

Innovation, Digitalisation, Enterprise and Society (IDEAS)



Ollscoil
Teicneolaíochta
an Atlantaigh

Atlantic
Technological
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Tionól Réigiúnach
Tuaiscirt & Iarthair
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Regional Assembly



Tionól Réigiúnach
an Deiscirt
Southern Regional
Assembly

HEA

AN tÚDARÁS um ARD-OIDEACHAS
HIGHER EDUCATION AUTHORITY



Innovation, Digitalisation, Enterprise and Society (IDEAS)

The Postgraduate Research Programme in Innovation, Digitalisation, Enterprise and Society offers 12 PhD research scholarships to commence in 2024. Each project will include an enterprise placement of minimum 12 weeks duration. Project awards will include:

- **A student stipend (usually tax-exempt) valued at €22,000 per annum**
- **Annual waivers of postgraduate tuition fee**
- **Extensive research training programme**
- **Support for travel, consumables and dissemination expenses**

Innovation, Digitalisation, Enterprise and Society (IDEAS) is an exciting new research initiative that will drive economic growth and human capital development in the Northern and Western regions of Ireland.

Ireland faces some important challenges with regional disparities in R&D, innovation, digitalisation and economic growth. Consequently, regional development is a priority for the national government and the European Commission. IDEAS aims to become a centre of excellence for research in regional innovation systems, enterprise and digitalisation, contributing to the debate on the digital revolution's wider implications, and to stimulate innovation and cooperation between research and industry.

The PhD research programmes within IDEAS focus on emerging digital technologies and how they can be leveraged to create value for enterprise and society. The PhD studentships offer candidates supervision from world-leading research teams, applied research and work experience with our enterprise partners, and comprehensive research and professional training. IDEAS will develop highly skilled, motivated and industry-focused graduates for executive roles to drive transformative change and innovation across a wide range of disciplines.

Research Training Programme

Year 1:

Community Building
and Induction Week

Student IDEAS
monthly forums

Enterprise IDEAS
Conferences

Research IDEAS
Symposia – Research
design and planning

Year 2:

Student IDEAS
monthly forums

Enterprise IDEAS
Conferences

Research IDEAS Symposia
– Data analytics

Year 3:

Student IDEAS
monthly forums

Enterprise IDEAS
Conferences

Research IDEAS
Symposia – Publishing
and presenting research

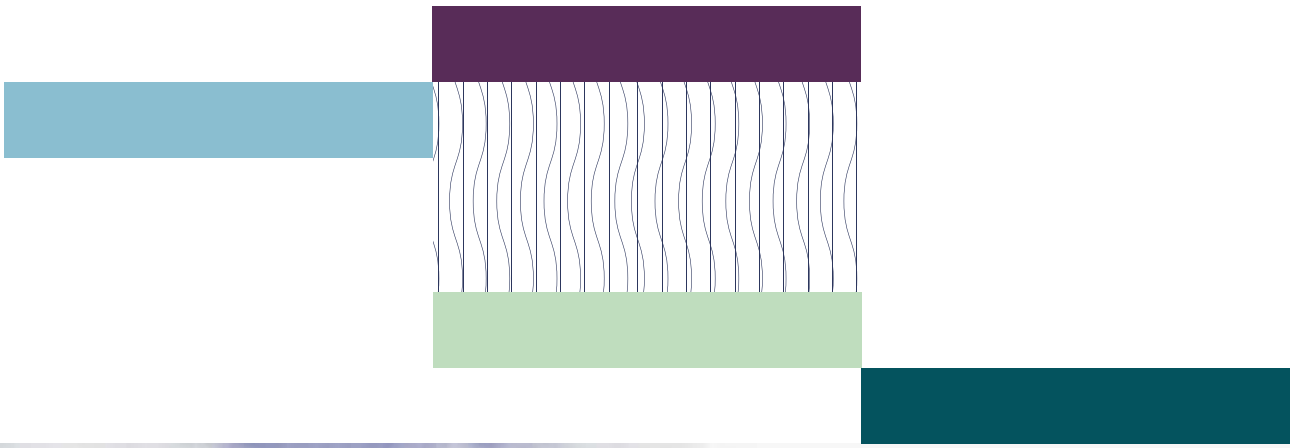
Year 4:

Student IDEAS
monthly forums

Enterprise IDEAS
Conferences

Research IDEAS Symposia
– Thesis preparation





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01



Digitalisation and the Social Enterprise Ecosystem: Developing a framework to promote social enterprises in remote regions

Social entrepreneurship (SE) can alleviate poverty and gender imbalance and ignite social transformation (Bloom, 2009; Datta, P. B., & Gailey, 2012; Ghauri et al., 2014). Pursuing both social and economic goals, the core purpose of SEs is to deliver a social mission while at the same time remaining financially viable. These two competing needs can produce tensions. A sustainable business model is at the core of SE (Jayawardhana et al., 2022; Picciotta, 2017). Many gaps remain in this growing research space. The methods by which social entrepreneurship

advances sustainable development goals and tackles wicked problems must be better understood. While there is extensive research on the individual contributions of social entrepreneurs, a thorough understanding of how efforts combine to contribute to the broader Sustainable Development Goals (SDGs) needs to be explored (Diaz-Sarachaga and Ariza-Montes, 2022).

Lead supervisor

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02



An exploration of the interactions and relationships between key stakeholders within entrepreneurial ecosystems

It is now accepted among policymakers that for entrepreneurs to be successful, there needs to be a conducive ecosystem. Within the literature, there has been a limited focus on the interactions and relationships between key domains/elements/actors within ecosystems. Although conceptual advancement has been extensive, empirical studies fall short of examining many of the dynamic processes central to the development of ecosystems. We cannot assume that entrepreneurial ecosystems that make up ATU's hinterland are the same or can be understood using a standard

framework. Each ecosystem will have a different system of interactions and relationships between stakeholders (Stephens et al., 2022). This PhD will use the work of Isenberg (2010) and Stephens et al. (2022) to frame a study of ecosystems in Ireland. The PhD will include: 1) A systematic literature review; 2) 3/5 case study ecosystems based on two stages of interviews with key stakeholders; and an industry Case Study to test the emergent findings/framework in real-time, in a real-world setting (as part of the placement). Tackling the weakest elements of entrepreneurial ecosystems is likely to provide the

most efficient and effective way of improving the overall quality of the entrepreneurial ecosystems that exist within ATU's hinterland (Ács et al., 2014; Round et al., 2017). The PhD project responds to significant gaps in the emergent literature.

Lead Supervisor

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03



How effective is digitalisation as a tool for balanced regional development in Ireland?

Digitalisation is key to EU, national and regional policy, as evidenced by the national digitalisation strategy, regional smart specialisation strategies and regional enterprise plans. However, despite the success of digitalisation at a national level, regional inequalities in digitalisation are well established. While there are many exciting policy initiatives to address this in Ireland, including the National Broadband Programme, Connected Hubs, and the European Digital Innovation Hubs, the regional imbalance is persistent and outward migration is driving slower population in the West and Northwest. Furthermore, the Northwest is

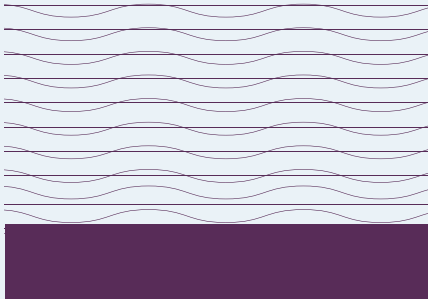
considered a region of moderate innovation or a lagging region. While policy argues that digitalisation is essential to tackle regional imbalance, the evidence of its efficacy is scant. In fact, there are concerns that urban areas may benefit disproportionately from the production and delivery of digitalised services. Furthermore, while digitalisation can help some industries, a digital divide may exist between foundational industries, such as food and construction, that rural regions rely on and non-foundational businesses, leading to an even greater imbalance.

The potential impact of digital technologies on less developed regions is an open question. Therefore, this study examines how effective digitalisation is as a tool for balanced regional development in Ireland by comparing its impact on the specific industries targeted in Ireland's regional development plans for the North West.

