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A multi-stakeholder approach to the socio-technical transition to a low-carbon society

Thesis presented by

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for the degree of

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Abstract

In order to respond to the range of environmental challenges faced in contemporary society, new collaborative governance relationships between state, community, civil society and third sector organisations must be developed. This thesis investigates the merging of top-down and bottom-up approaches to sustainability transitions taking a transdisciplinary, action-orientated approach through partnership with an active regional sustainability transition project (*Dingle Peninsula 2030*). The research involves both a regional case study and the national institutional context, supported by an analysis of research practice. It is grounded primarily in the discipline of sociology, but also involves a novel collaboration with energy engineering and draws upon the analytical tool of the MLP to highlight the importance of participatory collaboration in meeting the societal challenges posed by climate change. The thesis title, "A multi-stakeholder approach to the socio-technical transition to a low-carbon society", emphasises the collaborative nature of the regional project.

There are three core research questions guiding this research project. Firstly, *how can a mixed-method approach support an action research investigation of sustainability transitions?* On from this, *how can we understand the diffusion of sustainability in an ongoing regional transition project using the multi-level perspective?* Finally, *how can transdisciplinary research and community engagement assist in merging top-down and bottom-up approaches to transitions?* The thesis develops five key research aspects to address these questions. The first uses a participatory mapping exercise to undertake qualitative social network analysis at the grassroots level, to interpret the regional project from a bottom-up perspective in its infancy. The second focuses specifically on the collaborative governance structure, involving the four transition project partners. Thirdly, the thesis traces and explores the diffusion of sustainability across the peninsula and further afield considering the emergence of *Dingle Peninsula 2030*. The penultimate research aspect moves to the national level, investigating community engagement practices within public bodies in Ireland for the delivery of climate infrastructure. Finally, the thesis analyses the experience of transdisciplinary research approaches, working with community and civil society stakeholders. The thesis concludes with a series of recommendations for further research, for action research practice and for policy.

In this body of work, several key findings are developed. A mixed-method approach to action research has been highlighted as a means through which optimum participation can be developed. The need for a structured approach to community engagement in public bodies, and an academic context to support transdisciplinarity, have been outlined as ways to facilitate the merging of top-down and bottom-up approaches to socio-technical transitions. Finally, the role of collaborative, multi-stakeholder transition projects in bringing about the diffusion of sustainability has been illustrated as a means through which to enable societal action on climate change.

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Introduction

Outline of Research

The purpose of this research project is to analyse the merging of top-down and bottom-up approaches to the socio-technical transition to a low-carbon society. This is done from two perspectives; the local and the national. *Dingle Peninsula 2030* or *Corca Dhuibhne 2030* (Irish translation), is a collaborative project which is seeking to transition to a low-carbon, sustainable community by 2030. Merging in this sense is taken to mean to combine to form a single entity. Such merging may have positive implications with regards to leveraging capacity and expertise across different groups or negative implications with relation to power brokering and the erosion of healthy cross-organisation diversity and dynamism. Top-down and bottom-up actors, within this context, are coming together to establish a new entity under which they are unified, i.e. *Dingle Peninsula 2030.* Formalised in early 2018, it is a multi-stakeholder initiative working across scales, involving grassroots community organisations, regional authorities, research bodies and national agencies in developing and delivering a range of sustainability projects across the sectors of marine, agriculture, energy, tourism, and transport. As a PhD researcher, undertaking a transdisciplinary, action research approach, I am a member of the collaborative committee for *Dingle Peninsula 2030*. This committee is made up of representatives of a local not-for-profit (Mol Téic), a local community development organisation (NEWKD), Ireland's national electricity distribution system operator (ESB Networks), and our research institute (MaREI). Consideration is given to the case study context within Chapter Four. With regards to the overall research project, firstly through investigating a multi-stakeholder approach to a regional transition project, analysis is undertaken with relation to the stakeholder network surrounding an emergent transition project, the collaborative governance structure at the heart of the project, and the diffusion of sustainability leading from the project. In parallel to this, the national approach to community engagement on socio-technical and sustainability initiatives within public bodies, and the implications of undertaking research using a transdisciplinary, action-orientated approach are investigated to position the regional context in question within the broader landscape with relation to community engagement as a practice for public bodies, and collaborative approaches to research which extends beyond the academy.

The project is structured around five methodological undertakings that relate to the purposes outlined above. They are; participatory mapping of a sustainable transition project; reflecting on stakeholder collaboration as a governance structure for sustainable transitions; the diffusion of sustainability; community engagement within national public bodies; and transdisciplinary approaches to sustainability research. These five aspects are used to answer the three core questions of this research project.

Question 1: How can a mixed-method approach support an action research investigation of sustainability transitions?

Within the research project, a heavy focus is given to the wide range of data gathering interventions undertaken, aligning with the action research approach taken. Acting as an initial research intervention within the project, a methodological approach has been developed which acts as a tool for active change agents working in community contexts to increase their capacity to engage a wider public in planning. An innovative contribution is made to the literature through the development of an action research-based approach to social network analysis using a participatory mapping method with relation to sustainable transitions. The method comprises a participatory network mapping approach, adapted from the Net-Map toolkit, which is applied to *Dingle Peninsula 2030*. The method developed is used to undertake a qualitative collaborative social network analysis, analysing and reflecting upon the use of this participatory approach in addressing complex sustainability challenges as they are revealed through a multi-stakeholder approach. As an initial intervention, functioning at the grassroots level of the regional transition initiative in its early stage of development, this aspect of the overall project sets the foundation for further investigation of the multi-stakeholder approach deployed. Reflections on the collaborative approach to governance, and the analysis of the diffusion of sustainability on the peninsula, have been informed by this initial intervention.

A process of reflective practice has been deployed to gather findings about the collaborative governance approach taken to the *Dingle Peninsula 2030* project. To date, disconnected top-down and bottom-up approaches to sustainable transitions have proven insufficient in bringing about the necessary changes required to meet the demands of climate action. More collaborative approaches between local communities, national public bodies, and research organisations are warranted. Within this, there is a need to understand the dynamics of collaborative governance for participants in the process. Through a process of reflective practice, as an important aspect of action research, the networks, personal capacities, organisational capacities, benefits, and challenges of collaborative governance partnerships for sustainable transitions from the perspective of individuals within the collaborative committee working on *Dingle Peninsula 2030* are outlined. I highlight the need for the incorporation of reflective practice as a methodological approach within collaborative governance for the socio-technical transition to a low-carbon society.

Moving on to the national level, the research explores community engagement practices within public bodies concerned with the delivery of climate-related infrastructure projects. Ten interviews with community engagement practitioners within public bodies have acted as preliminary data for

the undertaking of a workshop (online due to covid-19) which outlines the current community engagement practices across these bodies, aiming to outline best practices for community engagement moving forward. An action research approach has been taken here, whereby participants are involved in all stages of the research process, informing the different interventions as they are developed. With relation to research approaches seeking to work alongside community and civil society stakeholders, and moving beyond the first-hand experience on the Dingle Peninsula, a range of researchers have been interviewed for findings on their practice of engaging in a cross-disciplinary manner with stakeholders outside of academia. A series of interviews have been used to analyse some of the challenges and motivations of researchers when working with community and civil society stakeholders in their practice.

In keeping with a mixed-method, action-orientated research approach the investigation of the diffusion of sustainability uses exploratory interviews, secondary desk research, and the attendance of meetings and events to interpret diffusion as it relates to the multi-level perspective, as outlined in question two below. The range of methodological approaches taken; from participatory mapping to online workshops, semi-structured interviews to reflective practice, have been combined to understand how such an approach to action research can be used to understand sustainability transitions.

Question 2: How can we understand the diffusion of sustainability in an ongoing regional transition project using the multi-level perspective?

