs Project, which creates an interconnected community network from the existing and planned hubs right across the AEC region. This Hub network provides an excellent and tangible foundation for building the additional layers necessary for creating a vibrant regional innovation ecosystem.

Furthermore, right across the region, there are many exciting and innovative initiatives underway. These initiatives include entrepreneurial start-up's, world-class research and development centres, ground-breaking innovations or vibrant businesses and even clusters of businesses. All these initiatives contribute to the overall economic health and sustainability of the wider region. Within the AEC region, there are already many strong enabling factors for the successful development of the proposed innovation ecosystem; these include:

The Region in Context

Regional Economic Factors	
Factor	**AEC Region**
Population	1.17 million, 25% of Ireland's population
Urban Centres	2 major Centres: Galway City (80k+), Limerick City (100k+)
Regional Towns	12 strong regional towns: Letterkenny, Sligo, Ballina, Castlebar, Westport, Tuam, Ballinasloe, Loughrea, Ennis, Shannon, Tralee and Killarney
Transport Hubs	1 Major Airport: (Shannon) 1 Port of National Significance (Tier 1):Foynes Multiple Ports of Regional significance: Galway, Killybegs 3 Regional Airports with international links: Kerry, Knock, Donegal
Education & Research	3 Universities: UL, NUIG, MTU 4 Institutes of Technology: LyIT, ITSligo, GMIT (emerging CUA), LIT Multiple research centres (from biomedical to data/analytics to marine to food etc.)
Industry Clusters	2 Major Industry Clusters & Specialisms: Life Sciences & AI/BigData/Analytics 4 Emerging Specialisms: Cleantech, Agtech, Fintech and Adv Mfg & Robotics Multiple EI funded Clusters emerging: Circular Bioeconomy @MTU, Agtech @ MTU/, IDEAM@LIT etc.
Innovation Hubs	100+ Hubs and co-working spaces
Regional & Local Development Bodies	1 Western Development Commission 2 Regional Assemblies (NWRA, SRA) 3 Regional Enterprise Plans – North-West, West and Mid-West 10 Local Authorities: Donegal, Leitrim, Sligo, Roscommon, Mayo, Galway City, Galway County, Clare, Limerick & Kerry

Table 3 Demographic & economic characteristics of the region

3.1 Leveraging, Integration and Sense of Place

The three fundamental tenets within this overall proposal are:

- Firstly – to leverage the existing developments and initiatives underway,
- Secondly – to integrate as far as possible activities, supports and programs to get the best of the best functioning together efficiently, and
- Thirdly – to incorporate place-based innovation, utilising the 'sense of place' synonymous with the Atlantic coast of Ireland; our people, our culture and our ingenuity, as a global differentiator.

4. Current Developments

The following sections examine the existing developments in the region, explore ideas, innovations and best practices from across the world, and recommend a model for developing a cohesive Atlantic Innovation Region (AIRe) built firmly around a sense of place.

This chapter explores all the existing projects, supports and initiatives that can be leveraged, integrated, exploited and expanded as part of building a leading regional innovation ecosystem.

4.1 Hub Network

Across the wider AEC region, an Enterprise Hubs Project is underway whose objective is to create an interconnected community network from the 100+ hubs identified as either operating or in development in the region. This project is already proving extremely successful, with 89 hubs on board. It continues to develop and from 2021 onwards has been given a remit to expand nationally. A continually updated map of the hub network is available online.

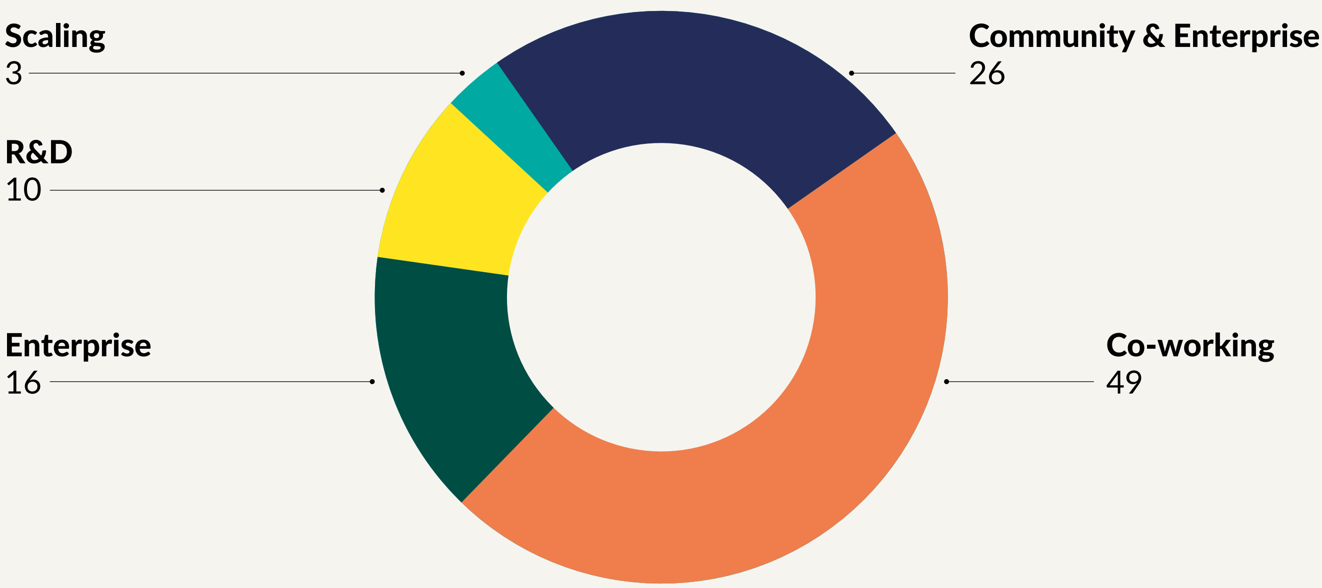

Figure 5: Existing Hub Network Classification and total number for each category

Current Developments

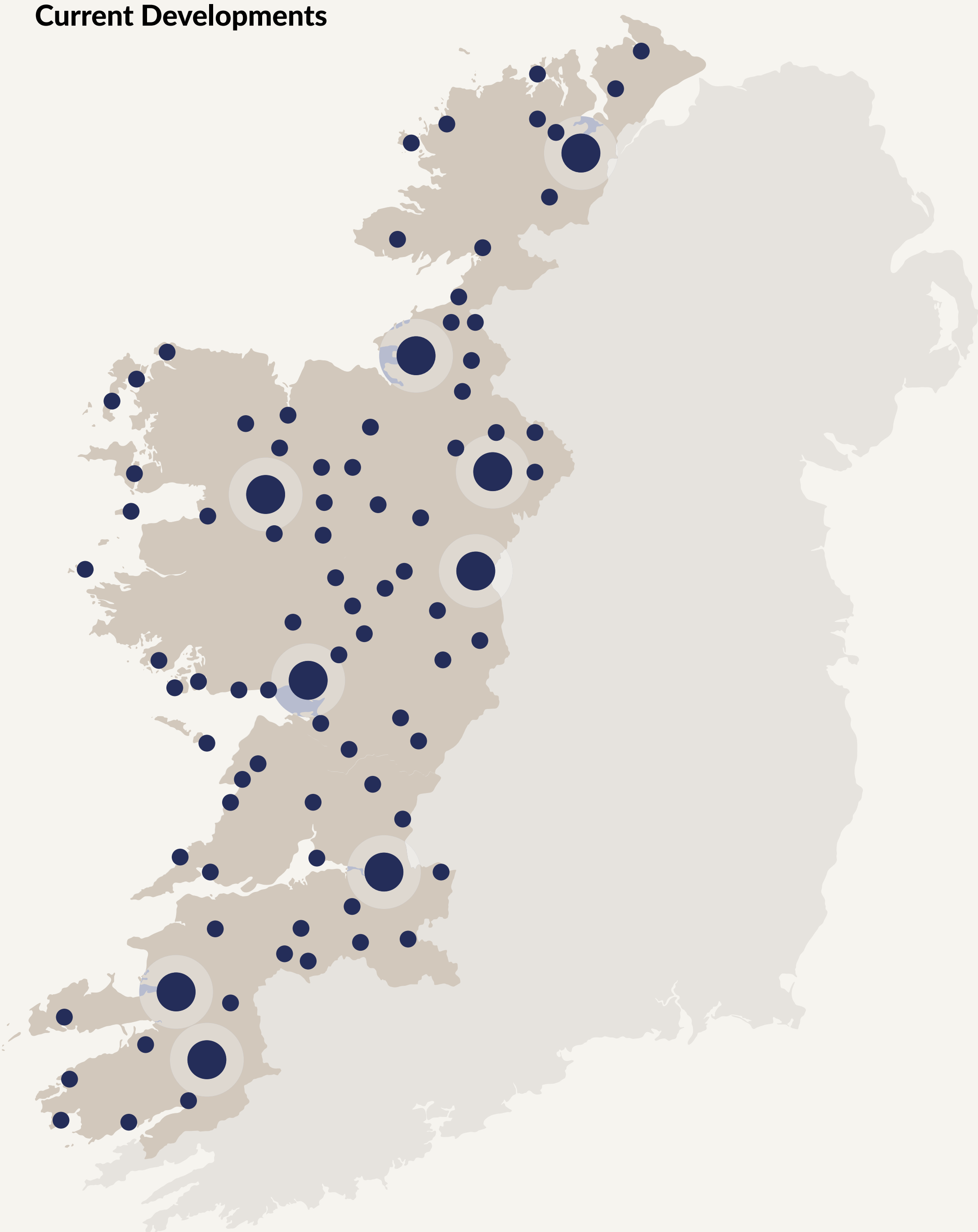

Figure 6 Map of Existing Hub Network

Across the Hub network, a classification system is in place.

- These hubs range right across the region from Donegal to Kerry and West Cork.
- This geographical spread provides a solid foundation for enterprise, innovation and start-ups with hubs in or near most locations.
- These hubs are classified by standards, ensuring uniformity, have booking abilities, and central management and coordination.

4.1.1 Current incubation & accelerator locations

Across this hub network, various locations offer either Incubation and/or Accelerator programmes to start-ups or very early-stage businesses. The following table includes the eleven locations offering these services.

Hubs with Incubation/Accelerator offerings	
1	ITSligo Business Innovation Centre
2	GMIT Innovation Hub Mayo
3	Food Hub, Drumshambo, Leitrim
4	GMIT Innovation Hub Galway
5	NUIG Business Innovation Centre (Bio Innovate/BioExcel [now ended])
6	Portershed Galway
7	UL, Nexus Innovation Centre
8	LIT, Hartnett Enterprise Acceleration Centre
9	MTU – Tom Crean Business Centre
10	RDI Hub. Killorglin, Co Kerry
11	Ludgate Hub, Skibereen, Cork
12	CoLab at LYIT

Table 5 Incubation and/or Accelerator Hubs

Current Developments

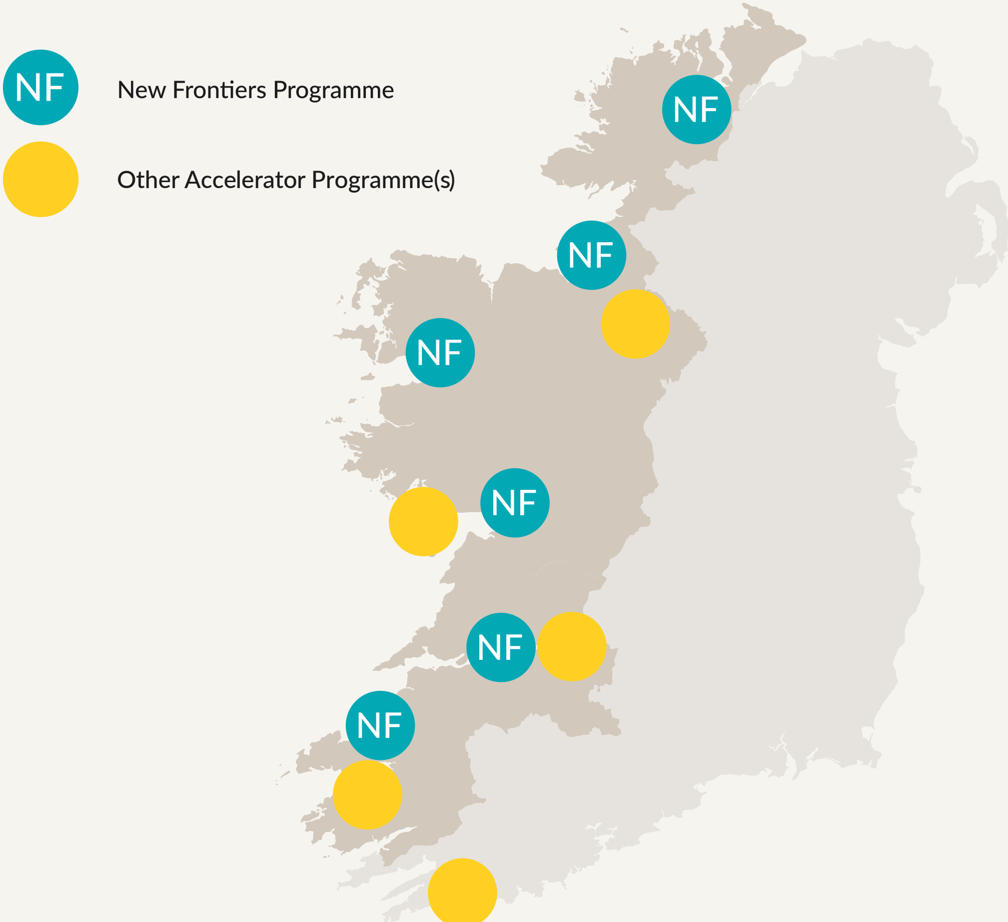

Figure 7 Map of Incubator/Accelerator by Location

A geographical analysis of these various incubation and accelerator offerings provides some interesting observations that the above map illustrates:

1. There are 11 locations with various offerings spread along the region
2. Some aspects of the NW, and in particular, Mayo and Donegal, seems the least served. The scale of offerings is also less.
3. New Frontiers (the EI & 3rd Level program) is run all across the region and provide consistency in six locations.
4. There are at least five other hubs with different programs and offerings. However, these are mostly from Galway south.