Lead Supervisor

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04



Shaping a Digitally Interconnected Innovation Corridor for MedTech Entrepreneurship in the Northern and Western Region of Ireland

The Northern and Western Region (NWR) of Ireland holds a promising landscape for the MedTech sector, characterised by a vibrant entrepreneurial ecosystem, a strong academic foundation, and a growing number of incubators, accelerators, focused entrepreneurship programmes (e.g., ATU's iHubs, Platform 94, Scale-X accelerator, BioInnovate, Bioexcel), research centres (e.g., CÚRAM), technology gateways (e.g., MET). These specialised organisations have the potential to become transformative agents within regional entrepreneurial

ecosystems, having the ability to foster innovation, collaborations, market access, and knowledge exchange. However, despite this potential, these organisations often operate in isolation, lacking coordination and alignment. This fragmentation hinders the emergence of a cohesive regional innovation system. Particularly in geographically dispersed regions like the NWR, where infrastructure challenges can deter collaboration and the exchange of information, digital leadership, and specialised tools can enhance connectivity, collaboration and alignment among various

stakeholders. This research project aims to explore the role and impact of these specialised organisations in leading, orchestrating, shaping, This research project aims to explore the role and impact of these specialised organisations in leading, orchestrating, shaping, and developing the MedTech entrepreneurial ecosystems in the NWR, with a focus on digital innovation.

Lead Supervisor

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05



Information technology solutions for enhanced regional connectivity in the North and West of Ireland

In the era of digital transformation, the ability to capture, interpret and transform data for strategic decision making is an ever-increasing capability required by businesses. The freight transport sector (FTS) is no exception to this trend, with more data than ever available for collection by freight operators throughout the supply chain, including tracking data - GPS locations of trucks and trailers - and inventory data - information on the goods shipped, origin, destination, or status of shipment. In this data-rich

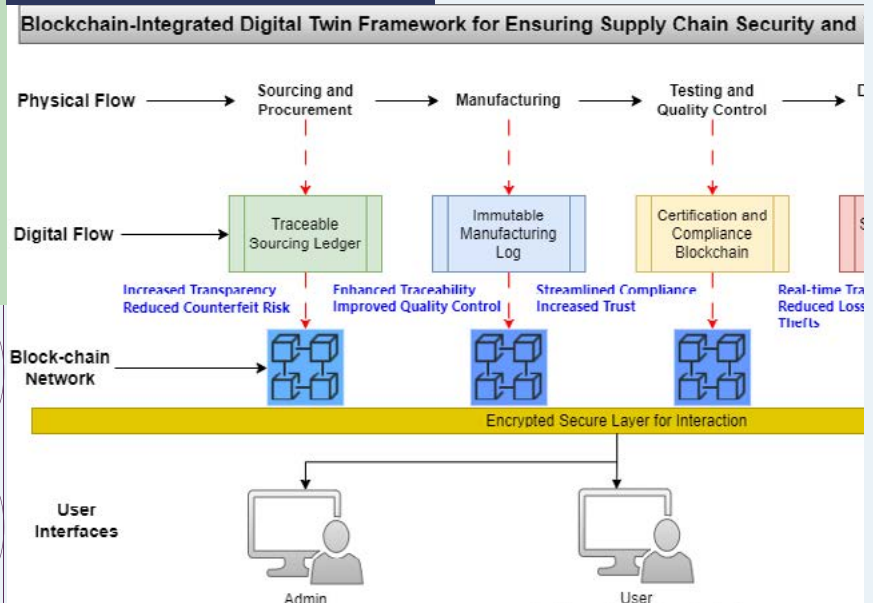
environment, emerging information technologies such as big data analytics (BDA), sensor technologies, distributed ledger technologies and advanced modelling are showing increasing promise to exploit this data and enhance the connectivity, traceability, sustainability, and accountability of regional freight transport systems. This project aims to utilise information technology solutions to address the challenge of fragmented and proprietary data points and information systems in

freight transport. The project will do so by exploring how these solutions can harness the big data available and create a shared solution for the benefit of all participants in the FTS, thereby enhancing connectivity, sustainability, and the competitive advantage in our region.