The Multi-level perspective (MLP) offers a framework through which we can interpret the ever-changing dynamics of sustainability transitions. Originally developed by Geels (2002), the MLP consists of three levels; the niche (micro), the regime (meso), and the landscape (macro) and is used to investigate changing forces or regime shifts within a transition brought about through nonlinear interaction within and between the three levels. These interactions are not classified as top-down or bottom-up, but rather can occur through numerous developments such as niche innovations or changes within the landscape, pressuring the regime to change, or further still from internal forces within the regime. The MLP offers a simplistic way in which to interpret and analyse the complex nature of transitions and the interactions within them (Smith et al. 2010). When seeking to investigate a multi-stakeholder approach to the socio-technical transition to a low-carbon society in a specific region, the MLP can be applied to move beyond interpretations of transitions that are too focused on either top-down or bottom-up processes and instead provides a means through which to understand the complex interplay between niche innovations, the incumbent regime, and the wider

landscape. This research project, through focusing on this interplay, has used the heuristic device of the MLP to map out the different aspects under investigation and the relationships between them.

The diffusion of sustainability-related actions and initiatives in light of the development of the *Dingle Peninsula 2030* project has been interpreted throughout this research in keeping with the theoretical framing of the MLP and is informed by other aspects of the wider research project such as the participatory stakeholder mapping and the collaborative governance approach. *Dingle Peninsula 2030* emerged as a framework through which initiatives and projects could be developed and delivered under the core vision of working towards a more environmentally and economically sustainable future for the peninsula. Through the first 3 years of the *Dingle Peninsula 2030* project, a range of different initiatives have emerged at the local and national level through a process of diffusion. Within this, a wide range of actors and organisations have become involved in the project. Seven key diffusions have been outlined in this thesis. Due to the action research approach, whereby the research project is working alongside a 'live' project, it must be noted that all seven of these diffusions are ongoing and any conclusive statements on their success cannot be given. The MLP then offers a suitable theoretical heuristic to situate these diffusions within the wider transition and within this the interplay between niche innovations, the regime, and landscape developments.

The importance of the diffusion of sustainability as it relates to regional transition projects is investigated through this question, using the MLP as a means through which to position both the diffusion of sustainability and the wider research project undertaken as they relate to sustainability transitions.

Question 3: How can community engagement and transdisciplinary research assist in merging top-down and bottom-up approaches to transitions?

The final research question situates the regional context within a wider discussion on community engagement and transdisciplinary research. Firstly, moving beyond the regional context an evaluation of community engagement practises within public bodies nationally is constructed, designing a unified framework for community engagement for such organisations moving forward with relation to climate infrastructure developments. In light of the *Dingle Peninsula 2030* project, whereby top-down and bottom-up approaches to the socio-technical transition to a low-carbon society can potentially be brought together to collaborate, the need for an investigation of the current practice of engaging with communities within national public bodies is timely. With this in mind, a collaborative group of community engagement practitioners across 8 national public bodies

has been created to tease out findings on community engagement. Through moving beyond the regional context of the Dingle Peninsula to the national level we can gain a greater understanding of the potential to connect top-down and bottom-up approaches to transitions, on a broader basis.

Alongside looking at how public bodies undertake community engagement, the thesis moves towards an investigation of academics seeking to engage the community and civil society stakeholders in transdisciplinary research concerning climate change. This is situated within the context of the experience of taking such an approach to *Dingle Peninsula 2030.* Moving beyond the first-hand experience on the Dingle Peninsula, a range of researchers have been interviewed for findings on their practice of engaging in a cross-disciplinary manner with stakeholders outside of academia. A series of interviews have been used to analyse some of the challenges and motivations of researchers when working with community and civil society stakeholders in their practice. The contribution of this aspect of the overall research project is twofold. Firstly, it adds to the existing literature on challenges for undertaking research with community and civil society stakeholders. It also outlines the motivations of researchers undertaking these approaches in practice. In drawing out the potential institutionalisation of the need for research to work alongside community and civil society stakeholders, I highlight the importance of gathering a greater understanding of the challenges, motivations and roles of researchers on the ground with relation to research innovations towards transdisciplinary practice. I situate the findings within my own personal reflections as an early career researcher operating both as a researcher and as a collaborative partner.

Dingle Peninsula 2030 involves the participation of both a public body and a research institute. The former is committed to community engagement through their participation in the collaborative governance structure outlined in question 1, while the latter is undertaking a transdisciplinary research approach working across disciplines and beyond academia into the community context. While these considerations are investigated in context through the action research approach highlighted in both question 1 and question 2, this third question seeks to investigate these forms of practice at a wider level, to understand their potential to assist in bringing together top-down and bottom-up approaches to sustainability transition initiatives.

Situating Reflexivity within the Investigation

Through undertaking this investigation using an action research approach that involves my participation within the collaborative committee of the Dingle Peninsula 2030 group, there is an important need to, at times, take a step back from my active involvement in order to assess both my own role within the research and also my relationship to the collaborative group. My positionality, as outlined through Chapter 3 (see: 3.1 & 3.3) in the initial stage of the research project, is visited

throughout this work as it changes through the research process. Reflexivity can be used to inform positionality by providing a sensitivity to the cultural, political and social context in which I am undertaking this project. My preconceptions, motivations, experiences and pre-study beliefs are initially outlined, but also they are influenced through the experience. As noted;

> "Reflexivity is a hallmark of excellent qualitative research and it entails the ability and willingness of researchers to acknowledge and take account of the many ways they themselves influence research findings and thus what comes to be accepted as knowledge. Reflexivity implies the ability to reflect inward toward oneself as an inquirer; outward to the cultural, historical, linguistic, political, and other forces that shape everything about inquiry; and, in between researcher and participant to the social interaction they share" (Sandelowski & Barroso, 2002, P.222).

A reflexive approach can be used to inform my positionality and embrace the idea that this social research project is situated within the context of wider society and my own individual biography (Holmes, 2020). I have outlined sought to investigate my positionality with Chapter 3, while a reflexive approach has been applied within Chapter 4 and Chapter 7 to engage with this positionality as it is impacted by the undertaking of the research project.