Note: From Q1 2021, NDRC,[17] which stands for National Digital Research Centre, is now operated by Dogpatch Labs in partnership with a network of hubs from across the State. These include Portershed Galway, Republic of Work Cork and RDI Hub Kerry. This initiative is a very positive move to help develop entrepreneur and innovation programs across the western region.

17. www.ndrc.ie

4.2 Current Funding Sources Available

Across the region, various funding mechanisms are in place, with both long-established and emerging options. These include:

4.2.1 WDC Investment Fund (WIF).

The WIF has a 20-year history of providing equity finance and loans to businesses, communities, strategic initiatives and creative industries in the region. It is well established and a key player in the region.

4.2.2 HBAN Angel Network.

There are now multiple angel investor Syndicates and Regional Networks across the region.

- WxNW – West by North West Syndicate, focus on the Western counties
- HBAN West – Regional network based in Galway
- Med Tech – MedTech focus syndicate, Galway based
- HBAN Kerry – New Network (Nov 2020), Kerry focus
- HBAN SW – Regional network based in SW Cork

4.2.3 Enterprise Ireland Funding.

Enterprise Ireland (EI) supports are available across the region. A full list of supports are available here – EI Supports. Many of the early-stage supports are provided via the Local Enterprise Offices below. EI provided a wide range of supports for High Potential Start-ups (HPSU[18]). It supports the development of businesses with global ambition and a scalable business model capable of successfully competing internationally. These businesses will have developed a differentiated and innovative product/service, preferably through R&D, technology development, and IP development. The challenge is that businesses in the AEC region only receive 9-10% of investment funding despite being home to 25% of the population.

4.2.4 Local Enterprise Offices.

Each County Enterprise Board has Local Enterprise Office (LEO) funding supports available for individuals or small businesses. These are typically in the range of €1000 to €5000 and designed for very early stage, or more local or community-focussed, businesses. However, LEOs have a wide range of grants, which can go up to €150k for both new businesses and established SMEs with less than 10 employees, where the businesses have to have potential for growth in domestic and/or export markets and also potential for new job creation. In 2019 in the AEC region, LEO's supported 2133 businesses relating to 28.8% of all businesses supported in Ireland. While this appears like a positive statistic, in the rest of the country, 21% more businesses get funding. (This region accounts for 35% of the population).

18. A High Potential Start-up (HPSU) can be defined as a company that is internationally focused and has the potential to employ at least ten persons within three years of starting and to generate revenues of at least €1million.

4.2.5 Crowd Funding.

There has been an emergence of Crowd Funding as a vehicle for Venture investment in recent years. Many small investors, some investing as little as a few hundred euros, pool their resources to invest in start-ups. This pooled investment holds shares in the start-up in a nominee account and enables individuals to participate as investors in the venture. There is only one equity funding platform currently operating in Ireland, Spark Crowd Funding[19], and it has to date raised €4.67m[20] from 1417 investors, for 15 start-ups, with an average of €311,518 raised with an average of 94 investors each investing €3.3k (ranging from 45- 245 people investing anything from €100 right up to €75k).

Funding available in the region

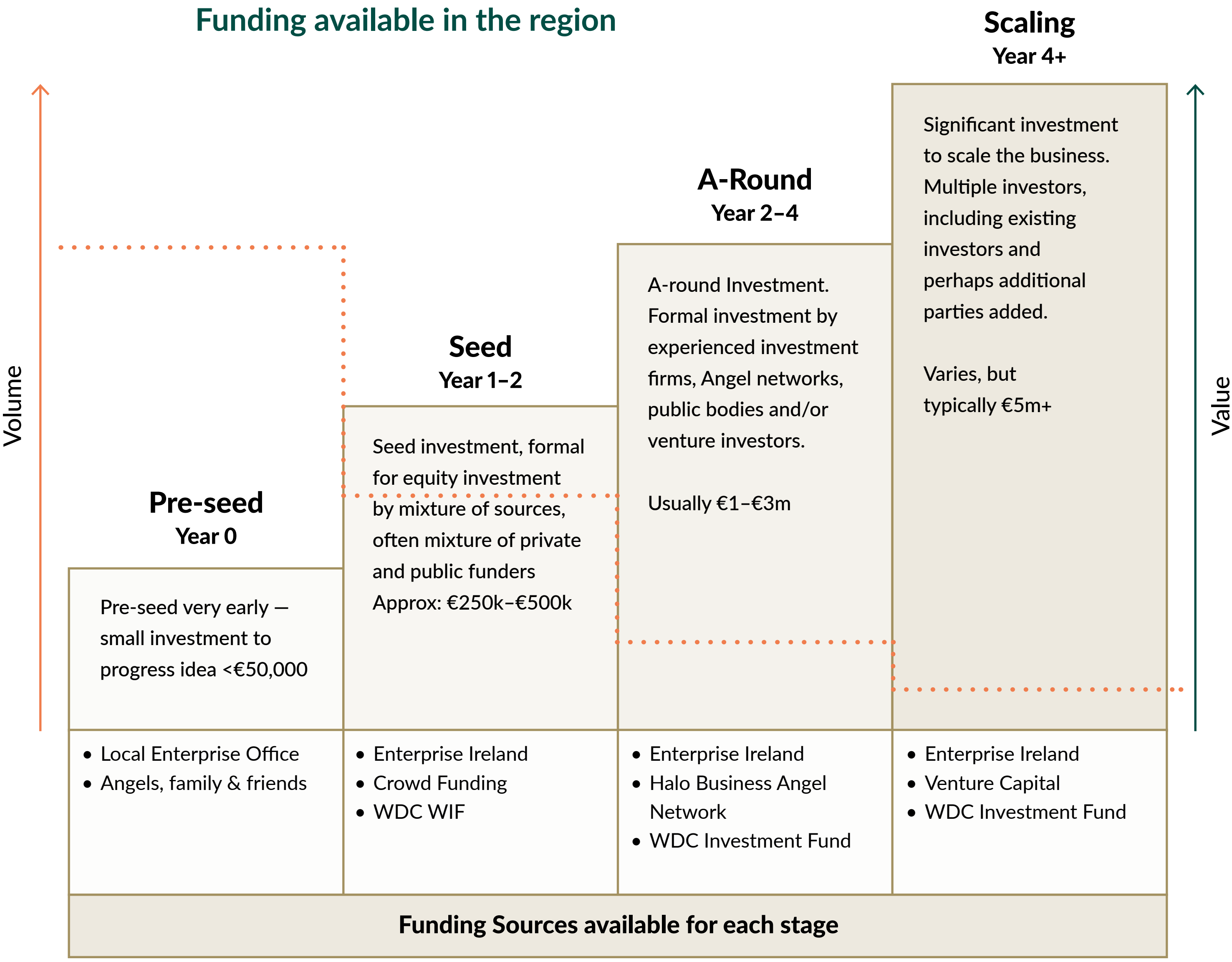

Figure 8 Funding sources by enterprise development stage

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19. https://www.sparkcrowdfunding.com/
20. Correct as of 18:00 on 1st Feb, 2021.

4.3 Regional funding challenges

Within the region, the volume and quality of investor-ready projects are limited. It is clear that from a WDC investment perspective, the MedTech cluster dominates in terms of volume and quality of investable venture initiatives within the region. Furthermore, all the established professional venture investors (Angel NW's, VC Funds, and the WDC fund) look to the candidates for Enterprise Ireland High Potential Start-up(HPSU)[21] funding as the primary investment-ready cohort. However, the volume of these within the region is limited when compared to other regions. While there are other initiatives in the region, notably the Bio Innovate & BioExcel[22] initiatives in NUIG that specialise in Life Sciences and the New Frontiers programmes in various 3rd level institutions, generally for a region with a population of 1.7m, it is significantly underserved.[23]

While it is challenging to obtain inter-regional venture and start-up investment comparators, the following table, derived from a TechIreland[24] funding review comparing H1 2019 with H1 2020, paints an obvious picture.

Region	(€m)	%	Pop (m)	Pop %	Vol Deals	Ave Deal (€m)
Dublin Total	686	72%	1.280	27%	109	6.29
Rest of Ireland	213.5	23%	2.309	49%	67	3.19
AEC	81.5	9%	1.171	25%	23	3.54
Total	947.5	100%	4.760	100%	169	5.61

Table 6 Investment Funding – AEC v Ireland (H1 2019 & 2020)

- The AEC region, while having 25% of the population, received only 9% of the funding.
- The volume of investment deals in the region was 23 or 14% of the total.
- The average investment in the region is €3.5m, with Dublin deals being 82% greater in size.

While it is clear that the value of investments in the region is low, so is the volume of investable ventures in the region, which is a major challenge to future growth.

21. Enterprise Ireland 2020: A HPSU must be internationally focused and has the potential to employ at least ten persons within three years of starting and to generate revenues of at least €1million.
22. BioExcel was an Enterprise Ireland/NUIG initiative, supported by the WDC and BOI, proving to be highly successful in creating 14 start-ups – it is now ending as it was a 3-year project.
23. In the Boston & Cambridge Region, Massachusetts Technology Collaborative lists 12 accelerators for a population of 750k.
24. https://www.techireland.org/content/snapshots/TechIreland%20Startup%20Funding%20Review%20H1%202020.pdf

4.4 EU & Regional Development Funding Potential

4.4.1 The Regional Enterprise Development Fund 2017-2020

This scheme is expected to continue in some format from 2021 onwards. It has already supported significant new collaborative and innovative initiatives. These projects will significantly impact enterprise development within and across regions to build USP capabilities. It works by co-financing the development and implementation of collaborative and innovative projects that can sustain and add to employment at a national, regional and county level.

This scheme's overarching aim is to drive enterprise development and job creation in each region throughout Ireland. The scheme also seeks to stimulate enterprise clustering initiatives. Clustering initiatives are structures or organised groups of independent parties designed to stimulate innovative activity in a specific sector. They facilitate promotion, sharing of facilities, exchanging knowledge and expertise, and contributing effectively to knowledge transfer, networking, information dissemination, and collaboration among the undertakings and other organisations.

The scheme will support the development of initiatives that strengthen the regional ability to adjust and cope with the potential effects of global economic changes.

During 2017-2020, calls 1 & 2 of the fund awarded €60m which funded 38 feasibility projects and 42 large scale projects. Call 3, awarded in January 2020, announced a further €40m for 26 Projects to drive job creation in the regions.

4.4.2 European Regional Development Funding[25]

The ERDF focuses its investments on several key priority areas. This focus is known as 'thematic concentration':

- Innovation and research;
- The digital agenda;
- Support for small and medium-sized enterprises (SMEs);
- The low-carbon economy.

Accessing EU funding is via a designated managing authority that provides information on the programme, selects projects and monitors implementation. In this case, it is the Northern and Western Regional Assembly (NWRA) and the Southern Regional Assembly (SRA)

4.4.3 Joint Assistance to Support Projects in European Regions (JASPERS)

JASPERS is a practical support provided by the EU. JASPERS helps cities and regions to absorb European funds through top-quality projects. They aim to speed up the absorption of EUR 350 billion of ESIF Funds which are intended to achieve greater cohesion in Europe, through projects planned, prepared, procured and run to the

25. https://ec.europa.eu/regional_policy/en/funding/erdf

highest technical, social and environmental standards possible. Similarly, they also help organisations with the absorption of funds available under the Connecting Europe Facility (CEF) and the Instrument for Pre-Accession Assistance (IPA).

In particular, they:

- Advise authorities on strategic planning in a wide range of sectors so better projects see the light of day.
- Support promoters in preparing projects in areas benefiting from EU funds to meet all the necessary standards.
- Improve the capacity of administrations and promoters by transferring knowledge about project preparation, environmental issues, EU legislation or any related needs they may have.
- Speed up the EU approval process by carrying out an independent quality review which prepares the ground for the European Commission's decision.

JASPERS assistance is free of charge for local authorities and promoters. It is currently very engaged in the AEC region, specifically advising Sligo County Council on their Digital Strategy 2020–2023 and advising them on its 2030 Strategy.

4.5 Regional Differentiators

Broadly examining the multitude of businesses across the region highlights a rich diversity in place, ranging from traditional cottage industries, innovative tourism businesses, vibrant MedTech to leading-edge Analytics to Advanced Manufacturing to Aviation, and more.

However, on closer examination, there are clear clusters of specialisms firmly established within the region and those emerging with large global potential.

To clearly understand the industry strengths and their potential across the region, it is essential to define sectors clearly.

4.6 Specialisms & Sectors Definition

Given the wide range of industries, sectors, sub-sectors, and specialisms prevalent across the region, we decided to use global sector definitions defined by Start-up Genome for clarity and international comparison purposes.[26] A definition of the main sectors found in the region is as follows:

→ **Artificial Intelligence, Big Data & Analytics:**
AI, Big Data & Analytics refers to an area of technology devoted to extracting meaning from large sets of raw data, (e.g. often including simulations of intelligent behaviour in computers). More and more AI is being applied to many other sectors.

→ **Life Sciences:**
Life Sciences is the sector concerned with diagnosing, treating, and managing diseases and conditions. This sector includes Biotech, Pharma, and MedTech (also referred to as medical devices).

→ **Advanced Manufacturing & Robotics:**
Advanced Manufacturing involves smart technology to improve the traditional manufacturing of products and/or processes. Robotics is the science and technology of robots, their design, manufacture, and application.

→ **Agriculture Tech (Agtech):**
Agtech captures the use of technology in agriculture, horticulture, and aquaculture to improve yield, efficiency, and profitability through information monitoring and analysis of weather, pests, and soil and air temperature.