Lead Supervisor

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06



A Blockchain-Integrated Digital Twin Framework for Ensuring Supply Chain Security and Transparency in Irish MedTech SMEs

In the dynamic realm of the Irish MedTech industry, small and medium-sized enterprises (SMEs) play a pivotal role in driving innovation. However, these enterprises encounter significant hurdles in adopting technologies to modernise their operations. The key challenges include ensuring security and transparency in supply chain management process, which is directly link to protect against counterfeit products, guarantee patient safety, and comply with strict regulations. It builds trust, streamlines approvals, and supports competitive global market growth. Therefore, this project aims to address these challenges by integrating blockchain technology with digital twins, thereby

enhancing supply chain security and transparency. The integration of blockchain with digital twins is expected to revolutionise supply chain management within the MedTech sector, offering a novel solution to ensure data integrity, facilitate real-time monitoring, and foster a transparent operational environment for supply chain. Implementation and evaluation of this framework in real-world settings (with industrial partners) will help to lead this research towards prototyping and commercialisation in future. This project propels Irish MedTech SMEs to global competitiveness, enhances trust via a transparent supply chain process, and fosters digital innovation

through blockchain and digital twins, impacting across economic, societal, and technological dimensions. It aligns with Ireland's digital ambitions, driving innovation, sustainability, and regional development, particularly in the North-West, embodying strategic digitalisation goals and fostering an inclusive, innovative ecosystem.

Lead Supervisor

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07



Addressing climate action in Irish hospitality through adoption of a digitalised roadmap in SMTE Communities of Practice

National policies oblige Small to Medium Tourism Enterprises (SMTEs) to embrace sustainable operations and make positive climate actions to ensure the internationally agreed Net-Zero decarbonisation targets are achieved. To this end, state and commercial actors support hotels to embrace a 'measure and manage' approach to carbon/greenhouse gas management to achieve same.

While such aspirations to address UNSDGs may prevail at a national and destination level, hotels often lack the resources and tacit knowledge to effect positive changes. For example, the hotels may not know how to access, measure and manage energy or waste consumption in their operations. Hotels may also feel overwhelmed by the range of decarbonisation information and supports available to them, especially if the sources of the knowledge are unknown or unproven to the organisation.

To overcome such operational deficiencies, research contends that communities of practice (CoPs) can act as enablers of the transfer and absorption of sustainable knowledge for two key reasons. Firstly, the CoPs can benefit from trusted sources of explicit and tacit knowledge to address acknowledged operational challenges using context-specific interventions. Secondly, the shared learnings between peer groups encourages realised absorption of knowledge, as the CoP acts as a support group to network participants.

Lead Supervisor

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08



Harnessing the power of digital influencers for socially responsible business

Marketing is firmly in the era of influencer marketing. If done correctly, influencer marketing has valuable implications for a company. Research has illustrated the positive association between influencer posts and brand awareness and credibility. Thus, influencers do 'influence' consumer perceptions of brands (De Jans et al., 2020). The parasocial interactions between an influencer and their audience have the potential to enhance customer loyalty among the influencers

audience and enhance the effect of sponsored content (Ledbetter and Meisner, 2021). Despite the rise of influencer marketing, research is in early stages, with a scarcity of studies assessing the impact of influencers on consumer behaviour, particularly in terms of sustainable consumer behaviour (De Vierman and Hudders, 2020; Pick, 2021)

Within one year, the global fast fashion market is predicted to grow by approximately 15% (Prnewswire.com, 2023). 7% of the total amount

of waste in global landfill space is constituted by clothing and textiles. In terms of circularity, 20% of discarded textiles are collected, and 1% of clothes are recycled into new garments (TheRoundUp.org, 2023). There is a need to better understand the mechanisms of this influence so that sustainable consumption choices and a circular economy can be better promoted.

Lead Supervisor

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09



Digital innovation for remote working

There has been a marked increase in remote working since the Covid-19 pandemic (McKinsey Global Institute, 2023). Ireland's National Remote Work Strategy, 'Making Remote Work', aims to maximise the economic, social and environmental benefits of remote working, and the Regional Enterprise Plans identify remote working as potentially transformative for the West and North-West regions.

Despite limited available research, there is emerging evidence of challenges for employee connectedness, collaboration and organisational productivity in remote working (Adisa et al., 2023; Yang et al., 2021). Our own research identifies opportunities and potential benefits of remote working, with digital transformation a key enabler (McTaggart & McLaughlin, In Press). Digitalisation and innovation of remote working provide a platform to realise the transformative potential of remote working for the regions.

This project will investigate and enhance remote working for employee connectedness, collaboration and organisational productivity, with particular focus on digitalisation. The research will develop the enterprise ecosystem and human capital in the regions, enhancing employee skills and driving enterprise growth. This delivers against strategic objectives of the West and North-West Regional Enterprise Plans, Ireland's strategic priority of digitalisation and digital transformation ('Harnessing Digital – The Digital Ireland Framework') and the DRCD strategy, Our Rural Future.