Structure of thesis

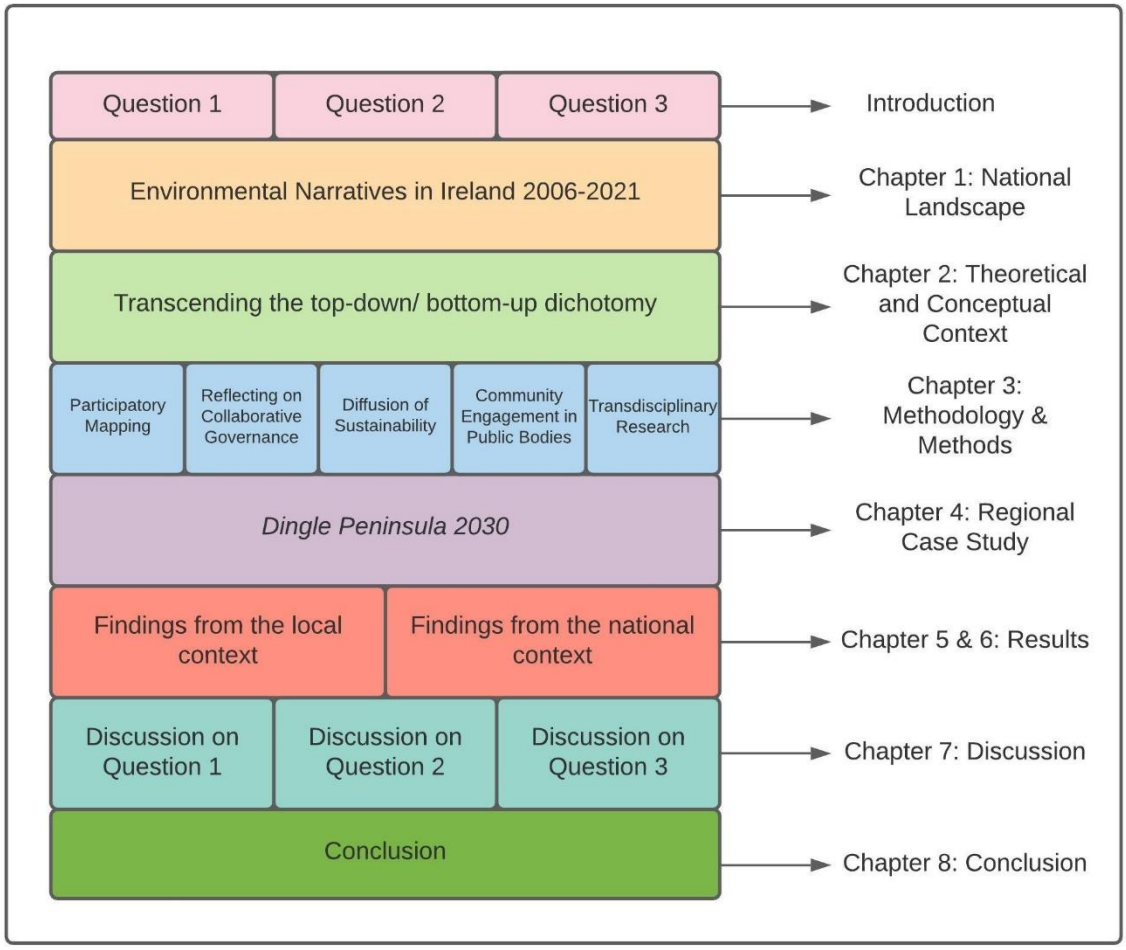

Fig 1: Graphical outline of thesis structure

The structure of the thesis is divided into eight chapters. Within Chapter 1, the broad landscape of environmental narratives in Ireland is highlighted through an investigation of socio-political debates, media events, policy developments and wider international landscape occurrences from the years 2006-2021. This provides the landscape framing for the rest of the thesis. Once the contextual foundations are laid the thesis moves on to outline the theoretical basis of the work. Chapter 2 focuses on the broad theoretical and conceptual foundations from which the thesis is built; the heuristic device of the Multi-Level Perspective (MLP) and the concept of Participation as it relates to all aspects of the investigation are introduced. From this the diffusion of sustainability as a guiding theory is outlined alongside community engagement, transdisciplinarity, and the concept of community in social theory. Chapter 3 first draws out the epistemology, positionality and standpoint, research design, ethics and dissemination procedure for the overall research project. The specific considerations related to methods are outlined in reference to the five different aspects of the

research project. In Chapter 4 the regional area under investigation is outlined alongside an overview of the *Dingle Peninsula 2030* project. Chapter 5 is the first of two results chapters where findings related to the regional context of the *Dingle Peninsula 2030* project are presented concerning the merging of top-down and bottom-up approaches to transitions to sustainability. The second results section, Chapter 6, follows on from this providing findings from the investigation of both community engagement as a practice for public bodies developing climate-related infrastructure projects, and collaborative approaches to research that extends beyond the academy, incorporating my own reflections as an early career researcher. Chapter 7 outlines the significance of the findings of the research contained in the two previous chapters with relation to the three research questions guiding the investigation, alongside a reflexive. Finally, conclusions are drawn in light of the investigation. In conclusion, I situate the thesis with relation to participation, the multi-level perspective (MLP), the role of research, policy recommendations, limitations and further research, the merging of top-down and bottom-up approaches, and community engagement.

Chapter 1: National Landscape; Environmental Narratives in Ireland

Introduction

To begin with, I shall outline here in chapter 1 an introduction to the national landscape in Ireland with relation to environmental narratives, to situate the research in context. It has been noted that "storylines help constitute reality allowing constellations of actors to coalesce around certain narratives" (Mullally & Byrne, 2016, P.5). When discussing narratives we are seeking to outline the storylines which are developed through the economy, in media, policy and socio-political debates, framing the context in which environmental issues are understood in Ireland. Environmental narratives throughout the 21st century have helped to shape the reality of the national interpretation of environmental issues. These narratives, however, have not remained static. Shifts in framing on environmental issues and sustainability have been borne out of numerous factors, be they internal or external, civil or political. A focus is given on the years 2006-2021, from the last days of the Celtic Tiger, through the recession, up to and beyond the Paris Accord. I preface this with a brief outline of the previous three decades, back to the 1970s. Through an analysis of policy, civil society developments and media messaging, 21st-century environmental narratives in Ireland are outlined, giving a national context to the specific investigation provided here.

1.1 Brief note on foundations of Environmental Narratives in Ireland: 1970-2006

Traditionally, environmental NGO's in Ireland campaigned as part of environmental movements or protests. Alongside this, the environmental movement in Ireland is shaped by three historical features (Garavan, 2007; Yearley, 1995, P.660). Firstly, it formed around particular issues such as anti-nuking in Carnsore Point, anti-mining in Donegal or anti-pharmaceutical pollution in Cork (Baker 1990). On from this, the predominant focus of movements and protests was on the actions of foreign corporations and businesses, premised on the rise of direct foreign investment into the country during this period. Finally, the actors involved were usually local or community-based entities, with additional support from national branches of environmental NGO's. Due to these three factors, localism has been suggested as a defining feature of 20th-century Environmental activism in Ireland (Garavan, 2007).

Throughout the 1990s the state became more open to engaging with environmental narratives, moving away from a previous position that sought to marginalize environmental concern (Mullally, 2006). Following on from the Rio Convention (1992), some organisations in Ireland began to engage with themes of sustainable development. Throughout the 1990's we continued to see protest

movements such as the anti-roads protest in the Glen of the Downs, the anti-pylon protests in Cork harbour, protests against Monsanto with relation to genetic engineering, and Cork Harbour Alliance for a Safe Environment (CHASE). Moving beyond the explicitly local characterisation offered (Garavan, 2007), environmentalism in Ireland has been suggested as a dual process; one relating to formal organisations, or official environmentalism, and the other related to local community-based activism (Allen, 2004). This, however, still forms a limited frame through which to situate environmentalism in Ireland as it moved into the 21st Century, with the country's position as a globalized state becoming solidified. Environmentalism moved into a space of greater influence with relation to institutional forces, in a cooperative process of acquiescence between different actors involved be they state, NGO's, or community organisations. An institutionalisation of environmental movements can be suggested, to some extent, in the Irish context (Mullally, 2006), with implications for the development of environmental narratives within Irish society into the 21st Century.

1.2 A Brave New World of Irish Environmentalism: 2006-7

2006-7 seemed to announce the arrival of a new era in Irish environmentalism. While many of the environmental NGO's that had previously formed part of a protest movement turned their attention to questions of sustainability, the wider social context appeared to become more hospitable to their message. Internationally, Al Gore's film *'An Inconvenient Truth'* (2006) began to cultivate a socio-cultural milieu attuned to the challenge of addressing climate change. The central argument of the film was that climate change can no longer be deemed a political issue. The urgency of action needed means it must be depoliticised, with it instead being framed as the biggest moral challenge facing civilization at a global level, a proposition currently challenged through Extinction Rebellion. The narrative positioned by the film led to public discourse on the issue, voluntary purchasing of carbon offsets (Jacobsen, 2011), raised awareness and increased concern (Nolan, 2010). Domestically, in 2006, the Irish government launched the Power of One campaign (Diffney et al., 2013); an initiative aiming to encourage consumers to develop more energy-efficient practices. The advertising campaign focused on radio and television adverts, alongside print material delivered door to door, taking an individualist, consumer-orientated approach. The total cost of the campaign was € 10 million. Coming less than two weeks after the Irish release of *An Inconvenient Truth*, the launch of the Power of One campaign aligned with the films' call for action at the individual level. Following 'Climategate' in the lead up to COP15, the importance of collective conscience (Deane-Drummond, 2011) has been referenced as a useful counterpoint to the narratives of both Power of One and *An Inconvenient Truth.* 2007 saw work begin on the development of Ireland's first 'eco-

village' in Cloughjordan Co. Tipperary, established as a centre for demonstration and learning for sustainable, low-carbon living.

The Stern Review in 2006 brought public attention to the economic imperative of prompt climate policy, and on from this the cost implications that delayed implementation of climate action measures would lead to (Stern, 2007). Although the document can be critiqued based on the low cost assigned to emissions reduction measures (Tol & Yohe, 2006), it brought a discussion to the public through the U.K. Parliament. Alongside this, the Intergovernmental Panel on Climate Change (IPCC) assured the political community of its scientific veracity publishing the first part of its Fourth Assessment Report (AR4), *The Physical Science Basis*, stating that warming of the climate system is unequivocal. This implicit statement was then referenced within the National Climate Change Strategy 2007 – 2012, moving policy discussion beyond ambiguity concerning the pressing need for action. Within the strategy, in light of the ratification of the Kyoto Agreement in 2005, the government outlined plans for the period 2008-2012, where an average reduction of some 12 percentage points from the current level (2006-7), would be achieved.