→ **Cleantech:**
Cleantech consists of sustainable solutions in Energy, Water, Transportation, Agriculture, and Manufacturing, including advanced materials, smart grids, water treatment, efficient energy storage, circular bioeconomy, and distributed energy systems.

→ **Fintech:**
Fintech aims to improve existing processes, products, and services in the Financial Services industry (including insurance) via software and modern technology.

26. Start-up Genome, Global Start-up Sector Definitions, 2020. (www.startupgenome.com)

Current Developments

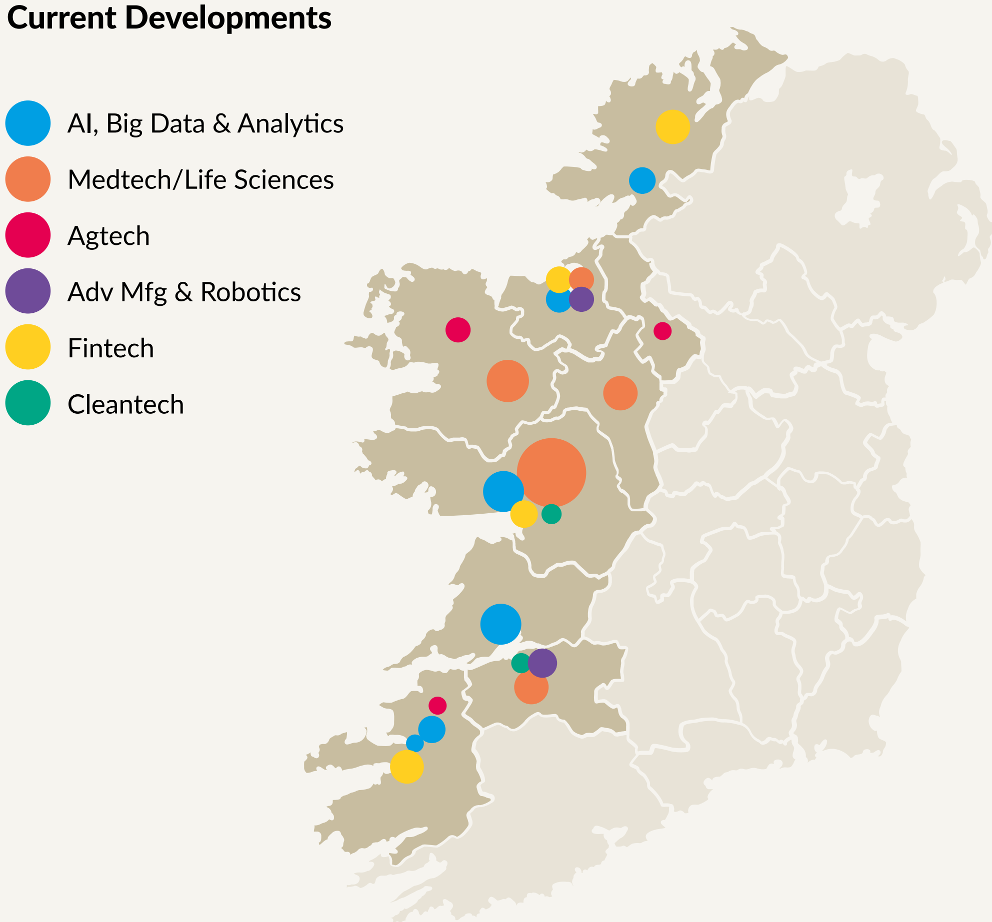


Figure 9: Map of Identified Clusters & Specialisms

4.7 Existing Specialisms

When reviewing the existing activities right across the region and collating these into the defined specialism sectors, the following emerges when plotted across the region and shown geographically. The map shows where the sectors are healthy, have specialist expertise and enterprises and are broadly located.

A. AI, Big Data & Analytics
- Tech NW
- Future Mobility Centre
- SW/ICT
- Insight, ICHEC, Lero

B. Life Sciences
- MedTech & Bio

C. Agtech
- Nascent & emerging

D. Fintech
- Donegal & Kerry (but emerging in general)

E. Cleantech
- Atlantic Green Digital Basin – nascent with big ambition
- Kerry – Nascent & emerging

F. Adv Manufacturing & Robotics
- UL, NUI Galway & IT Sligo have centres

Current Developments

4.7.1 Strong & emerging specialisms:

This analysis shows two clear dominant specialist sectors:

1. AI, Big Data & Analytics – all across the region (A),
2. Life Sciences – Centred in Galway, reaching to Sligo and Limerick (B).

Figure 10 below further illustrates the relative scale of the two dominant specialisms. It also shows the spread of general knowledge-based economic activity across the region.

Four smaller specialist sectors that are emerging:

v. Agtech (C),
vi. Fintech (D),
vii. Cleantech (E), and
viii. Advanced Manufacturing & Robotics (F).

While disperse, these sectors can trade internationally and significantly scale over the next 10 to 20 years. Furthermore, the sectors proposed align with the findings and analysis of IDA[27] as set out in their strategic plan, regionally and nationally.

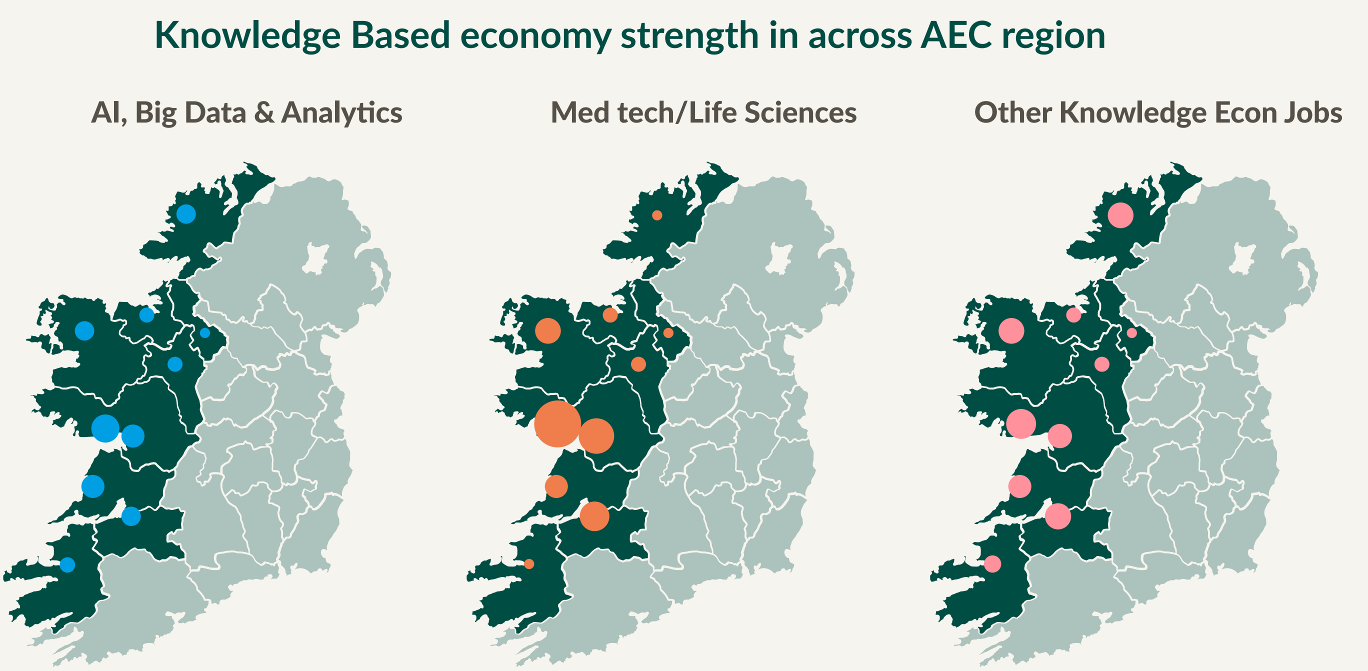


Figure 10: Strength of Knowledge Based Economy across the region

27. IDA Ireland – Driving Sustainable Recovery and Growth 2021-2024, Government of Ireland, 2021

Current Developments

Emerging Sectors with international Scaling potential

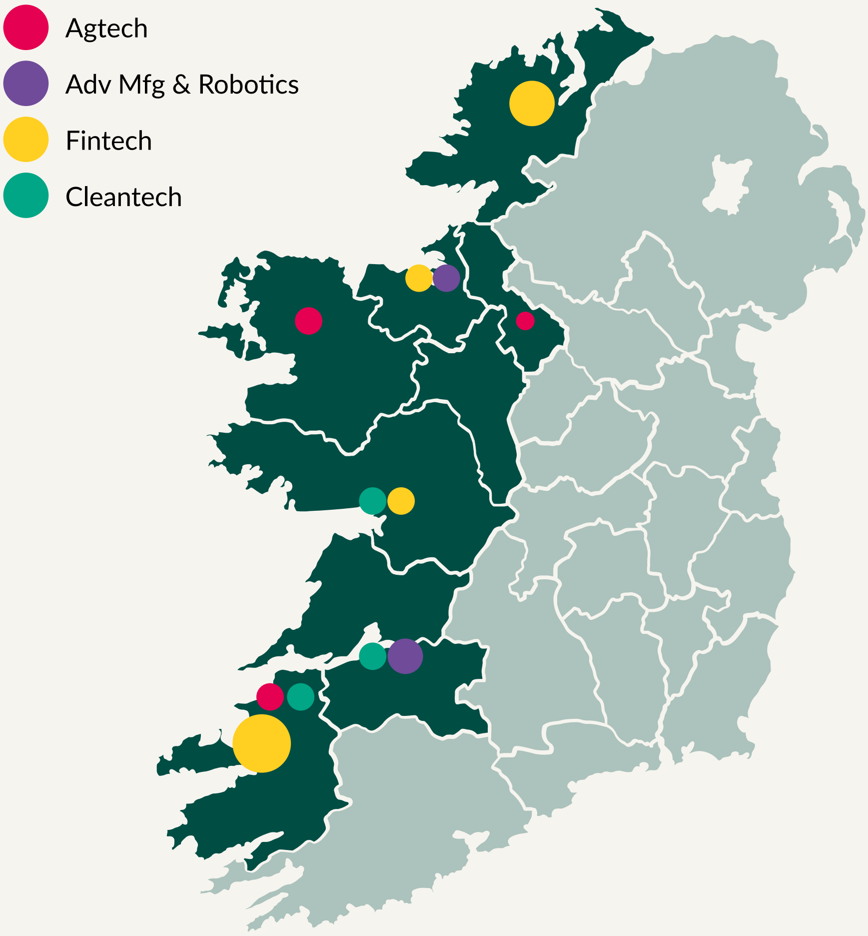


Figure 11: Emerging Specialist Sectors – Potential International Impact

Figure 11 illustrates these emerging sectors and where they are dispersed across the region. It is evident from the illustrations in Figure 10 and Figure 11 above that:

i. The Life Sciences specialist sector makes a significant contribution right across the region (with a major concentration in Galway and pockets in the West and mid-West). While strong, it still has considerable potential to continue its growth globally.
ii. The AI/Data/Analytics specialist sector is well-represented region-wide. In addition, it is more evenly spread (than life sciences), and it too has significant potential to continue to grow and deliver increased impact nationally and internationally.
iii. The other sectors can be considered emerging. These sectors, including Fintech, Advanced Manufacturing & Robotics, Cleantech and Agtech, undoubtedly have potential and offer an enormous opportunity to scale to have a global impact. However, they are currently at a much earlier development stage than the two dominant sectors and are dispersed across the region.

5. Regional ambition & appetite

Support for Regional Innovation Proposal

Figure 12 Appetite in AEC Region for this proposal

We consulted with various stakeholders, both public and private, during this process. These include large multi-national organisations, scaling Irish based companies, start-ups, funding bodies, private investors, incubation and accelerators, co-working providers, and various public, semi-state and local government stakeholders.

Naturally, each category of stakeholder has a slightly different focus. Nevertheless, the overwhelming reaction to the draft proposition was highly supportive, with well over 90% falling into the ‘strong supporter’ category and the remainder moderately supportive.

There is a clear appetite among senior stakeholders supporting this approach. The following selection of quotes shows the perspectives of those organisations and individuals with whom we consulted.

> **“... looking around me, there are loads of people with innovative ideas... We would definitely support some mechanism whereby they could work here four days and have one day to develop the ideas further.”**
>
> VP of Multinational SW company.

> **"New Frontiers seemed really cool and interesting… unfortunately, last year, when I had time to invest 3 or 4 months to develop my ideas, it wasn't possible because I had missed its intake date."**
>
> CTO of Scaling Irish Software Company.

> **"… Standardising the experience across the region will make a massive difference over the next 20 years."**
>
> EMEA Head FDI multi-national.

> **"… the west coast of Ireland is going to go through a renaissance post-Covid, with so much to offer… many small businesses think they need money, when in fact they often need advice, guidance or a structured pathway…"**
>
> CEO of Scaling Irish company in Adv Mfg & Robotics

6. International ideas & insights

Many different models, initiatives, and programmes can be used as examples and provide guidelines from an international perspective. These are interesting to examine and can help shape the overall journey when developing a vibrant ecosystem. Below, we include some of these insights and some interesting examples specifically related to place-based innovation that can help shape the Atlantic Innovation Region's (AIRe) model.

Leading Place-based Innovation Ecosystems:

Recent research[28] into Place-based Innovation Ecosystems highlights five regions that can serve as indicative reference case studies. These are Espoo in Finland, Barcelona in Spain, Gothenburg in Sweden, Ljubljana in Slovenia and Boston in the United States of America. While different, they all have highly complex innovation ecosystems. They have different implementation levels of the Quadruple Helix Model[29] and interrelations with Smart Specialisation Strategies and their inherent Entrepreneurial Discovery Processes.

We conclude that, for all of these successful regions,[30] '*Orchestrators*' and main key-players perform an essential role in the governance of the innovation ecosystems, playing a leadership role concerning local, regional, national and international innovation-related policy agendas. This leadership, talent attraction and retention, research and innovation infrastructure, complementary system stakeholders and internationalisation were detected as core elements for thriving local and regional innovation ecosystems.