Lead Supervisor

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10



Advancing women in leadership in the ICT and innovation sectors

This research examines women (and the lack of women!) in leadership roles in multinational (MNC) and small to medium enterprises (SMEs) in the Information and Communication Technology (ICT) sector in the West and Northwest region of Ireland to better understand the barriers to their career progression. It supports to help them advance in senior leadership positions. Globally, women have less access to employment, equal pay, advancement opportunities, and sense of empowerment in the workplace (Catalyst, 2021) with organisational and structural barriers

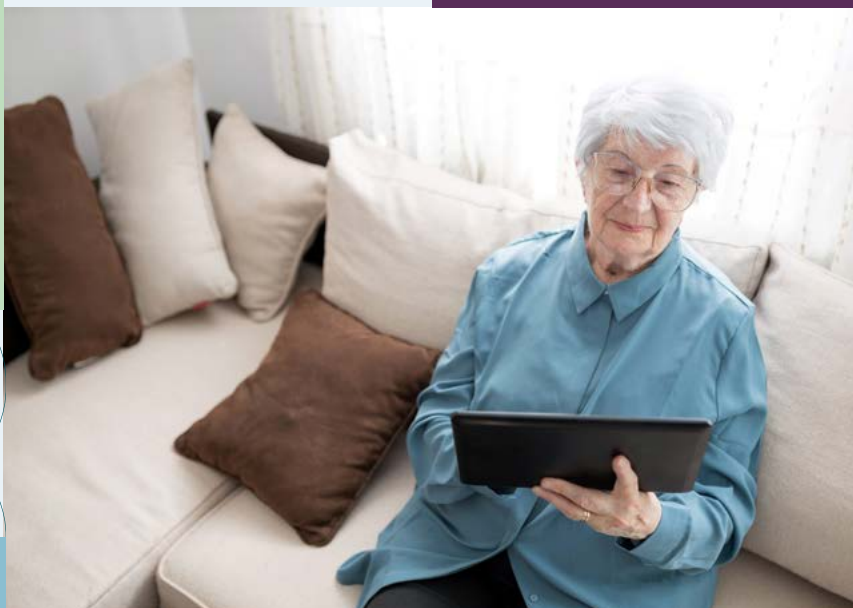
facing them (Annabi and Lebovitz, 2018). Annabi (2023) further found that while women develop coping mechanisms to deal with barriers, the IT workplace, in particular, inflicts harm on women, and it is time to address the barriers women face in the IT industry to minimise attrition and support their career advancement. Addressing barriers is especially important to build diverse workplaces for economic, equity and inclusivity, and moral reasons, and it requires a better understanding of barriers for women in STEM (Trauth & Quesenberry, 2023). This research begins with a systematic

literature review of current knowledge on female leadership and the ICT industry, known barriers and solutions. The data collection phase will include both quantitative and qualitative data collection via surveys, interviews and structured observations.

Lead Supervisor

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11



Health outcomes of socially excluded older people in the age of digitalisation

This study explores how adults (over the age of 50) on the margins of society experience social exclusion and how digitalisation and technological interventions (e.g. smart phones, wearable and connected medical devices) can mitigate against or compound health outcomes for people experiencing multi-dimensional social exclusion. The separation of individuals and groups from mainstream society, or social exclusion, encompasses loneliness, isolation, relationships, civic participation or lack thereof and decreased mobility.