In June 2007, following a general election, Fianna Fáil and the Green Party ratified a Programme for Government. The Green Party's 25-year adolescence in grassroots politics was over, with it now taking its place in the politics of government. The organizational transformation of the Green Party towards 'professional' politics was something not unique to Ireland. Tracing the development and progression of Green parties across a number of both European and non-European contexts, Frankland et al. (2008), highlight a common trajectory through which parties founded in environmentalism and grassroots protest mature and are institutionalised into the established political system, in some cases forming coalitions with conventional parties of power. In the Irish case, Green delegates voted 441 to 67 in favour of joining a coalition with Fianna Fáil and the Progressive Democrats. Two senior ministerial positions were given to the Green party in important areas aligned with the Green party agenda; the Department of Environment, Heritage and Local Government and the Department of Communications, Energy and Natural Resources. This positive outcome for the Greens was not without cost. In joining Government with 6 seats, the party played an important role in government but was not indispensable. Compromises were needed on different value-orientated issues. While the emergence of the Green Party from community protestors to minor collation partners is "one of the more interesting political events in the history of the nation's environmental movement" it was not without sacrifice with the party's "association with rural community groups (coming) to be diminished as part of their pursuit of power" (Leonard, 2014, P.68). A tension can be suggested between the party members in government and the external party

members. The proposal for a new motorway through the Hill of Tara and the continued use of Shannon Airport for American troops were problematic issues within the party (Bolleyer, 2010). Perhaps most contentious, however, was Minister of Communications, Energy and Natural Resources, Eamon Ryan, overseeing the Corrib Gas Project when in office, a development which he staunchly protested against before the formation of the 30th Dáil. This contradiction can be referenced as an example of the restrictions placed on the individual within the institution of office, or more controversially, the coercive and hegemonic social, economic and political organisation of Irish society (Slevin, 2016). This period also represented the emergence of experiments with deliberative democracy in Ireland, with an importance placed on awareness-raising, capacity building, community participation and partnership models.

1.3 Targeting transition and Taming the Tiger: 2008-2012

In early 2007, the European Council approved the objective of reducing emissions of greenhouse gases, brought forward by the European Commission. The EU committed to reducing emissions of developed countries by 30% comparative to 1990 levels by 2020. As part of this, the 20-20-20 targets were established whereby nations were asked to commit nationally to a 20% reduction. In 2008, alongside the other 26 EU Heads of State, Taoiseach Brian Cowen agreed to the mandated target of a 20% reduction in greenhouse gas emissions by 2020 compared to 1990 levels. In 2008 the first referendum on the Lisbon treaty was held. Discussion on the environmental aspects of the treaty brought about an increase in media discussion on climate change in Ireland (Wagner & Payne, 2017).

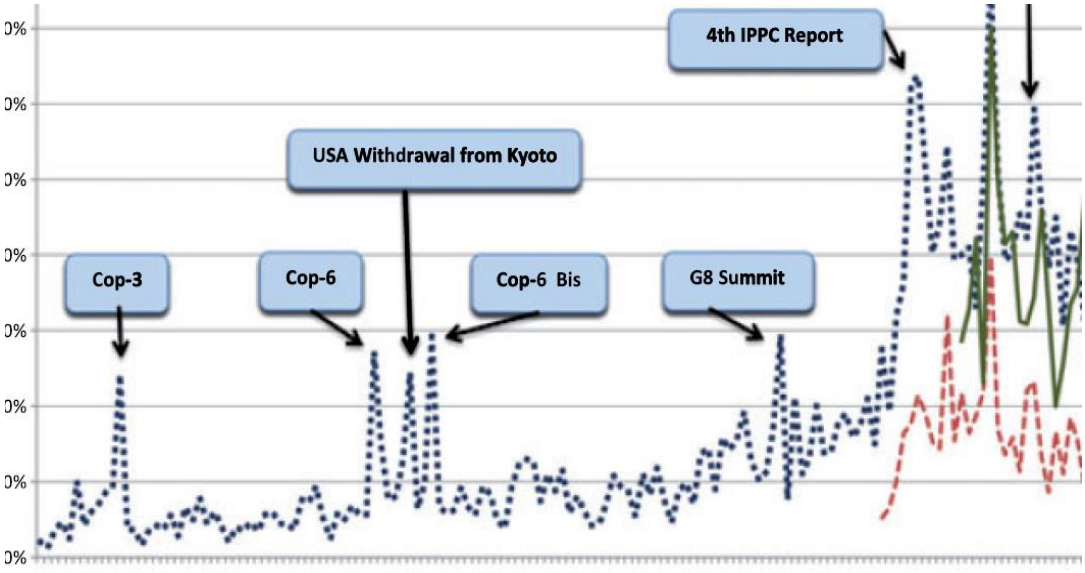

Fig. 2 Newspaper trends in climate change coverage (Wagner & Payne, 2017)

The graph above (Fig. 2) from Wagner and Payner (2017) highlights the trends in climate change coverage from 1997 to 2011. The Irish Times figures as the newspaper which gives most significance to climate change over this period. The authors relate the trend to Downs' (1996) "Issue Attention Cycle". The basis of this theory on public attention to domestic policy was one of a circular nature. In the Irish case, the slow emergence of climate change coverage over the period 1997 to 2005-6 is evident. The issue is placed in the early and pre-problem phase. A sudden and sharp increase is apparent in 2006-7. This increase can be correlated to some degree with the number of factors referenced above from domestic to international, policy to media. Following this, "coverage then plateaued above two per cent for two years during the realisation of costs stage, before falling dramatically during the post problem stage" (Wagner & Payne, 2017, P.22).

While the authors suggest that Downs' theory of "Issue Attention Cycle" may be relevant they are also clear in outlining the impact which the global financial crisis of 2008-9 may have had on climate change coverage in the mainstream media. Ireland was one of the worst impacted European countries during the global recession and "in a world where newspapers have to focus on the here and now, it is possible that the immediacy of one crisis could push aside the gravity of a seemingly less pressing one" (Wagner & Payne, 2017, P.22). The decreased reporting in the media of environmental issues correlates to a decrease in public consideration of the issue as a key challenge facing the country. The graph below (Fig. 3), illustrates the fall in public perception of the environment, climate and energy as a central concern for the citizenry in light of the emergent economic crash. Ireland represents a more pointed example of a European wide trend, whereby as of 2009 the environment, climate and energy are positioned at the lowest position of public importance over the decade from 2006-2016.