28. Rissola, G. and Haberleithner, J., Place-Based Innovation Ecosystems. A case-study comparative analysis, EUR 30231 EN, Publications Office of the European Union, Luxembourg, 2020
29. The Quadruple Helix Model of innovation recognises four major actors in the innovation system: science, policy, industry, and society. In keeping with this model, more and more governments are prioritizing greater public involvement in innovation processes. (https://ec.europa.eu/digital-single-market/en/open-innovation-20)
30. Rissola, G. and Haberleithner, J., Place-Based Innovation Ecosystems. A case-study comparative analysis, EUR 30231 EN, Publications Office of the European Union, Luxembourg, 2020

Entrepreneurial Discovery Process (EDP):

European best practice concerning regional prioritisation for innovative sectors, fields or technologies points to an Entrepreneurial Discovery Process (EDP).[31] Here, the region emphasises the importance to prioritise 'investment based on an inclusive and evidence-based process driven by stakeholders' engagement and attention to market dynamics.[32] This means that the focus is on emerging areas within the region from a start-up, entrepreneurship, research and innovation perspective, fostering, supporting, and helping these grow.

Incubators and Accelerators:

There are many types, models, governance and ownership structures for Hubs, Incubators and Accelerators, both in Europe and worldwide. They range from public-funded and managed to privately owned, funded and governed, as well as any combination of both extremes. Some notable examples and insights are outlined here:

1. **Start-up Europe (www.startupeuropeclub.eu/)** was founded in 2011 to build a healthy ecosystem that allows start-ups across the EU to scale their businesses. The EU directly supports around 60 local ecosystems, encourages start-up creation and growth, and connects start-ups, investors, accelerators and universities. Some examples of funded projects include Start-up3: www.startup3.eu/, Scaleup Labs: www.scaleup4.eu/, Scaleup Champions: www.scaleupchampions.com/

2. **UK Accelerators**[33]

   There are 186 UK accelerators run by 130 organisations, and attendance has increased by an average of 78% each year since 2014. London has 65% of the UK's accelerators, with more accelerators in Shoreditch than any other area.

   Companies that attend accelerators raise 44% more money than those that don't and 75% more valuable. L Marks runs the most accelerator programmes (20 in UK & 60 globally), while companies who have attended Future Fifty secure the most funding.

   The European Regional Development Fund is the most frequent sponsor of accelerator programmes in the UK, with 16 sponsored.

31. Interreg Europe (2019). The entrepreneurial discovery process – The S3 engine: https://www.interregeurope.eu/policylearning/news/6598/the-entrepreneurial-discovery-process-the-s3-engine
32. European Commission: https://s3platform.jrc.ec.europa.eu/-/draft-implementing-smart-specialisation-strategies-a-handbook.
33. https://www.beauhurst.com/accelerating-the-uk-report/

3. **Top 4 Ranked[34] US Incubators/Accelerators:**

   AngelPad: www.angelpad.com/ San Francisco: Private, seed-stage accelerator program based in NYC and San Francisco, invest for equity, highly competitive, offers $120K in exchange for a 7% stake in the start-up.

   Y Combinator: www.ycombinator.com Silicon Valley Based: Private, investments for equity, provide mentors, teachers, investors, market analysis etc., Y Combinator provide $125K for a 7% stake in the start-up, has a strict curriculum and expectations to live there for the 3-month program.

   Techstars: www.techstars.com/ – Boulder Colorado: Private, help build founder-focused entrepreneurial ecosystems from the ground up. Highly competitive entry, Techstars get a 6% stake for $100K convertible note & a $20K scholarship for living expenses on a 3-month programme.

   500 Start-ups: www.500.co/ Silicon Valley Based: Private, very prolific, run programmes in 15 countries, partner with Private/Public organisations, provide young companies $150K for a 6% stake (and charges $37.5K for participation in the programme).

4. **Other relevant and notable US organisations:**

   1871 Chicago: www.1871.com/About/ 33% of Chicago start-ups have come through its doors in recent years.

   Thrive by SVG Ventures, San Jose: There are strong US/Irish links, and they had events in UL 2008–2010.

   Connect, San Diego: www.connect.org/ This community non-profit is passionate about helping entrepreneurs build great companies and create a world-class tech ecosystem.

Key Analysis:

There appears to be a trend that some accelerators will become funds. The leading US accelerators already act as seed investors. There's also a gap in the market between accelerators and VCs, usually filled by angels. There is an opportunity to bridge this gap where accelerator-managed micro funds could invest in companies they've done extended due diligence on during the accelerator programme. Or there is likely to be more partnerships between funds and accelerators which has occurred in the top US accelerators for many years (SV Angel invested automatically in Y-combinator participants for several years).

34. US Accelerator Ranking Project (MIT/Brown University: http://seedrankings.com/

It also appears that the days of the generalised programmes, culminating in a demo day and attended by a wide range of contacts and interested parties, might well be over. The current trend for more specialised accelerator programmes will continue. It will provide the support, insights, and connections much earlier during the programme, rather than a 'show and tell' at the end.

Social enterprise innovation

In recent years, social entrepreneurship, social enterprises, and social innovation have gained importance in policy and practice across Europe, including in Ireland, and indeed the role of the Department of Rural and Community Development in Social Enterprise and National Policy is key. Various initiatives, supports and funding methods are available. Given the nature of the Western Seaboard of Ireland, the culture, the sense of community, inherent ingenuity, social innovation, and enterprise have always played an integral role in the region (indeed great work in recent years in being done by Social Impact Ireland[35]). By definition, social enterprises aim to have a social impact instead of profit for their owners or shareholders. Furthermore, the European Commission promotes social entrepreneurship and social innovation. This support will continue during the 2021-2027 programming period under the ESF+.[36] It is important to understand that social innovation will continue to form an important aspect of any regional innovation ecosystem.

Horizon Europe, 2021–2027

This next generation of EU funding focuses on creating a GREEN, HEALTHY, DIGITAL, and INCLUSIVE EUROPE[37]. It will focus on global challenges and European competitive advantages in Health, Culture, Creativity and Inclusive Society, Civil Security for Society, Digital, Industry and Space, Climate, Energy and Mobility, Food, Bioeconomy, Natural Resources, Agriculture and Environment.

As shown in earlier sections, the examples and insights discussed above, combined with what is developing across the region organically, have all been incorporated into a proposed model to establish an Atlantic Innovation Region (AIRe).

35. https://socialimpactireland.ie/
36. https://ec.europa.eu/esf/transnationality/content/esf-promoting-social-entrepreneurship-and-social-innovation
37. https://ec.europa.eu/info/sites/info/files/research_and_innovation/funding/documents/ec_rtd_horizon-europe-overview.pdf

7. Proposal for Atlantic Innovation Region (AIRe)

A vibrant innovation ecosystem running from North to South along the west of Ireland can significantly impact the region and the country. Many components need to be in place to achieve this successfully and build a World Class Place-based Innovation Ecosystem. The eight key components of the proposed model are:

> **"Standardise the Experience, Equalise the Opportunity, Maximise the Potential"**

1. **Open Innovation Environment:**
   We seek to build a region where innovation can thrive, whether in large multinationals or tiny start-ups. We need an open, collaborative, and stimulating culture, where new ideas or initiatives can be tried and tested before scaling internationally, or failing, only to embrace the next version. Some of this is implicitly in place. However, we must reinforce this environment and give it national and international prominence.

2. **Access to funding mechanisms:**
   We seek to build a region where supports and funding are available at all stages of the innovation journey, from 'idea' to 'internationalisation'. While multiple funding options are available in the region, the investment level in value and volume is significantly less than in the greater Dublin region. We outline actions to help stimulate and improve the quantity and quality of projects, initiatives and start-ups at all stages of the innovation journey, thereby providing greater quantity and quality of fundable initiatives.

3. **Incubators & accelerators:**
   There is an excellent foundation in place as the WDC has developed a Hub network of 100+ hubs across the AEC region, some of which can act as incubators and accelerators. This network includes a hub classification system, hub network engagement and promotion, and standard systems, including a hub website platform, an online automated booking engine and a hub management system. Some actions are included to leverage best practices, integrate offerings and develop cohesive collaboration and networking activities region-wide.

4. **Venues and Events:**
   The region has an abundance of venues of varying sizes broadly spread. However, it has very few industry events, especially those of international note. We have developed a series of actions to plan, promote, organise and manage an annual international event (growing to multiple events over time) starting in 2022. These events will include industry forums, thought leader keynotes, specialist workshops, exhibitions, start-up competitions, investor panels, and night and social events in multiple locations. They will be targeted to national and, more importantly, international attendees.

5. **Education & Research**
   The region has very strong education and research capabilities, with three Universities, four Institutes of technology (which are becoming Technical Universities) and multiple research institutes.[38] This plan will create closer collaboration between industry and academia, develop clear pathways for innovation and spinouts, and promote the advantages and opportunities by studying and working in the region.

6. **Defined Specialisms**[39]
   The region has some strong specialisms, namely 'Life Sciences' and 'AI, Big Data & Analytics, with further emerging specialisms in Advanced Manufacturing & Robotics, Agtech, Cleantech(including Circular & Bioeconomy) & Fintech. These areas shoe enormous growth potential. We outline actions to create specialist innovation pathways, identify and support potential industry transformational projects with national and EU funding.

7. **Notable Private Industries**
   There are some globally recognised industry leaders across the region, both started and scaled from the region and global players who have a strong presence in the area. Examples include; Kerry, Fexco, SITA, McHale, Abbott, Analog, TCS(Pramerica), Pfizer, Cisco, JLR, J&J, Dell, AMCS.

8. **Orchestration**[40]
   Vibrant, notable and high performing innovation ecosystems contain many (if not all) of these first seven components. However, a key theme in internationally leading regions is the central 8th component. This component is an 'Orchestration' function that enables the ecosystem to flourish and build cohesiveness, identity, and an enduring sense of community nationally and internationally. The first key action is to establish this core team with the necessary resources.

38. Insight, Confirm, MaREI, Lero etc, https://www.sfi.ie/sfi-research-centres/connect/
39. Using Global Start-up Sector Definitions, 2020. (www.startupgenome.com)
40. Rissola, G. and Haberleithner, J., Place-Based Innovation Ecosystems. A case-study comparative analysis, EUR 30231 EN, Publications Office of the European Union, Luxembourg, 2020. Orchestrators play an essential role in the governance of the innovation ecosystems... this leadership... the presence of research and innovation infrastructure... were detected as core elements for successful local and regional innovation ecosystems".

Proposal for Atlantic Innovation Region (AIRe)

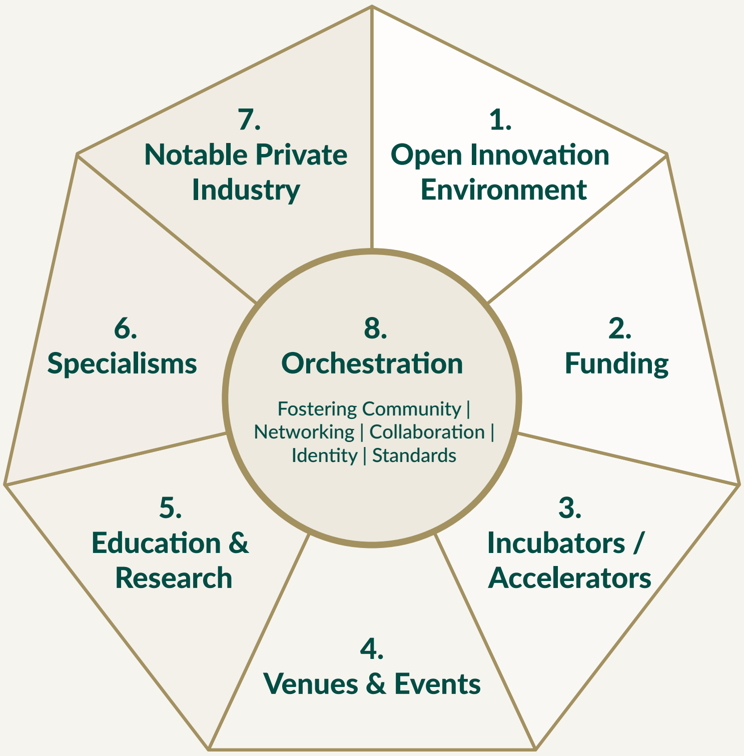


Figure 13 Proposed model for Innovation Region

7.1 Differentiating and exploiting the AIRe

The opportunity across the region as a whole is significant. While it will take time and resources to crystallise, some benefits can be realised quickly with limited resources. Other benefits will require a longer timeframe and sizeable investment.

The potential opportunity for the region can be exploited by carefully, systematically and innovatively leveraging and building upon the following:

a. Access to activate and mobilise at critical scale with 1.7m people.
b. A unified messaging, strong identity and powerful brand to promote globally.
c. Standardisation of the message, programmes, governance, funding access, opportunity access.
d. A cohesive network of start-ups, multinationals, SME's, academic institutions and public bodies, working together to build a vibrant community leveraging innovation, sharing knowledge, collaborating and developing locally, nationally and internationally together.

e. Enhanced ability to attract significant national and EU funding supports to develop transformational initiatives that create sustainable[41] enterprises and employment across the region.
f. Strong differentiation capabilities, using the collective strength and sense of place to foster a thriving innovation ecosystem environment
g. The ability to amplify the Atlantic Innovation Region's message globally, establishing links with diaspora, business and innovation regions across the world
h. Build on the existing strength of the Creative Industry across the region and leveraging the 7000+ skilled people already in the region. A recent WDC study[42] shows that the creative industry is worth almost €500m to the region and has significant overlap in the Information and Communication sector and, in particular, AI, Big Data and Analytics

41. The Irish Government is committed to implementing the *UN Sustainable Development Goals (SDGs)s domestically by 2030*. A sustainable Enterprise "*is an organisation that can meet the needs of present and future generations of customers and stakeholders and preserve environmental integrity while enhancing business performance*". https://www.dccae.gov.ie/documents/DCCAE-National-Implement-Plan.pdf
42. West REP – Submission for Creative Economy (CE) support to National Economic Plan (WDC, 2020) http://www.westerndevelopment.ie/wp-content/uploads/2020/10/Creative-economy-inputs-into-the-West-Regional-Enterprise-Plan-submission-to-the-National-Economic-Plan-2020-1.pdf

8. Opportunity Analysis

The proposed model is only the first step in this innovation process. However, it is necessary to understand the whole of the proposed model and to consider both the internal and external factors that may affect it.