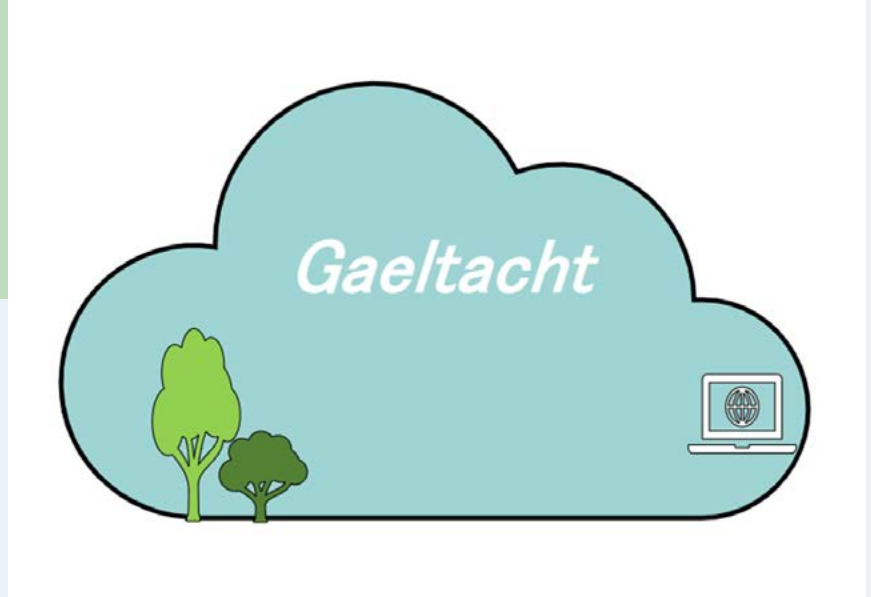
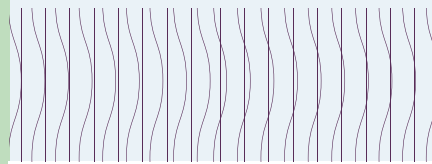
Loneliness is the public health crisis of our age and a key theme in current social policy debates. It can be driven by a breakdown in relationships, isolation, reduced civic participation and mobility among others. The likelihood of experiencing loneliness increases as we age, and the problem is compounded for those on the margins of society, e.g. homeless, Travellers, and persons with disabilities. This is hugely challenging given the effect of loneliness on mental and physical health, including the risk of early death. Identifying wearable and connected health and fitness devices

that impact multi-dimensional social exclusion, particularly loneliness, could potentially improve the health and well-being of various groups of older people while delivering cost savings at a national and regional level.

Lead Supervisor

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Building Business Communities in the Gaeltacht Regions through Leveraging the Digital Ecosystem

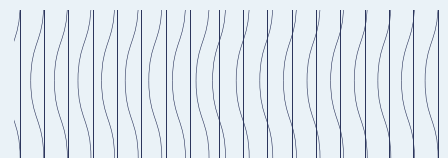
Although the topic of the digital ecosystem has remained relatively unexplored, the concept has been mentioned frequently in discussions on digital transformation, in particular, how organisations can benefit from these ecosystems and what influences a digital ecosystem's emergence. However, little is understood about how organisations can capitalise on the benefits of these ecosystems. Consequently, organisations struggle to develop new capabilities to digitalise their offerings and create

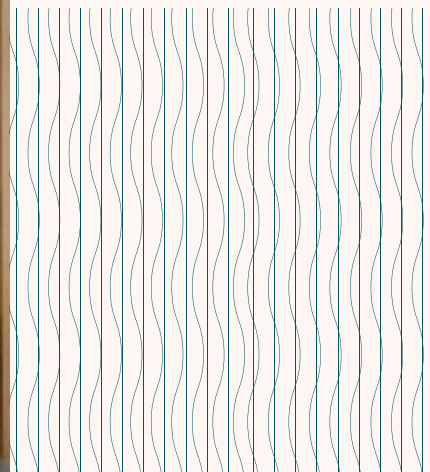
new value propositions to compete with new players in the ecosystem effectively. Thus, as technological dependencies become more complex, there is a need for ecosystem thinking to manage integration effectively. However, SMEs often face challenges navigating the digital ecosystem. They experience challenges when trying to innovate, and their level of digitalisation remains below the industry average. Barriers also include a lack of an innovative culture, limited time, human capital, financial

constraints and limited managerial resources. The focus of this research study is to explore how the integration of local enterprises in the Gaeltacht Region into the digital ecosystem influences their competitiveness, sustainability, and growth within a rapidly changing marketplace.

Lead Supervisor

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Requirements / Qualifications

A minimum of 2.1 honours degree (Level 8) in a relevant discipline.

Project Duration:
48 months (PhD)

Applications:

Application Form / Terms and Conditions can be obtained on the website: www.atu.ie/TU-RISE

The closing date for receipt of applications is 5pm, (GMT) Monday 29th April, 2024.

Applicants will be called for an online interview (shortlisting may apply).

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