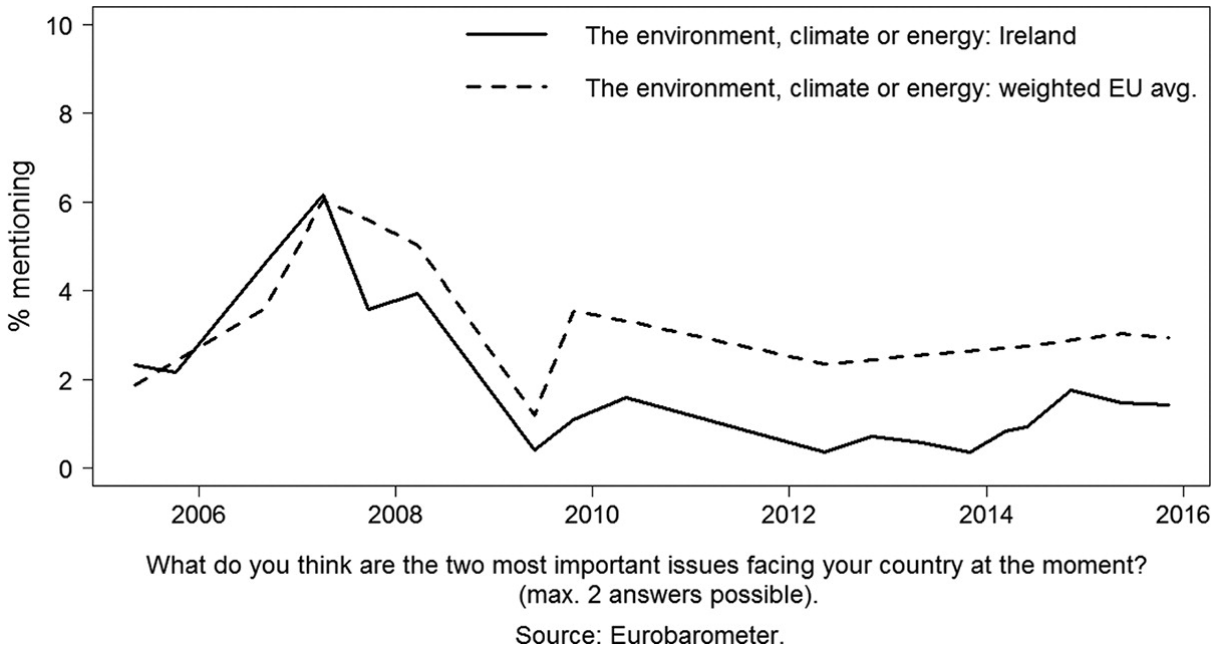

Fig. 3: Public perception of the environment, climate and energy in Ireland and the EU 2006-2016 (Little, 2017)

In the years following the 2008 economic crisis, the Irish Government undertook a €64 billion bank bail-out with the IMF and the EU leading to increased austerity measures within policy (Hanley, 2015; Clancy & McDonnell, 2011), alongside this unemployment rose by nearly 8% between 2008 and 2010. The recession brought with it a significant reduction in carbon emissions, down from roughly 67 million tonnes per annum between 2005 and 2009 to 57 million tonnes in 2011. It can be suggested that this trend is almost definitely related to economic factors, rather than any sense of a new environmental consciousness solidifying in Irish society. There were further sustainability triumphs in light of the collapse of the Celtic Tiger, with more sustainable consumption practices evident in the country (Murphy, 2017). Again, this is systematic of austerity and unemployment as opposed to an intensified environmental narrative. By 2010-11 discussions on environmentalism significantly decreased within the country's dominant media sources (Wagner & Payne, 2017). In light of the global economic crisis, the 2009 conference of the parties (COP) in Copenhagen proved unsuccessful in building and improving upon the ambition set out through the Kyoto protocol and the 20-20-20 plans. The targets set out in Copenhagen were received unenthusiastically within the climate science community, with doubts suggested about their ability to keep below even 3°C (Rogelj et al., 2010). Across Europe, in light of the Copenhagen Accord, there was a "reorientation of EU priorities, driven significantly by the economic and fiscal crisis" with "a noticeable dampening of the enthusiasm of the 2000s for climate policy in the EU" (Torney, 2017, P.250-251).

As Ó Riain (2014) illustrates, the most prominent feature of Ireland's economic crash is "the steady erosion of public trust and political legitimacy, even in the absence of widespread disruptive protest" (2014, P.259). Despite little civil society unrest during the initial stages of the banking crisis, the 2011 general election brought about an 'earthquake election' (Gallagher & March, 2011). Following the passing of the January Budget, the Green Party stepped down as a minor coalition partner leading to the election. Fianna Fáil gained only 17% of the votes, losing 58 seats from the 2007 election in what was described as "the most volatile (election) in Irish history and the third most volatile in the history of Western Europe since 1945" (Little, 2011, P.1308). Alongside this, the Green Party lost all their seats (Gallagher & Marsh, 2011). While in government, the economic collapse had "delayed the roll-out of many of the environmental investment programmes promised by the Green Party" (Stafford, 2011, P.348). They did, however, manage to introduce several successful policy measures in this time such as reform of planning regulations, retrofitting funding for energy efficiency projects, and measures to mitigate against GHG emissions (Stafford, 2011, P.349). The Green Party, as a junior coalition partner, suffered significantly at the ballot in 2011, aligning with the fears presented by some party members in 2007 who did not see Fianna Fáil as "the ideologically most preferred coalition partner" (Bolleyer, 2010, P.615). The "fear of contamination" was realised (Stafford, 2011, P.354). At this point, the media turned its attention to attacking the Green Party (Mullally, 2017).

Civil society unrest with regards to the environment manifested around fracking, despite the lack of widespread unrest in a political sense. Licenses for the shale gas development through hydraulic fracturing were initially introduced by the Irish Government before a 2011 moratorium was passed requiring the completion of a 2013-2016 best practise report (Steger & Drehobl, 2018). The central governmental concern towards managing a way out of austerity led to proposals for economic growth, independent of environmental impact (Leonard, 2014). While the best practice report was being drafted a significant rural mobilisation against potential developments emerged. This social movement followed on from the campaign around the Corrib gas field; "the long-standing struggle over gas drilling in northwest Ireland has been extended by fracking proposals covering much of the West Midlands" (Cox, 2012, P.5). National media reporting on the topic brought the anti-fracking campaign into the public consciousness. The framing of activists was centred on the approach taken, the ability to reason and the degree of localism. All of these factors were ultimately linked to their position on economic development (Steger & Drehobl, 2018, P.354). The application of pressure on the government to not go ahead with fracking proposals, mobilised in many cases at the local level, may have played a role in the ultimate decision to ban onshore fracking in the country (Germanos, 2017). The communitarian power of protest in Ireland (Cox, 2012) was again shown through the Right 2 Water campaign of 2014-2016 (Ritter, 2016).

1.4 Recovery- Reframing Sustainable Development: 2012-2016

In 2012 the National Economic and Social Council (NESC) published a report on climate change in which it was stated that the issue must become ubiquitous across policy, engaging "actors at all levels and in all sectors, through a governance system that animates, learns from and pushes networks of firms, public organisations and communities to ever-greater decarbonisation" (NESC, 2012, P.11). The publication of the report led to "the most informed public debate so far" about decarbonisation (Kirby, 2013, P.76). Over several weeks, articles were published within *The Irish Times* discussing different aspects of the report, such as a lack of reduction targets and the agriculture sector. What this public debate failed to outline, Kirby (2013) notes, was the "positive thrust" of the report, with the issue of emission reduction and climate change being put forward as a central policy concern for the Irish government moving forward. In 2014 the economy began to stabilise, with GDP steadily increasing from a 2013 low point and unemployment rates continuing on a downward trajectory. Emissions were steadily rising again after the decline from 2008-2011 "indicating that Ireland's greenhouse gas emissions remain tightly coupled with economic growth" (Torney & O'Gorman, 2019, P.9). Around this time the Climate Action and Low Carbon Development Act mandated the creation of a National Mitigation Plan. This was later published in July 2017, a full decade from the last national climate change plan of '07 (Torney & O'Gorman, 2019).

Two international Developments coincided with the mandate for a new climate action plan. Firstly, the concept of SDGs was implemented. A global sustainability panel set up as part of the Rio+20 summit in 2012 made recommendations for the creation of Sustainable Development Goals (SDGs) to continue from the Millennium Development Goals (MDGs). It was heralded as "an important idea and could help finally to move the world to a sustainable trajectory" (Sachs, 2012). Across 17 sectors the SDG's are orientated towards sustainability throughout all aspects of society, creating universally held standards that all nations adhere to. Optimistically it can be suggested that "the goals may help create a fresh global narrative around a common future to mobilise collective action and help develop a shared understanding of interconnected risks and solutions" (Gaffney, 2014, P.23). This aligns with the calls for collective conscience on the back of the failure of COP 15 outlined by Deane-Drummond (2011). Yet, the relative lack of interest in the SDGs in the public and the media is noted (MacFeely, 2017), with them failing to play a role in influencing the narrative due to cognitive links to the MDGs and issues of development in countries of a lower economic profile. A framing bias influenced both public and political understanding of the SDGs, with them failing to "form part of the

national discourse… the public do not typically view progress and development in those terms, and consequently many governments may not either" (MacFeely, 2017, P.62).