Therefore this proposed model has been analysed using several approaches. Firstly, we analysed the region's strengths and challenges (or weaknesses) against each of the proposed model components. We then analysed the GAPS between the current situation and that proposed.

A summary of both of these follow.

8.1 Strengths & Challenges Analysis

Aspect	Strengths	Challenges
Funding	Multiple WDC Fund in place, freedom to invest • Strong track record • Long term investment approach • Range from micro to 1m+ funding Multiple Angel Groups • WxNW, HBAN West, Med Tech, HBAN Kerry, HBAN SW Crowd Funding emerging for Start-ups • Spark Crowd Funding €3.8m (1220 individual investors, ave €3k each)	• The volume of scalable projects is low • Quality of proposals low • Dominated by Galway Medical industry • The WDC finding it hard to participate in seed-stage (<.5m) • Start-ups finding early funding very difficult to secure • All funding bodies rely on the same pool of projects & promoters (EI HPSU biggest source)
Incubators/ Accelerators	WDC hub project – 100+ Hubs, • Uniformity / scale / quality • Plans for growth ITs' have 'New Frontiers' program • Few other accelerators • BioInnovate (MedTech) • BioExcel (MedTech) • Portershed (NDRC in 2021) • RDI hub starting (NDRC in 2021) Co-operation with Catalyst NI in the border region, especially Donegal Potential for 3 Flagship Anchor Hubs • RDI/Portershed/Catalyst	Lack of uniformity of: • Incubation • Entrepreneurship development • Business assessment • Mentoring/coaching • Acceleration programmes — ideation — start-up — spinout — scaleup — Internationalisation
Education / Research	3 x Universities (NUIG, UL, MTU) 4 x Institutes of Technology (LyIT, ITSligo, GMIT, LIT) → CUA and TUAS Multiple research centres No of Students and Researchers in the region = Approx. 65,000	• NUIG & UL are dominant in output around Galway & Limerick, respectively • LIT, GMIT & MTU smaller scale but ambitious • IT Sligo & LyIT are similarly ambitions, albeit smaller in scale again

Opportunity Analysis

Aspect	Strengths	Challenges
Notable Private Industry	Major Cluster of 'Life Science' companies including global players in Region – Galway/ Mayo/Sligo Emerging 'AI, Big Data & Analytics' clusters • FMC Shannon • pockets in Tech NW • Galway Ambition for Agtech, Fintech & Cleantech across the region, including Circular Bioeconomy cluster in MTU and TechNW initiative of reaching out to schools with a 'study and work' in Donegal initiative.	• Major FDI centred in West or Mid-West • NW/SW less served • Very few indigenous global multi-nationals (Fexco & Kerry)
Specialisms	2 Major Specialisms– global significance, scale, economic impact & opportunity. i) Life Sciences ii) AI, Big Data & Analytics Four emerging Specialisms a) Fintech b) Cleantech c) Agtech d) Advanced Manufacturing & Robotics	Strategic choices when continuing to amplify the major specialisms and develop the clusters/ ecosystems Achieving scale and vibrancy in an ecosystem/ cluster for additional focus sectors 1) focus on two major specialism sectors? 2) Support 4 emerging, facilitating their growth, invest in catalysts project and allow organically to scale
Open Innovation Environment	Various research/industry centres in place or emerging • FMC • Adv Mfg. in UL/Sligo/NUIG • Public/private collaboration started • RDI hub (Fexco/KCC/ITT/EI) Multiple individual opportunities for private industry to work with academia	Foster a region-wide innovation culture. Consider Creating a Regionwide Living Lab. This will make the AIRe attractive for outside organisations to innovate and try out early-stage ideas or products. Effort will be needed to build a global reputation as a Regional Living Lab
Events & Venues	Various venues across the region, • Portershed / RDI – with own spaces • UL / INEC / NUIG / IT'S etc, with very large venues Some localised events planned • UN AI 4 good planned in Sligo March 20 (Covid casualty) Ad-hoc regional networking commenced • The new NDRC format will support this	Making an impact nationally and Internationally • Events of note on the global stage • Specialist? Setting up a multi-day Large Summit like an event for specialisms, funding competitions, education, thought leadership, night summit… • AI, Big Data, Analytics • Agtech, Cleantech, Fintech • Advanced Mfg & Robotics
Community, Collaboration, Networking	Willingness and appetite for collaboration and community building Emerging communities and networks growing organically • TechNW • WestBIC • RDI/Portershed/Ludgate – part of Dogpatch Irish Tech Hub network • NxNW in Donegal • Etc. Guinness Enterprise Centre – outreach and Prosper programme | NACEC (EI funded)	Organically growing Networks Collaboration based upon individual's and small group networks No cohesive community that has the scale and reach nationally and internationally Weak links Internationally

This table gives a picture of the proposed initiative base on internal factors (strengths and challenges). It provides a good starting point for analysing the GAPS between what is currently in place and proposed for the region. However, we recommend that during the development of a business plan, further analysis is conducted. This work may include both a SWOT and a PESTLE analysis to analyse the external factors and their impact.

8.2 GAP Analysis

We have compared the proposed model with what exists in the region. From this, we conducted a high-level analysis of the GAPs that exist. This analysis has been represented visually below by applying a 5-stage grading to each proposed model component. The following diagram illustrates this.

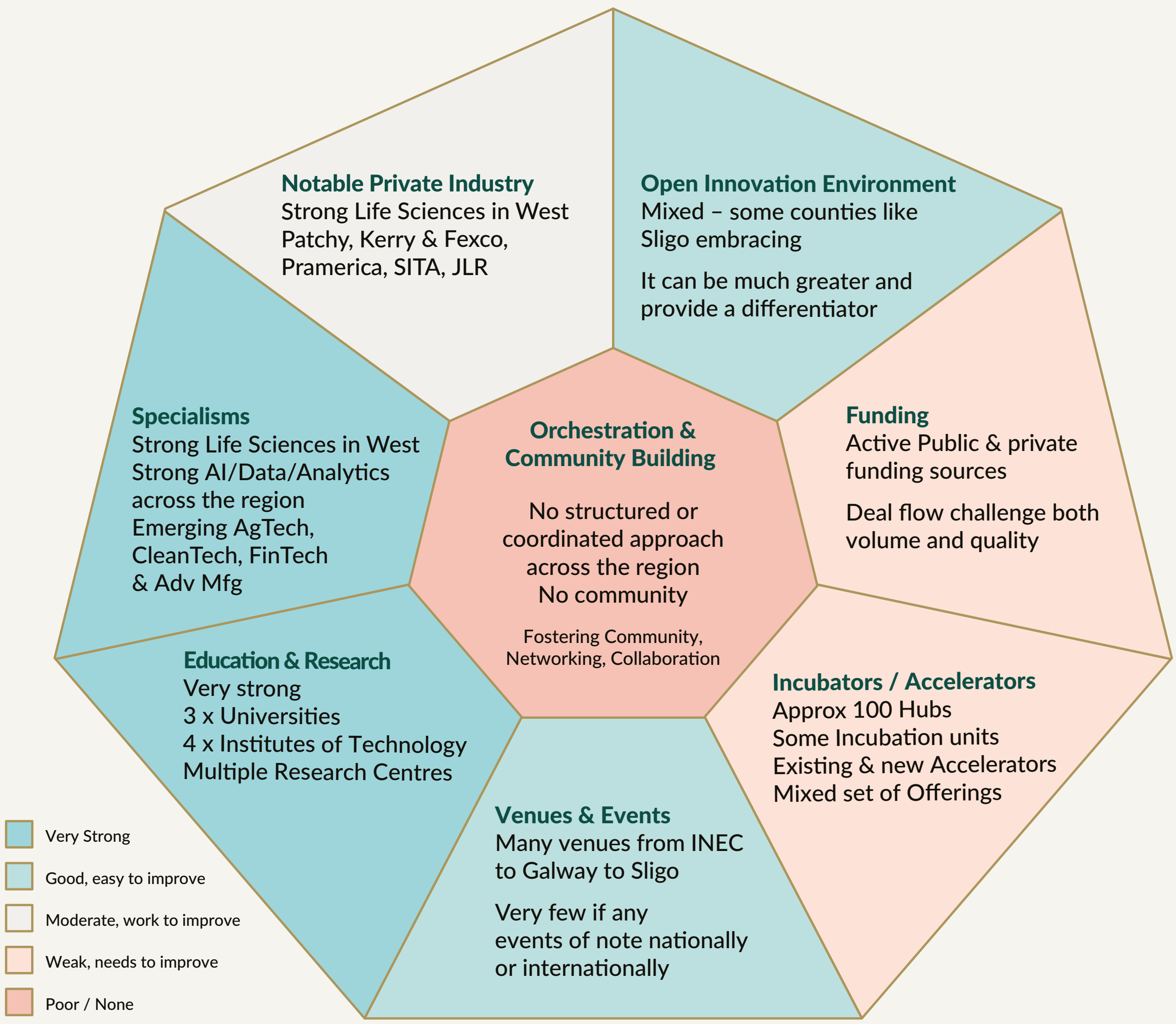


Figure 14 GAP analysis of region v's Proposed model

Opportunity Analysis

The central part of the model '*Orchestration, Networking, and Community Building*' stands out as the least developed component from our analysis. This report recommends that this core set of activities must be filled to enable the overall vision. Furthermore, it argues that the WDC is best suited to establish this function and perform its core activities.

While the Funding and Incubator/Accelerator segments need work, there are already some initiatives underway. The work of the Orchestrator function will assist in developing these at a faster pace. The Open Innovation and Events segments can be improved. They will benefit significantly from having a central coordinating group orchestrating the activities and plans in a structured and coordinated manner.

The remaining segments, Specialism, Education/Research and Notable Private Industry, will also benefit from a wider coordinated network linking public, private, academic and civic actors across the wider region. Furthermore, offering a joined-up approach will undoubtedly lead to successfully securing large scale EU funding and investment for region-wide transformative projects. Based upon the proposed model and this analysis, an action plan has been developed. This plan is included in the following section (Action Plan).

9. Action Plan

Building on the GAP analysis, the following action plan has been prepared to develop the proposed Atlantic Innovation Region. The plan enables a phased approach based upon three broad and overlapping stages, Create, Grow & Scale:

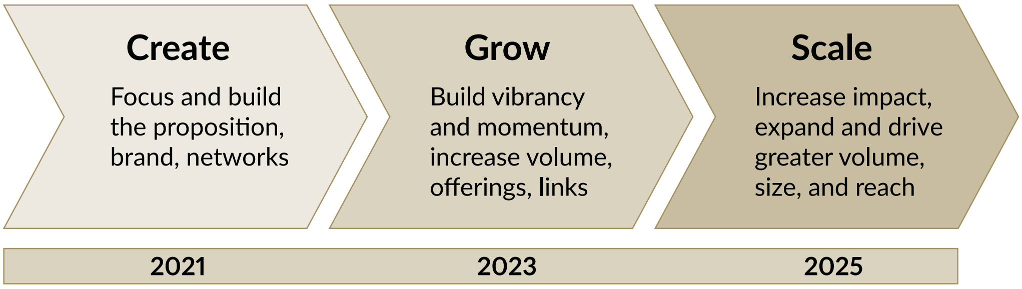


Figure 15 Phased approach to creating Regional Innovation Ecosystem

i. **Creating** the foundations to enable the innovation ecosystem model, with a modest investment, creates strong positive momentum.
ii. **Growing** the vibrancy, membership, linkages, programmes, offerings etc., across the ecosystem. This will require a varying scale of resources depending on the initiatives and sustainable investment in the overall orchestration function.
iii. **Scaling** – where the ecosystem is functioning well, and greater impactful projects can be undertaken, wider national and international linkages can be made, increased events organised, and the economic impact to the region becomes measurable in a tangible economic manner.

These are a series of key recommendations that can be put in place in the short term. All generate immediate benefits to the region, link with national and regional development policies, and act as key enablers in developing and achieving the long term benefits of an Atlantic Innovation Region.

Key Recommendations	
1	Establish the AEC Region as a Living Lab, become an active member of the European Network of Living Labs (Enoll).
2	Support the development of 3 flagship anchor Hubs across the region – with RDI/Kerry & Portershed/Galway in place, A NW hub in Donegal as a cross border partnership with Catalyst NI is a strong candidate.
3	Leverage and expand existing successful programs and initiatives across the region, using the Hubs and the Anchor hubs, such as providing remote access to programmes, building a mentor community, replication of the study and work initiatives in Donegal etc.
4	Actively build communities, collaborations and establish national and international Networking connections with industry groups, international bodies, Irish diaspora groups etc.
5	Build the central Orchestration capabilities and provide the necessary resource.
6	Plan an international multi-day summit-like event, seminars, exhibitions, competitions, investor forum, education, thought leadership, night summit etc.

Table 7 Key initial recommendations for immediate action

9.1 Action Plan

The following action plan is presented in a project-based approach. Each can be undertaken individually, yet they will all contribute to the overall vision. It should be noted that this action plan is a living document and will iterate, be refined, modified and revised as projects evolve over the coming years.