Secondly, the 21st Conference of the Parties (COP21) was held in Paris in 2015. The first major COP since the abject failure of COP 15 in light of the economic crisis, the Paris Accord succeeded in bringing together 195 countries; a diplomatic success with relation to climate action. Despite the obvious failure of COP 15, it represented a significant development in international climate governance by creating a mechanism through which all states could contribute to collective mitigation; "a collective, 'bottom up' approach in which all nations voluntarily pledged their emission-reduction targets" (Christoff, 2016, P.767). This was the groundwork for the emergence of nationally determined contributions within COP 21. The NDCs act as detailed plans to reduce GHGs at a domestic level (Vogt-Schilb & Hallegatte, 2017). Reporting on COP21 appeared across the Irish media, representing an established order whereby international climate-related events gain more coverage than national or local climate-related news (Fox & Rau, 2016). A danger exists whereby through this disposition towards international coverage, an environmental narrative may emerge around the imposition of climate policy and climate action from foreign entities. While this sentiment exists, it is currently peripheral within Irish society.

As the climate change debate moved to the post-scientific consensus stage (Hoffman, 2015), a moral dilemma emerged for institutions that operate to benefit the public, such as charities and public institutions. This called into question investments that seek to profit from the continued use of fossil fuels in a time when the environmental narrative had become dominated by the irrefutable need to transition to a low-carbon society. As policy moves towards sustainability, in keeping with the sustainable development goals (SDGs) and the agreements outlined in COP21, these investments also represent potentially stranded assets (Ayling & Gunningham, 2017). The Fossil Fuel Divestment (FFD) movement emerged in this space as an international mobilization on moral grounds (Sarang, 2015; Gitlin 2016), perhaps as a foreshadowing of morally focused protest forms which have emerged in more recent times. The progress of the Irish FFD movement has been one of the most successful instances. The divestment campaign in Ireland was led by civil society organisations such as Trócaire, An Taisce and Good Energies Alliance Ireland along with University campaigns in NUI Maynooth and Trinity College Dublin. As the movement in the Irish context extended beyond Universities, individuals and small scale institutions, Trócaire developed and led a campaign in accordance with Stop Climate Chaos, An Taisce and Good Energies Alliance Ireland to encourage the divestment of €72 million which the government has invested in non-renewables through the Irish Strategic Investment Fund (ISIF). Third sector mobilisations and campaigning acted to exert pressure

upon the government, resulting in a divestment bill being brought to parliament; “Trócaire and the others…have fought the battle and forced us into this situation in the Dáil” (Deputy Catherine Connolly, Dáil Éireann Debate, Vol. 935, No. 2, 19th Jan, 2017). The continuing role of civil society in assisting in the transition was evident in the divestment case, acting as a “moral enterprise” (Antadze & McGowan, 2016). The idea of energy citizenship begins to emerge in Irish policy and discourse in 2015, with environmental groups, energy groups and civil society organisations all becoming involved in the conversation (Watson et al., 2020).

1.5 Deliberative democracy and climate policy: 2016-2019

The Citizens’ Assembly was established by Fine Gael as part of a commitment made during the 2016 election campaign. The assembly “followed closely the model of the 2012–14 Irish Constitutional Convention in having as its members 99 citizens selected at random” (Farrell et al., 2019, P.114), to convene over two weekends to deliberate on information regarding different issues, and built upon previous experimentations with deliberative democracy in the Irish context such as the constitutional convention (Vergés Bausili, 2004), the *We the Citizens* pilot citizens’ assembly (Farrel et al., 2013), and processes emanating from Local Agenda 21. Five topics were selected for deliberation: abortion, the challenges and opportunities of an ageing population, fixed-term parliaments, how referenda are held, and how the state can make Ireland a leader in tackling climate change. The Citizens Assembly on Climate Change was held between October and November 2017. Under intense international pressure for action on climate change due to the Paris Accord and Ireland’s miserable failure to get close to the 2020 emissions targets (Little, 2017), the climate was selected as a suitable topic of deliberation through the citizens' assembly model (Farrell et al., 2019). There were 1,185 public submissions made to the process. From these two processes, 13 recommendations were made followed by the creation of a special parliamentary committee to consider the finalised report (Farrell et al., 2019).

The deliberations reiterated the centrality of citizens and communities (Mullally et al., 2017). The recommendations made by the assembly were far more progressive than any proceeding government plan or framework, including an 80% willingness to pay a carbon tax and 100% of the Members recommending that the Government should take a leadership role in addressing climate change through mitigation measures. Of the 13 recommendations drafted by the Citizens Assembly on Climate Change, one recommendation made explicit the need to enable a feed-in tariff for micro generation and also the need to stimulate community ownership of renewable energy projects

moving forward. In June 2018, as part of the Project Ireland 2040 initiative, the government held a discussion entitled “Empowering Communities for Climate Action”.

Throughout this period SEAI began encouraging communities to sign up to the Sustainable Energy Community (SEC) network, through which mentoring support would be provided to groups undertaking energy initiatives. So far 473 (Janurary 2021) groups have signed up to the SEC network. The Department of Communications, Climate Action and Environment’s publication of the National Mitigation Plan on Climate Change highlights the importance of community engagement, participation and acceptance with regards to decarbonising electricity generation. Throughout the preceding twenty years the institutional inclusion of ‘community’ within the socio-technical transition to a low-carbon society, although not to suggest its absence, has been incoherent and piecemeal.

A Joint Oireachtas Committee on Climate Action (JOCCA) was set up in 2018 to review the recommendations of the Citizens’ Assembly. The report from the JOCCA “potentially represents a significant departure in Ireland’s response to climate change” (Torney & O’ Gorman, 2019, P.11), with it, and the citizens' assembly, coming from domestic concerns rather than international pressure. Torney and O’Gorman note a growing public awareness emerging in Ireland with relation to the necessity for urgent climate action. The JOCCA report also represents a sliding doors moment for the media, specifying the need for greater coverage and content on climate change, alongside dedicated programming (JOCCA, 2019). While Ireland does not suffer from “false balance” (Boykoff & Boykoff, 2004) to the same extent as other countries, increased exposure of an environmental narrative within the main broadcaster would not be unwarranted. Weather events such as storm Ophelia (‘the beast from the east’) and the summer drought and fodder crisis have all been referenced in the media with relation to climate change impacts (Deckard, 2019). The 2019 SFI Science Week, a nationwide initiative for science education, focused specifically on climate action with all major media outlets in the country focusing on the issue; not in the sense of debating the science of climate, but rather debating what actions should be taken in light of the science. The regularity with which the need to transition became referenced in the Irish media in 2019 was unprecedented.

2019 was a significant year in relation to socio-political debates on the environment and sustainability in Ireland. From policy to civil society movements, the year was filled with discourse on climate change, and with this, the necessity of climate action was widely recognised. Starting with civil society movements we can look firstly to the Friday’s for Future youth climate protests (Wahlström et al., 2019), which emerged in Ireland- and internationally- in March of 2019, with

participation found across the country. The movement continued throughout the year, seeing both large and small scale mobilizations across Ireland, culminating in the 20th September 2019 climate strikes. Alongside Friday's for Future, Extinction Rebellion emerged as a mechanism of protest through coordinated non-violent civil disobedience (Gunningham, 2019). A wide range of protest methods has been deployed by the movement, including an instance where protesters chained themselves to Dáil Eireann and covered an external wall in exerts from scientific journals. Alongside this, an encampment of protestors formed outside Leinster House in swimwear, flip-flops and sunglasses on a rainy day in October to demonstrate against comments made by the Taoiseach suggesting that Climate Change could bring some benefits to Ireland such as warmer weather.

This is not to suggest that the environmental narrative in Irish policy has been one of dismissal. The publication of the Climate Action Plan (2019) outlined cross-governmental plans to implement the changes required to adopt a more ambitious commitment of net-zero greenhouse gas emissions by 2050. Although lacking in some regards (e.g. continued dependency on private cars, omission of native woodlands for carbon capture and storage), the 183 actions presented offer considerable optimism for Ireland to move beyond its current position as a climate laggard (Little, 2017). Prior to the publication of the Climate Action Plan, Ireland became only the second country in the world to declare a climate and biodiversity emergency, in light of UN reports on both climate change and biodiversity loss. The declaration was later halted by the Minister for the Department of Communications, Climate Action and the Environment, Richard Bruton, as it was deemed to not align with the proposals set forth for decarbonisation within the Climate Action Plan.

At the UN Climate Summit in September 2019, the Taoiseach announced the Governments plans to phase out fossil fuel exploration, despite this not featuring within the Climate Action Plan. While governmental commitment continues to appear incoherent, widespread societal discourse on the topic has emerged, placing it at the forefront of political discussion. This was illustrated through the 2019 local elections and the success of the Green Party in gaining seats. From civil society movements to national politics, the final year of the decade saw the blossoming of environmental narratives as central to public discourse. The central importance of climate action became embedded in any discussion of Ireland's development in 2019. In light of Covid-19, and moving into the 2020s as the make or break decade for decarbonisation, this embedding will need to remain to achieve the ambition.

1.6 COVID-19 and the Green Deal: 2020-2021

With 2020 and the first months of 2021 so firmly defined by the Covid pandemic, the environmental narrative has taken something of a back seat. There is, however, some cause for optimism with regards to aligning these two societal challenges illustrated, for example, by the EU Green Deal. Lessons can be learnt from our crisis response (Boyle & O'Regan, 2020) which can be applied to the environmental challenges we face moving forward. The pre-covid landscape was one in which environmental narratives had gained a primacy that had not been seen in a long time, if ever.

Moving into 2020, and despite the centrality of the pandemic, the environment still held sway in political discussions. The General Election saw the re-emergence of The Green Party in coalition with Fianna Fáil and Fine Gael and a much deliberated upon agreement to cut carbon emissions by 7% annually to meet 2030 targets was implemented in policy. While the feasibility of the ambition must be investigated (Daly, 2020 et al., 2020), the centrality of emissions reduction during what is ostensibly a war footing Government must be seen as a positive with regards to cutting fossil fuel use in the decade ahead. The 2020 Programme for Government emphasised the importance of climate governance, emission reductions and building stronger communities. The 2021 Budget announced an increase in the carbon tax, increased support for retrofit programmes, and a holistic approach to sustainable transport across walking, cycling and public transport. In October of 2020, the Government published a new carbon law that committed Ireland to net-zero carbon emissions by 2050. A €15.4 million grand package was also announced for digital hubs and remote working facilities in early 2021.

The Renewable Electricity Support Scheme (RESS) granted support to seven community energy projects in Ireland in 2020, a landmark moment within the community energy sector in Ireland. History, however, makes clear the need for healthy scepticism. As has been shown in the past (Fraser et al., 2006) 'bottom-up' community involvement can often be driven by the failings of 'top-down' approaches. In the Irish context, the failings with regards to 2020 targets may have led to new thinking with regards to how to approach the energy transition. This research project provides a useful test bed to investigate effective measures for implementing a collaborative approach where 'top-down' and 'bottom-up' perspectives work together. While cautiously a change in policy vision towards more participatory and engaged processes can be suggested, this is in no way suggestive of success, with close attention needed on how this plays out in the real world, particularly in light of it being a novel method of implementation from a policy perspective, and the changing nature of

environmental narratives through a range of factors be they economic, political, or external. Covid-19 has shifted the focus of discussions on climate action from “can we” to “will we”, with this move having an impact with regards to political leadership, scientific evidence, societal buy-in and market forces.

Chapter 2: Theoretical and Conceptual Context; transcending the top-down/ bottom-up dichotomy?

Introduction

Top-down strategies can be defined as those which are developed at the highest system level, with bottom-up strategies defined as those which are designed at the local level and act on a more case-specific basis. As noted, in the Irish context to date action with regards to energy and sustainability transition have been largely driven in a top-down manner. Within non-governmental organisations and environmental not-for-profits, the bottom-up approach is often championed. Despite the governmental and non-governmental preferences for these two opposing strategies, they both represent several challenges in practice. With relation to top-down strategies obstacles include the vast temporal and spatial dimensions under consideration when visualising solutions; integrating plans across a range of different contexts; developing a holistic approach despite the complex nature of specific aspects; incorporating flexibility within the approach for mid-course corrections; and acquiring and maintaining the financial and human capacity to deliver a top-down strategy over a defined time horizon. For bottom-up strategies obstacles include the balance between individualism and community; disparities concerning education; lack of community capital; and difficulties in obtaining resources to implement a strategy on a small scale (Cairns, 2003, P.46).

The merging of top-down and bottom-up approaches have been investigated with relation to energy storage (Proka et al., 2020; Ossenbrink et al., 2019) and has been explored at the broader level of sustainability transitions as the 'hybridisation' of regime and niche actors (Krauz, 2016) deploying the heuristic devise of the multi-level perspective (MLP) (Geels, 2002). Within this thesis I build upon this work on the merging of top-down and bottom-up approaches, deploying the analytical tool of the MLP, supplemented with the Multi-Actor Perspective (Avelino & Wittmayer, 2016). The heuristic acts to guide the theoretical development of the empirical findings, underpinned by the concept of participation outlined below. A theoretical outline of the diffusion of sustainability as a conceptual lens through which to interpret the scaling up of regional transition initiatives beyond their initial influence is presented. On from this multi-stakeholder processes are outlined within the context of community engagement as an organisational practice. The need for institutional change to enable engagement is also drawn upon. Aligned with this, the theoretical considerations in relation to transdisciplinary research practices are outlined.

2.1 The multi-level perspective

Transcending the opposing attribution of the two strategies (top-down and bottom-up) is central to the work undertaken within this research project. The inclusion of a range of actors within a multi-stakeholder approach to a regional socio-technical transition will achieve the integration of unique knowledge and insight. Local actors often have specific local knowledge which is not easily accessed by 'experts' through traditional mechanisms (Bohunovsky et al., 2011). An approach where top-down and bottom-up perspectives collaborate around a shared vision offers the potential to include local knowledge alongside expert information to achieve context-specific solutions. For clarity, "with top-down, we refer to decisions made by regional policy makers. With bottom-up we refer to all regional stakeholders without formal decision-making power, such as citizen initiatives" (Sol et al., 2013, P.20). On from this, social learning "can result in a change in perception, knowledge, behaviour of individuals, organisations and/or groups" (Sol et al., 2013, P.37). This can have positive implications both at the local level, with a deeper understanding of the need for change emerging, and within the regime, whereby a greater awareness of the wants, needs and realities of local contexts may lead to more innovative policy measures in supporting transitions.

When looking to investigate the merging of top-down and bottom-up approaches we can apply the Multi-Level Perspective (MLP) as an analytical tool of interpretation. The original three-level platform of niche (micro), regime (meso) and landscape (macro) is used to investigate changing forces or regime shifts within a transition brought about through nonlinear interaction within and between the three levels. This interaction cannot be defined as top-down or bottom-up and can come about through niche innovations or changes within the landscape, pressuring the regime to change, or further still from internal forces within the regime. The allure of the MLP (Smith et al. 2010), comes in the simplistic way it can interpret and analyse complex undertakings throughout the transition. We can only ever look at transitions, due to their inherently unpredictable nature, through a set temporal window. The MLP provides us with a coherent yet flexible framework through which the ever-changing dynamics of the transition toward sustainable energy practises can be plotted. In the context of a multi-stakeholder approach to the socio-technical transition to a low-carbon society in a specific region, the MLP proves useful by moving away from interpretations of transitions that are weighted too heavily in either a top-down or bottom-up approach.