Thematic area	Initiative	KPI	Re-sourc-es	Timescale: 2021				2022				2023		2024		2025	
1. Orchestration	Create an Atlantic Innovation Region brand	Brand defined	€														
	Build an Innovation Region business, development & marketing plan	5 year plan	€														
	Build Network links: National & International with Regions, Innovation Centres/hubs, Business Groups, Investment Forums, diaspora groups etc.	2021 – 10 links (5Int) 2022 – 20 links 2023 – 20+ links	€														
	Define a 'Standardised Pathway' to support the innovation journey (leverage existing best practice activities, fill any gaps and build a cohesive model): From 'Idea to Internationalisation.'	2021 – V1 defines 2022 – V2 Improved and linked to activities across the region	€€														
	Select and deploy a community platform (HigherLogic, Zapnito, Inside, Tribe, etc.)	2021 – procure and deploy 2022+ Exploit	€€														
	Create a governance model, including public, private, academic and community stakeholders	2021 – Governance model agreed 2022+ Operate	€														
	Define and build the community across the region	2021 – informally build 2022+ formalise, grown & build vibrancy	€														
	Launch the brand with National and international promotion	2022 – formal establishment & launch	€														
	Actively promote, grown and build vibrancy across the community	2021 – build community (500, maybe segmented) 2022 – grow 1000+	€														
	Establish sustainable structure & team for Atlantic Innovation Region	2021 – define structure/plans/funding – bid for EU Dev Funding 2022 – formally launch	€€€														
	Creative specific Forums – Founders Forum, Talent Forum, Funding/Investment Forum, Industry Specialisms, International forums, Ideas forum etc.	2021 – 6 community events 2022 – 20+ events, Monthly + specialist events	€														
	Create Networking Events & Partnerships: Regionally, Nationally and Internationally	2021 – establish Int NW links 2022 – 2x Int NW events 2023 – 5+ Int NW events	€€														

Resources Guide	
>100k	€
>500k	€€
500k–1m	€€€
>1m	€€€€

Action Plan

Thematic area	Initiative	KPI	Re-sourc-es	Timescale				
				2021	2022	2023	2024	2025
2. Open Innovation Environment	Establish and promote the region as a 'Regional Living Lab' – partner with Enoll and develop the model	2021 – Join Enoll 2022 – promote actively 2023+ expand	€					
	Establish a framework for innovation using publically available data sources	2021 – Inventory & access 2022 – establish framework 2023+ Actively promote	€					
	Create & Run Open Innovation competitions by specialism	2021 – Create Plan, agree 1st 2022+ –run 2(or more) per annum	€					
	Actively promote the Region as a Living Lab, encourage Large MNO's, FDI's and SME's to participate – have 'Living Lab' aspect to all events and promotion nationally and internationally	2021 – Join Enoll, build into Branding & Marketing plans 2022+ Promote, generally & specifically	€					

Thematic area	Initiative	KPI	Re-sourc-es	Timescale				
				2021	2022	2023	2024	2025
3. Funding	Explore alternative private funding – particularly early-stage – consider a specific region 'CrowdFunding Model'	2021 – Explore option to have region-specific Crowd Funding 2022+ – Facilitate/run crowdfunding	€€					
	Establish International funding links – encouraging diaspora to re-invest in the region or to invest in start-ups in the region etc.	2021 – build initial links (2+) 2022+ Establish & promote a community for the diaspora to re-invest in Region	€					
	Create an 'Idea to international' pipeline visible to all funding sources	2021 – define standardise pathway 2022+ – create a dashboard of pipeline	€					
	Establish a Regional funding competition – (ref Intertrade Ireland model)	2021 – explore options 2022 – kick-off 1st competition 2023+ – grow	€					

Thematic area	Initiative	KPI	Re-sourc-es	Timescale				
				2021	2022	2023	2024	2025
4. Incubation & Accelerators	Continue the current HUB program	2021+ – continue as planned & link to overall Region Plan as it evolves	€€					
	Support the establishment of an 'anchor' hub in the NW, similar to RDI or PorterShed. Look at partnering with Catalyst in NI to enable this.	2021 – actively engage with Catalyst for NW hub 2022 – develop & promote programs	€€					
	Build a region-wide formal and informal Mentor Community – informal pro-bono mentorship and formal paid mentorship	2021 – create a register 2022+ manage, foster, grow	€					
	Create a standardised funding pathway from 'idea to international', linking all sources and matching with the 'standardised pathway'	2021 – define standardise pathway & sources 2022+ – operate and refine	€€					

Action Plan

	Actions	KPI	Resources	Timescale 2021	2022	2023	2024	2025
5. Venues & Events	Coordinate and manage the establishment of a notable industry event(s) across the region	2021 – Identify & plan 1st event	€					
	Promote, manage and build annual Events Programme	2021 – Establish & plan initial events 2022+ – build program and promote	€€					
	Utilise the community platform as the core of building the community – events, industry specific forums, meetups, collaboration etc.	2021 – begin using community platform for events, forums etc 2022+ further exploit to grow nationally & internationally	€					

	Actions	KPI	Resources	Timescale 2021	2022	2023	2024	2025
6. Education & Research	Build strong Industry and Academic links within all community-building initiatives	2021 – Ensure Industry & Academia are linked to all plans 2022+ Continue and look at specific sector & international links	€					
	Establish a specific program to target potential 'spinouts', match with mentors, potential co-founders, etc.	2021 – Establish & plan initial events 2022+ – build program and promote	€					
	Create a showcase for academic research, innovation, IP and partnership/collaboration potential in every event organised across the region — consider co-hosting specific events	2021 – include in all events planned	€					
	Foster international business and academic links to and from the region	2021 – identify potential links and make initial links (2+) 2022+ – grown links and increase activity (10+)	€					
	Support any innovative industry/education models – such as ICT apprentice models to cross train and increase the talent pool, or 'study & work in the region' outreach etc.	2021 – actively engage where appropriate 2022+ – actively support and participate	€€					

	Actions	KPI	Resources	Timescale 2021	2022	2023	2024	2025
7. Specialisms	Create specific Specialisms within the 'Innovation Pathway' (e.g. CleanTech, AgTech, Social Enterprise etc.)	2021 – Identify specialisms & plan 2022+ – include specialist forums, programmes, events, networks etc	€					
	Identify large Transformative Projects, actively support their funding bids.	2021 – identify key potentials with partners & support (1) 2022+ – continue to support 1+ per annum with other	€€					
	Take advantage of opportunities of the EU Structural Funds to finance work on making the region's research and innovation infrastructure more accessible	2021 – build links with EU funding bodies and bid for support to dev Innov region 2022+ Continue to exploit EU funding sources	€€€€					

Figure 16 Resource guide for actions

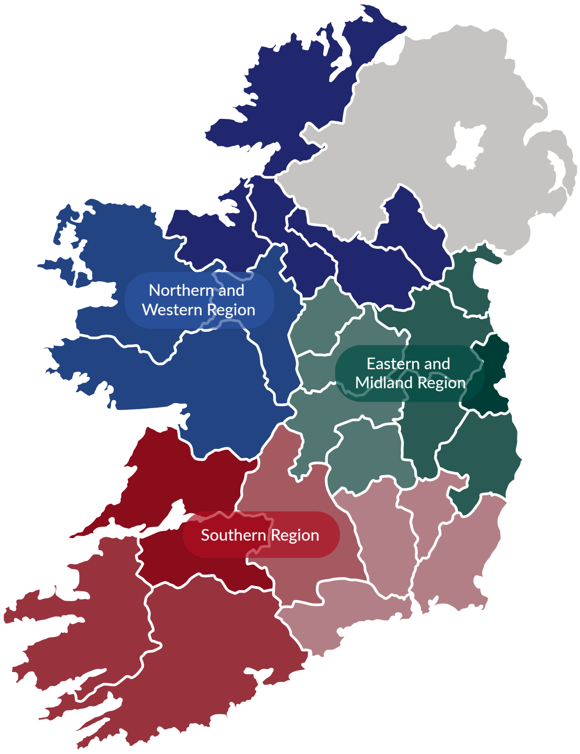
10. Other Factors to Consider

10.1 State Aid

State Aid is a term that refers to forms of public assistance, using taxpayer-funded resources, given to undertakings on a discretionary basis, with the potential to distort competition and affect trade between member states of the European Union.

The WDC, via its investment fund, and all Public authorities, are free to make investments in undertakings. Such investments do not constitute State aid when the public entities invest together and on equal terms with private investors. This rule means that any equity investment the WDC make is on a 'pari passu' basis with private sector investors (on the same terms and conditions as the private sector investors).

In addition, the WDC Investment Fund often invests with other public sector bodies, but the total combined investment from the public sector NEVER exceeds 50% of the total investment round.



10.2 Regional Assemblies

Within the AEC region, there are two regional assemblies whose territories overlap somewhat, these are:

1. The Northern & Western Regional Assembly, and
2. The Southern Regional Assembly

The regional Assemblies provide a range of policy, strategy, development, and funding supports across their regions.

Furthermore, the NWRA and SRA are the key conduits for transformative EU funding via various EU frameworks.

The challenge is that there are multiple Assemblies, each with their own geographic remit, which combined is not easily aligned with the AEC Region.

(For example, NWRA – 6 of 8 Counties are within the AEC, yet in the SRA, 3 of 9 counties are within the AEC.)

Appendix I – Ecosystem development phases

The annual Global Start-up Ecosystem[43] report highlights various stages in the development of world-leading innovation ecosystems. These phases move from Activation to Globalisation to Attraction and Integration. The following extract shows more detail.

1. **Activation Phase**

   a. **Characteristics:**

      i. Limited Startup Experience (founder know-how, experienced investors, advisors and mentors, and community behaviors that support startup success)

      ii. Low Startup Output of around 1,000 or fewer startups

      iii. Challenges: lack of Startup Experience and resource leakages to later-stage ecosystems make it difficult to grow

   b. **Objective:** Focus on increasing the Startup Output and Early-Stage Funding. Activate entrepreneurial-minded people and grow a more connected local community that helps each other. Pick one or two startup subsectors (e.g. AgTech) that build on local economic strengths and develop focused programs to accelerate ecosystem growth and develop pockets of success leading to sizable exits.

2. **Globalization Phase**

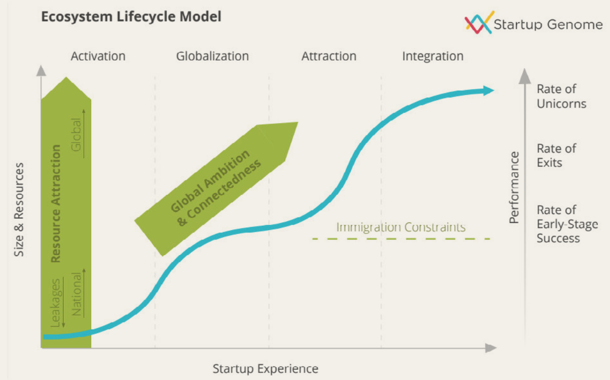
   a. **Characteristics:**

      i. Trigger to this Phase: increased Startup Experience led to the production of a series of regionally impressive "Triggers", usually above $100 million (higher in leading nations)

      ii. Output of 800 to 1,200 startups (depending on population)

      iii. Series of exits Trigger National (or Regional) Resource Attraction (startups, entrepreneurs, talent, investors) from earlier-Phase ecosystems, but still leaks resources to top ecosystems globally

   b. **Objective:** Focus on increasing Global Connectedness with founders of top ecosystems, the Success Factor that defines an ecosystem's scaleup potential, and supporting startups to increase their early Global Market Reach, which realizes an ecosystem's scaleup potential. Urgently address remaining Success Factors gaps.



3. **Attraction Phase**

   a. **Characteristics:**

      i. Usually more than 2,000 startups (depending on population)

      ii. Trigger to this Phase: a series of globally impressive "Triggers", usually unicorns and exits above $1 billion (higher in leading nations)

      iii. Billion-dollar Triggers produce Global Resource Attraction

      iv. Very few Success Factor gaps remain

   b. **Objective:** use Global Resource Attraction to significantly expand the size of the ecosystem and fill remaining gaps, removing barriers to immigration and directing attraction through well-designed policies programs

4. **Integration Phase**

   a. **Characteristics:**

      i. More than 3,000 startups

      ii. Global Resource Attraction produces a high and self-sustainable degree of Global Connectedness and flow of knowledge into the ecosystem that sustainably keep its startups integrated in the global fabric of knowledge and able to produce leading-edge business models and the skills necessary to achieve high Global Market Reach

   b. **Objective:** Integrate the ecosystem within the global, national, and local flows of resources and knowledge inside and outside of the startup ecosystem, optimizing laws and policies to sustain its competitiveness and growth, and spreading its benefits (e.g. culture, source of competitiveness, capital, innovation) to other sectors of the economy and parts of the nation.

Figure 17 Innovation Ecosystem – Development Phases

43. The Global Start-up Ecosystem Report GSER 2020. [pdf] San Francisco: Start-up Genome. Available at: https://startupgenome.com/reports/gser2020

Appendix II – Research

A. Investment in Start-ups in the AEC region

TechIreland H1 Funding in Regions outside Dublin

Regions	H1 2019 Funding		H1 2020 Funding	
	# Rounds	Funding (M)	# Rounds	Funding (M)
Antrim	14	€21	14	€11
Cork	5	€37	8	€88
Derry			3	€1
Donegal	1	€<1	1	€2
Down	1	€1	1	€<1
Galway	8	€40	8	€9
Kildare	3	€13	2	€18
Limerick	1	€22	1	€1
Louth	4	€6		
Mayo	2	€2	1	€5
Meath	1	€1	1	€<1
Monaghan	1	€2		
Tipperary			1	€7
Waterford	1	€<1		
Westmeath	1	€<1	1	€1
Wexford	3	€3		
Wicklow	3	€3		
Total	47	€151	43	€144

Northern Ireland

Table 8 Ireland – county by county investment – H1 2019 & H1 2020[44]

44. https://www.techireland.org/content/snapshots/TechIreland%20Startup%20Funding%20Review%20H1%202020.pdf

B. Knowledge-based workforce in the AEC Region

Knowledge Intensive Services	AEC Region	Ireland	Est Employees
Financial, Insurance & Real Estate	2.7%	5.4%	11,029
Information & Communications	3%	4.8%	12,255
Professional, Scientific & Technical	4%	6%	16,340
Total	9.7%	16.2%	39,624

Table 9 Knowledge workforce AEC v's rest of Ireland[45]

The Western Region is weaker in Knowledge Intensive Services than the rest of the state[46], with 39,624, or 9.7% of the workforce, employed in these sectors in 2016. While there will be significant variation, many Knowledge Intensive Services (Financial, Insurance & Real Estate, Information & Communications, and Professional, Scientific & Technical activities) lend themselves to remote working. Therefore, employment may be able to continue in this sector during the shutdown.

45. Derived from CSO census 2016 & AEC published data 2019
46. Exploring some potential impacts of the Covid 19 shock on the Western Region – revisiting sectoral employment patterns, Posted on April 27, 2020 by WDC Insights

C. EU Regional Innovation Factors for Success

Critical success factors for pioneering Cities & Regions

Vision

The Region's and/or City's declaration to become a pioneer, including objectives and factors such as:

- User-orientated innovation where the public sector, industry, academia and citizens work together to drive structural changes,
- Making the Region attractive to investors, businesses and citizens,
- Urban planning focusing on economic, social and ecological sustainability,
- Circular economy,
- Implementing the Region's smart specialisation strategies (RIS3),

Policy Model

How Policies are developed and implemented to support pioneering activities.

Actors

Active participants engaged in activities to create a better quality of life, making effective use of strong networks and social capital.

Innovative Instruments

Investment in new initiatives and technologies, active participation in the Digital Single Market, using Public Procurement to address sustainable development including economic, social and environmental objectives and to do more with less. Innovative use of different EU, national and local funding.

Collaborating Model

How collaboration is organised: Business, government, academia and citizens working together in the city and the region to improve quality of life (=Quadruple Helix).

Resources

Use of tangible and intangible resources to allow the region or city to provide a prosperous environment for business and citizens; talent, knowledge, social capital.

Partnering model

How the region and the city work together with others on national, European and global levels in order to disseminate knowledge about relevant practice and scale solutions that work.

Physical and digital spaces

Use of physical and digital environment that support and enhance collaboration, co-learning, entrepreneurship and the creation of effective solutions to urban issues.

Outcome & Results

Intended and achieved results

A city or region should address all of the requirements described in the figure; otherwise, the regional innovation ecosystem is not well established yet. Especially the elements on yellow are the ones that make the difference between normal and pioneering regions. The more detailed text is written to give guidance for potential content of the success factors.

Figure 18 EU Key Aspects for Regional Innovation[47]

47. Committee of the Regions, Regional Innovation Ecosystems. CoR guide: Learning from the EU's Cities and Regions, European Union, 2016, doi:10.2863/64485.

D. EU ERDF funding per county in AEC Region — 2014–2020

County	ERDF Funding	Total
Donegal	€1,718,060	
Leitrim	€820,511	
Sligo	€1,775,311	
Roscommon	€354,109	
Mayo	€1,130,369	
Galway	€38,409,708	
Clare	€94,230	
Limerick	€5,442,005	
Kerry	€356,840	
	Total County Specific	**€50,101,143**
General & SEAI funding	€27,093,881	
	Grand Total	**€77,195,024**

Table 10 EU ERDF Funding 2014-2020 in AEC region

During the Horizon 2020 funding period[48], the amount of European Regional Development Funding (ERDF) provided to the counties within the AEC region was €77m and €27m of this was to SEAI schemes for building energy improvement schemes and some general costs.

E. Graduate mobility from the AEC Region

Student Mobility from AEC Region		
Category	% of 3rd Level Irl	Over 4 Yrs
Study in the region	22%	64,000
First Job in the region	16%	48,183

Table 11 Student mobility from the AEC region

Based upon work carried out by the Higher Education Authority[49] (HEA), approximately 22% of all higher-level students study in Universities, Colleges or Institutes within the AEC region. At any time, there are approximately 64,000 full-time students across all 3rd level education establishments in the region.

48. Derived from NWRA & SRA publications. https://www.nwra.ie/beneficiaries-of-eu-funding/ http://www.southernassembly.ie/resources/publications/eu-programmes
49. https://hea.ie/statistics/data-for-download-and-visualisations/graduate-outcome-data/classof2018graduates-regionalmobilitymaps/

However, the HEA estimates that only 16% of all graduates get their first job in the AEC region post-graduation. Ultimately there is a 25% net loss of graduates to the region, equating to almost 16,000 graduates leaving the region over a four year period.

F. Potential Economic Impact of AIRe

Metric	Number	Ave Value*	Total / Yr
Increased Experienced employment	7,925	70,000	€554,740,321
More Graduate Employment	9,886	50,000	€494,279,176
Increased business trips	55,650	1,600	€89,040,000
Total			**€1,138,059,497**

Table 12 Potential Economic Impact

The impact on the regional economy can be significant. Simply by achieving the targets for more futureproof jobs, retained graduates and increased business travel, a combined €1.135Bn is injected into the AEC regional economy per annum.

- Increasing Knowledge economy employment by 7,925 is worth: €554m
- Reducing graduate mobility & increasing jobs by 9886 is worth: €494m
- And increasing business trips to the region by 55,650 is worth: €89m

G. Policy Context

This approach is linked to the Regional Enterprise plans through developing a project-based bottom-up model towards achieving regional development goals, including a 33% increase in levels of regional entrepreneurship, for Project Ireland 2040.[50]

*Avg burden cost for graduate = €50k, experienced =€70k

50. Project Ireland 2040 has targeted a goal of achieving a one-third increase in levels of entrepreneurship and survival of start-ups trading in all regions https://enterprise.gov.ie/en/Publications/Publication-files/Project-Ireland-2040-Investing-in-Business-Enterprise-and-Innovation-2018-2027.pdf

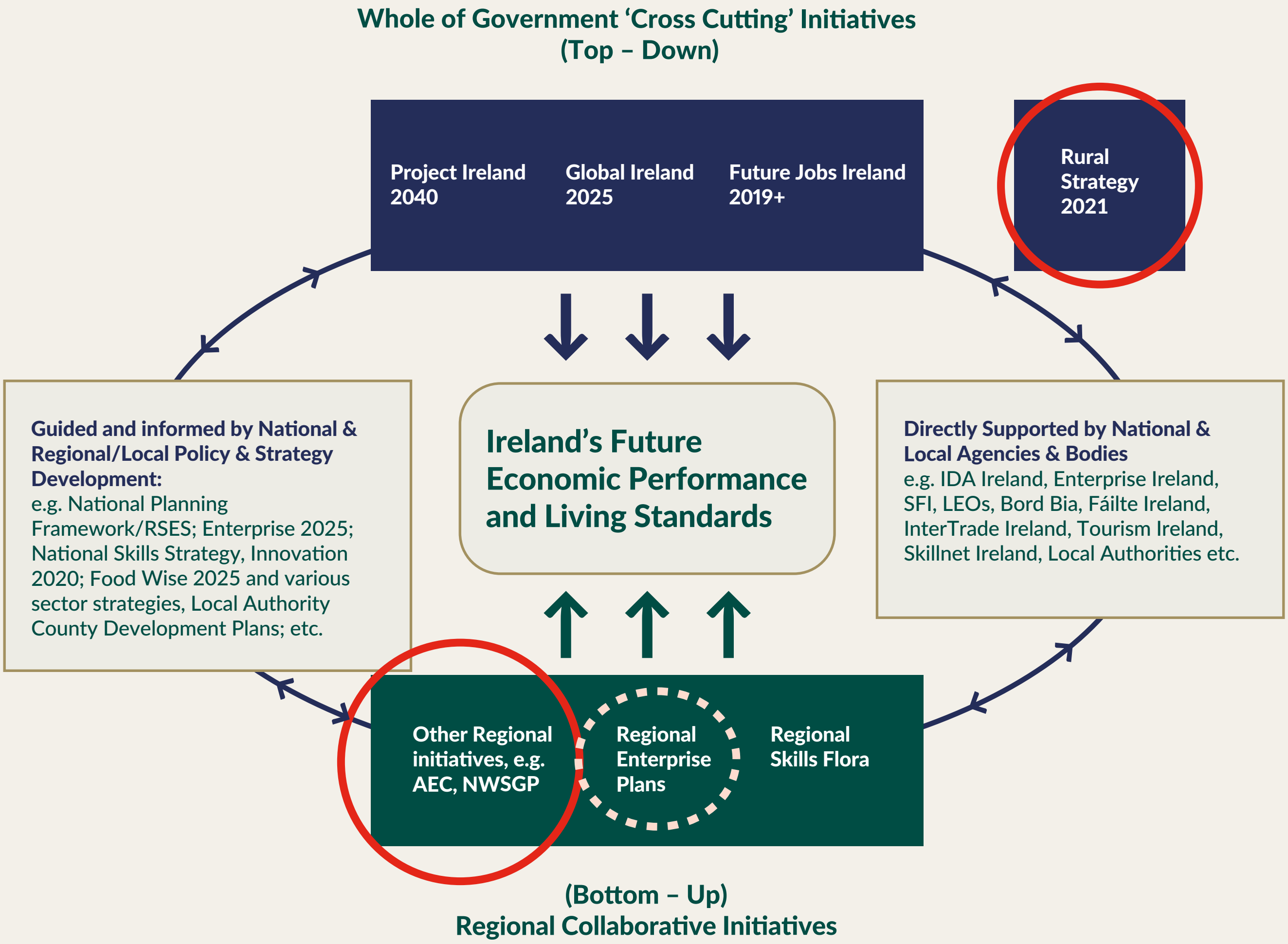


Figure 19 Link to Top-down & Bottom-up development strategies[51]

51. https://enterprise.gov.ie/en/Publications/Publication-files/West-Regional-Enterprise-Plan-to-2020.pdf

H. Use cases of AI in multiple industries

Figure 20 AI use cases in multiple industries[52]

52. One Ragtime Venture Firm, 2019: https://www.oneragtime.com/

I. Industry 4.0

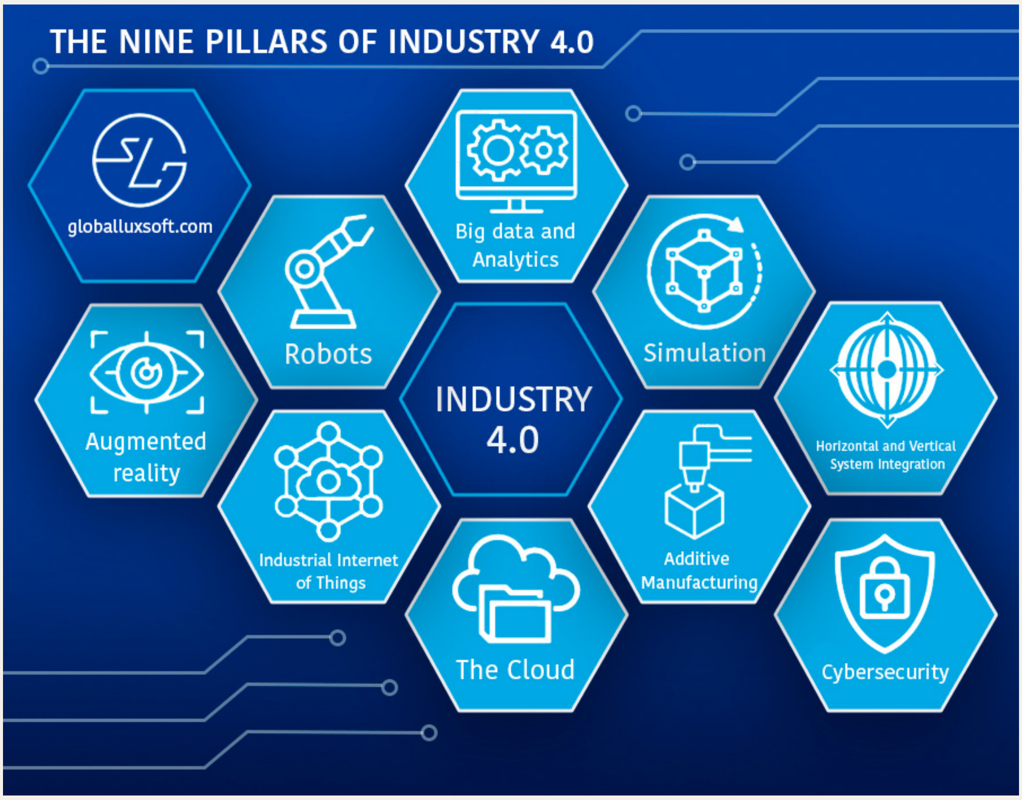


Figure 21 Industry 4.0

J. Creative Economy in the Region

The creative industry creates 7,000 jobs and is estimated to be worth almost half a billion according to a recent study by the WDC in just the counties of Galway, Mayo and Roscommon.[53] Within the WRAP counties, there are 367 AV companies, employing over 1,200 people generating over €56million annually. The screen industries have been identified as a powerful sector for driving economic recovery post the Covid19 pandemic.[54] The industry overlaps with many others in the sector. Figure 22 shows the extent of this overlap. From it, we can see that the sector as a whole interacts with all parts of the West's economy. Interestingly, here is the overlap with the Information and Communication sector, particularly AI, big data and analytics. Examples include the interplay between animation, game design and software development. Others are the use made by the medical device sector of animation and virtual production for better product development. These are key areas upon which the West of Ireland can build a brighter economic future and, overall, potentially addresses four of the six pillars of the NRRP.

53. www.westerndevelopment.ie/wp-content/uploads/2020/10/Creative-economy-inputs-into-the-West-Regional-Enterprise-Plan-submission-to-the-National-Economic-Plan-2020-1.pdf
54. Global Screen Production – The Impact of Film and Television Production on Economic Recovery from COVID-19, Olsberg SPI Report, June 2020

- Digital transformation.
- Smart, sustainable and inclusive growth, including economic cohesion, jobs, productivity, competitiveness, research, development and innovation, and a well functioning single market with strong SMEs.
- Social and territorial cohesion.
- Health, and economic, social and institutional resilience, including with a view of increasing crisis reaction and crisis preparedness

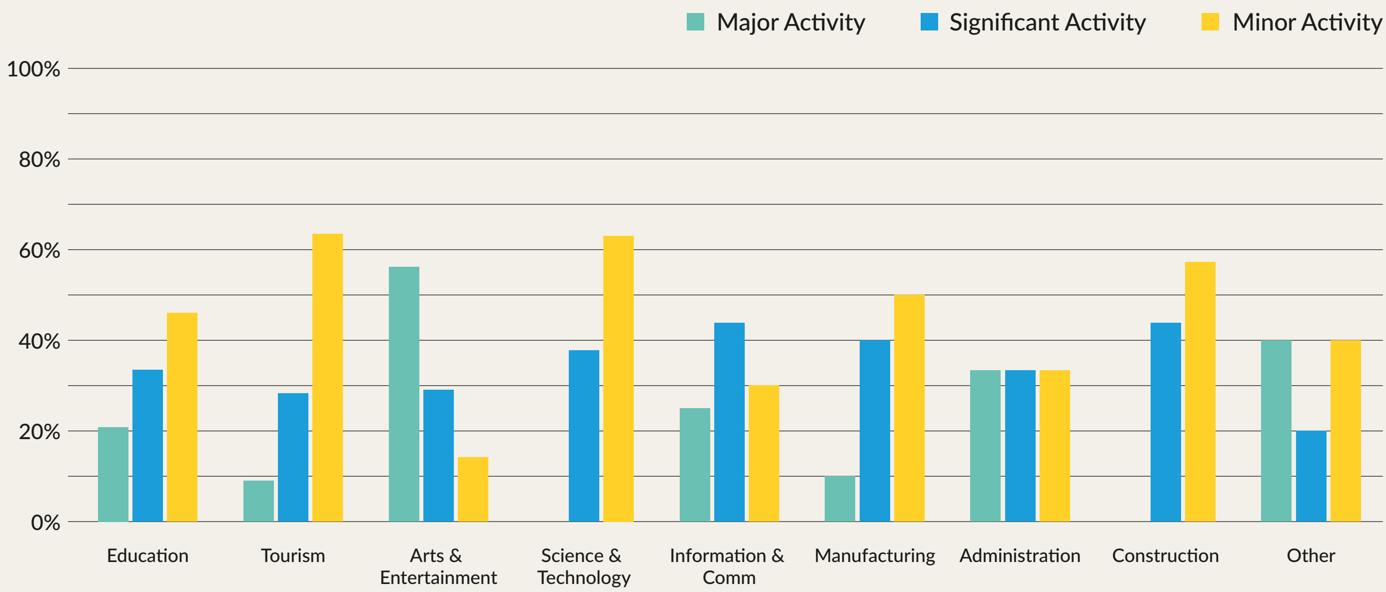


Figure 22 Industry Overlap of the Creative Economy in the region[55]

Based on creativity, the sector is adaptive and seen as one of the few future-proofed from automation. It is also focused on key areas such as diversity, inclusion, environmental protection and in Ireland, the screen industries have the potential to double by 2030, generating €1.1billion.[56] Its importance is highlighted by its inclusion in the new Programme for Government. This program also specifically refers to supporting growth in the regions. With appropriate support (graph with and graph without), the industry envisages growth in the region of 50% over the next five years.

55. The Audiovisual Industry in The West of Ireland, The Impact of The WRAP Fund and The Case For Future Growth, Dr. Patrick Collins, September 2020
56. Audiovisual Action Plan, Department of Culture Heritage & the Gaeltacht, 2018

Appendix III – Draft Candidate Projects

Project	Description	Key Enabler | Constraint	Cost – (5yrs)
Region wide Living Lab for Innovation	Drawing on the existing capacity in AI, big data and analytics, associated SFI centres, there is a clear opportunity to develop a virtual 'Living Lab' within the region. As part of a European network, this will enable iterative testing of new ideas across the region, offering a single point of contact to coordinate data research at scale in a living lab. A key enabler at a global level for a living lab as a data testbed is the protections offered by GDPR as the main English-speaking country within the EU.	English language | EU | Trust | Buy-in | Hub network | Innovation programmes	€3-5m
Centre for Immersive Experience Innovation – Future of Digital Experiences	Building on the established regional reputation for creativity and the Creative Economy, this would draw on emerging assets such as the proposed studio in Galway, the CREW creative hubs network and the legacy of Galway 2020 to find the crossover point with industry needs through greenscreen and immersive technology. This centre will be at the forefront of changes to the digital experience – shaping the very way in which we interact with technology.	Creative economy partners | Hub network	€5-10m
Centre for Data Privacy, Security & Trust	While our reliance on technology increases, our trust in it has not kept pace, creating a potential problem for adopting new technologies. As the only English-speaking country in the EU, there is an opportunity to use GDPR as a barrier to entry and find solutions to a global challenge. Creating a policy, legal, ethical and data expertise and an associated regulatory testbed framework will create a competitive advantage in data protection and become a beachhead for innovation in protecting the individual's data rights. This can include data security and data sharing and potentially future data value/monetisation frameworks.	GDPR as a competitive advantage	€5-8m
Smart Rural Mobility Testbed	The Northwest is facing an era of 'forced car ownership[57]' [Fig. 3] and a greater low carbon divide and disadvantage. Two national blackspots are within the region – Donegal and Roscommon. Both cases offer the opportunity as a case study in rural mobility, bridging the gap and drawing on the regional competence in smart mobility.	Rural mobility blackspots | Local opposition and buy-in | Brexit funding | extending FMCI	€3-5m
Offshore Energy Alliance	1. There exists over 70GW of offshore renewable energy potential around the island. The majority (80%) of this exists along the west coast.[58] Drawing on the Regional Enterprise Plans (REP) existing structure, the Northwest, West, and Midwest are seeking collaboration to develop this natural resource. This will ensure the offshore dividend is brought onshore. The use of the energy towards high-value sectors such as hydrogen capture, an EU grid, and datacentres should be examined. 2. This creates the potential for large scale private and public/private infrastructure and development investments.	Ports agreement | huge scale and cost | regulatory barriers	1) 500k 2) €10 – 50m
Offshore servicing – Drones	Drawing on the regional capacity in autonomous vehicles and smart mobility and the emerging opportunity in offshore wind, remote and offshore servicing offers an opportunity to bring value-added opportunities to the west rather than to neighbouring countries and develop indigenous expertise.	Regulatory barriers | environmental barriers | need to develop skills now (abroad) for the 2030s | FMCI	€1-2m

57. http://www.tara.tcd.ie/bitstream/handle/2262/94330/TP%20Paper%20FINAL.pdf?sequence=1&isAllowed=y
58. *Offshore Renewable Energy Development Plan*, Department of Communications, Energy and Natural Resources, Government of Ireland, 2014.

Appendix III – Draft Candidate Projects

Project	Description	Key Enabler | Constraint	Cost – (5yrs)
Medtech, Digital diagnostics & Telemedicine in peripheral regions	1. Galway and the region is one of the five largest Medtech hubs globally. While healthy and mature, the ecosystem was built based on mechanical engineering expertise. There is a need and an opportunity to develop connected health – combining mechanical, manufacturing 4.0, AI/Big Data & Analytics. 2. Adding regional competence in smart mobility and the connected health innovations to the regional Living Lab can create an opportunity to develop a competitive advantage in peripheral region access using Telemedicine, digital diagnostics, smart home devices etc. This can deliver improved healthcare to remote patients.	HSE buy-in building on Sligo pilot | Hub network	1) €5-10m 2) €2-4m
Health Open Innovation Living Lab Delivery and testbed	As a TechMed hub, there is an opportunity to build a competitive advantage in data protection – [with GDPR the global equivalent of FDA as a barrier] and associated opportunities to test connected health in rural/dispersed population areas.	Hubs, Trust	€1-2m
1. Replicating Food Hub and 2. Hyperlocal Fulfillment via a Virtual Co-op	1. Extending the existing regional assets – BIA innovator, Leitrim Food Hub, and creating an additional food hub. 2. Addressing the challenge of transitioning to a sustainable supply and food chain, a platform and scaleable modules and back-office supports (GDPR, billing, VAT etc.) can support SME digitalisation. This can help align online and physical, enabling hyperlocal supply chains. This also draws on TU Dublin Covid resilience recommendations.[59]	Avoid market disruption | sustainable food production | artisanal marketing	1)€5m 2)€2m
Support Extending FMCI – projects and locations e.g. Teagasc	The regional capacity in autonomous vehicles and smart mobility creates an opportunity to draw on FMCI and replicate the testbed model in different settings. These include AgTech, access to market, food supply chain logistics in collaboration with Teagasc.	Ensure critical mass | Liaise with AgTech Kerry, Teagasc etc.	€2-5m
Social Innovation District & Challenges – shared	There are a limited number of social enterprises outside subsidised caring services and fewer still at scale. In addressing a national challenge, there is the opportunity to share existing entrepreneurial supports and programmes and transfer them to pressing societal challenges. This approach could be used to address the lack of critical mass in the Northwest.	Hubs | need for critical mass	€1.5-3m
Scaling Hub NW	There are centres of specialisation along the Atlantic Coast [Fig. 2]. However, they are located in the population centres in the southern part of the region. To avoid duplication, there is an opportunity to develop structured links with key hubs in the Northwest and use that as an extended campus of key innovation centres such as BIA Innovator, Future Mobility Campus Ireland, CREW, and AgTech Kerry. This should equally draw on cross-border capacities of organisations such as Catalyst.org and extend the offerings across the entire region.	Leverages existing assets | Hub network | need for critical mass and long term commitment in NW.	€5m

59. https://documentcloud.adobe.com/link/review?uri=urn:aaid:scds:US:63688f87-9b8d-46be-baf3-811fe7ad3d5a pg. 25

Appendix IV – Terms of Reference for Report

Western Development Commission

1. Introduction to the WDC

The Western Development Commission (WDC) is a statutory body that promotes economic and social development in counties Donegal, Sligo, Leitrim, Roscommon, Mayo, Galway and Clare. The WDC is involved in policy analysis and development, the promotion of regional initiatives and the operation of the Western Investment Fund.

The WDC works in co-operation with national, regional and local bodies involved in western development to:

- Review and monitor policy and make appropriate proposals to government departments and agencies.
- Identify and implement development initiatives, or facilitate their implementation by other relevant organisations; and
- Assist businesses, social enterprises and projects by managing the Western Investment Fund (WIF)

2. Background

The Western Development Commission (WDC) was established under statute in 1998 to foster economic and social development in the Western Region; Clare, Galway, Mayo, Roscommon. Leitrim, Sligo and Donegal.

The WDC has recently launched our 'Work Smarter, Live Better' strategy to build on the growth of remote working and facilitation of innovation within a globally competitive region that offers a quality of life that is among the best in the world. The strategy has three pillars:

- Regional Promotion will focus on developing the WDC's jobs and lifestyle portal called lookwest.ie and engaging with communities in our remit.
- Regional leadership will see the continuation of WDC policy analysis, supporting the Creative Economy and the WDC's role as coordinating agency for the Atlantic Economic Corridor (AEC) project, set out in Project Ireland 2040.
- Sustainable Enterprise will take a longer-term view, continuing to invest in new ideas and build on the success of the Western Investment Fund, the ongoing promotion of Social Enterprise and over a ten year period working with higher education institutions, other agencies and departments to identify one or two sectors that will deliver a competitive advantage for the region at a global level.

Appendix IV – Terms of Reference for Report

3. Current Requirements

As noted above, Sustainable Enterprise, taking the long term view, will seek to continue to invest in new ideas and build on the success of the Western Investment Fund, working with key stakeholders to deliver a competitive advantage for the region at a global level.

To that end, a contractor is sought to carry out the following, ***following initial consultation with the WDC*** and building on the work to date of the WDC Sustainable Enterprise Pillar, the Atlantic Economic Corridor Hubs Network, regional digital strategies and other relevant national policy drivers to:

- Identify emerging research and innovation assets, projects and developments along the Atlantic Economic Corridor with the potential to differentiate the region, nationally and globally, particularly in the context of aligning and aggregating existing data sources and innovation clusters.
- Identify, and engage with key stakeholders, particularly in the foreign direct investment and multi-national company sector, to capture and inform the work.
- Identify the appetite, funding sources and potential investment strategy, for a portfolio investment fund of scale towards regional projects in the medium to long term, building on the WDC investment fund (particularly to include co-investments with public/ EU partner funding).
- Identify the scope to identify and align CSR budgets either cumulatively or individually to support project scaling and funding across the region.
- Investigate existing legal and political constraints.

Appendix V – Contributors

We want to acknowledge and thank the following people who kindly gave their time, advice, insights, input, and suggestions during this project.

Name	Role	Organisation
Catriona Power	Mgr. Circular Bioeconomy Cluster	Munster Technology University
Chris Bruge	CEO	SparkCrowdFunding
David Kenny	Site Lead & VP SW	Overstock
Dick Meany	Chairperson /ex SVP	AGDB / ex Analog
Eamonn Murphy	CEO & Board member	AGDB & IBEC
Edmond Harty	CEO	Dairymaster
Fernando Vilariño	President	Enoll –EU Living Labs
Gillian Buckley	Investment Manager	WDC Fund
Gwendolyn Carpenter	Senior Smart Development Advisor	JASPERS / European Investment Bank
Joe Dunleavey	VP, Head of Innovation	Pramerica (now Tata Consultancy Services)
Joseph Walsh	Head of Department of Business	Munster Technology University
Keith Moran	Managing Director	SL Controls
Keith Griffin	Site Lead & SW Director	Cisco
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Table 13 Contributors to this report

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