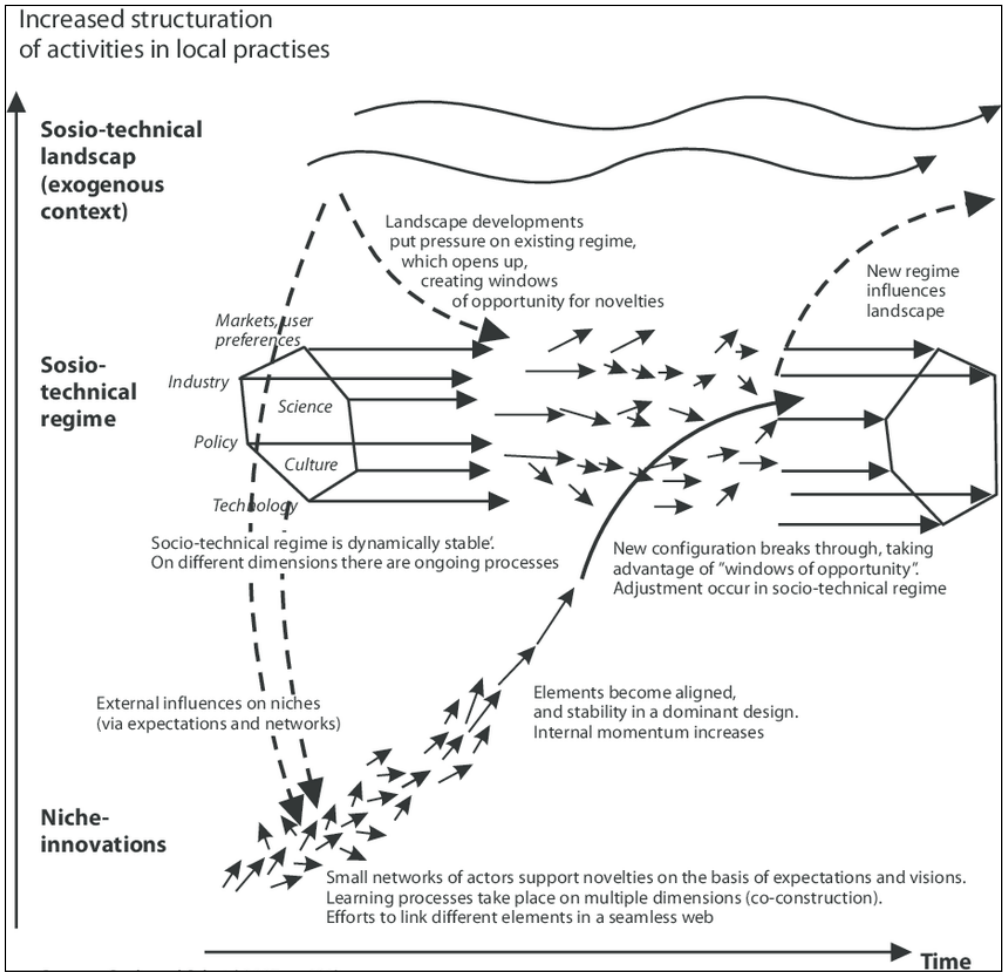

Fig.4: The Multi-Level Perspective (Geels & Schot, 2007).

The evolving nature of discourse within the multi-level perspective on transitions and the changing roles of actors within this structure must lead to a cautious approach. Today's enemy can be tomorrow's ally. Haxeltine et al. (2008) expand the MLP to include two extra scales to enhance the three-level approach: the empowered niche, or niche-regime, can be viewed as a niche that has developed to the point of being powerful enough to attack the existing regime and is positioned between the micro and meso levels, whilst also allowing for the increased importance of collaboration and participation between different actor types, and the dynamic flexibility of those roles.

The second is the support canvas positioned below the micro-level. This enlargement of the MLP gives more strands of interpretation from which to analyse different actors within transitions. This expansion of the framework moves beyond criticisms around the delineation of the 'levels', outlined in the literature (Fuenfschilling & Truffer, 2014).

"The MLP argues that socio-technical transitions come about through interacting processes within and between the incumbent regime, radical niche-innovations and the socio-technical

landscape. Niche-innovations are emerging socio or technical innovations that differ radically from the prevailing socio-technical system and regime, but are able to gain a foothold in particular applications, geographic areas, or with the help of targeting policy support. The socio-technical landscape refers to broader contextual developments that influence the socio-technical regime and over which regime actors have little or no influence. Landscape developments comprise both low-changing trends (e.g. demographics, ideology, spatial structures, geo-politics) and exogeneous shocks (e.g. wars, economic crisis, major accidents, political upheavals)" (Geels, 2018, P.225).

Our understanding of the MLP has been supported by the Multi-Actor Perspective (MaP), through which the levels outlined through the MLP can be enhanced through situating actor roles and their flexibility within and between the niche, regime and landscape. Common criticisms of the MLP are concerned with the lack of agency and actors within the model (Smith et al., 2005; Genus et al., 2008). Geels refutes these claims, suggesting agency to be central within the framework (2011), and has recently made attempts to further develop upon the role of agency using a multi-dimensional model. Here, within this thesis, the MLP has been supplemented with the MaP, in order to enhance the frameworks ability to incorporate agency and the dynamic complexity of actor relations.

The Multi-Actor Perspective (MaP) (Avelino & Wittmayer, 2016) acts as a framework for interpreting the relationships and interactions between actors within sustainable transitions. The need for a more comprehensive tool for interpreting actor relations and changes has been noted in the literature (Termeer & Dewulf, 2012; Farla et al., 2012). Previously missing, the MaP provides a useful heuristic device for understanding changing actor roles within transition studies (Wittmayer et al., 2017). The MaP can analyse governance within transitions and the politics of sustainable transitions. To understand governance and politics, however, a better apprehension of actors involved in transitions is warranted. The power dynamics between different actors, acting at different scales, if properly understood, can lead to insightful findings with regards to conceptualising relationships.

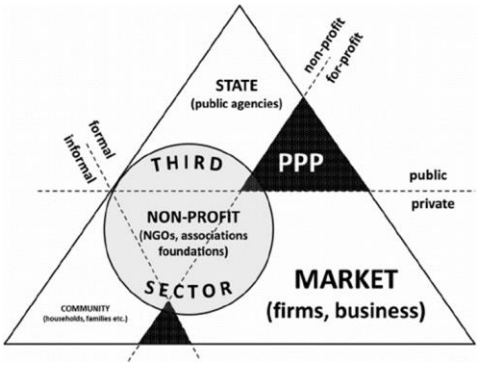

Fig.5: Multi-Actor Perspective (MaP) framework at the organisational level (Avelino & Wittmayer, 2016)

The MaP distinguishes between the sectors of state, market, community and third sector. Alongside this, it functions at a scalar level, between sectors, organisational actors and individual actors. The scalar classification functions to capture the movement of actors, whereby at different levels actors can operate within different sectors i.e. state, market, community and the third sector. On from this "the MaP serves to *question and problematize* how these institutional logics are constructed, and then to explore the dynamic between and across different institutional logics as well as how individuals, groups and organisations act and relate within and across these logics" (Avelino & Wittmayer, 2019, P.4-5). By way of example at the individual level, an actor may operate as a volunteer within a community group. At an organisational level, this same person may be representative of a market actor. The need to interpret the versatility of actor roles is afforded by the MaP. This framework allows for the analysis of the shifting power relations within sustainability transitions (Avelino & Wittmayer, 2016).

The MLP, supported by the MaP, is used throughout this investigation to build empirical findings upon the theoretical considerations of the MLP as outlined in Fig.4. Throughout the thesis, as empirical results are outlined, a visual aid informed by the MLP is developed to situate research findings with the analytical framework provided by Geels (2002), with particular focus given to the diffusion of sustainability. The multi-stakeholder collaborative low-carbon transition initiative at the centre of this research is investigated regarding this theoretical model, borrowing from the transitions management literature (Loorbach, 2007). Alongside these theoretical heuristics, participation acts as a core fundamental concept which is of central importance across the breadth of the research undertaken.

2.2 Participation

The participation of non-state actors, at different levels of the decision-making structure, is crucial within a multi-level approach to environmental governance (Newig & Fritsche, 2009), and on from this, the same could be applied to governance within transitions management. By creating a multi-level approach to governance the potential for different actors to have an input into the decision making process increases. This is not to suggest it as a panacea to participatory governance, as power imbalances may still permeate the structure, but it acts as a useful starting point from which to enable participation in a meaningful manner, specific to the process in question. Arnstein's (1969) 'Ladder of Participation' is a seminal work, emphasizing participation around control and power.

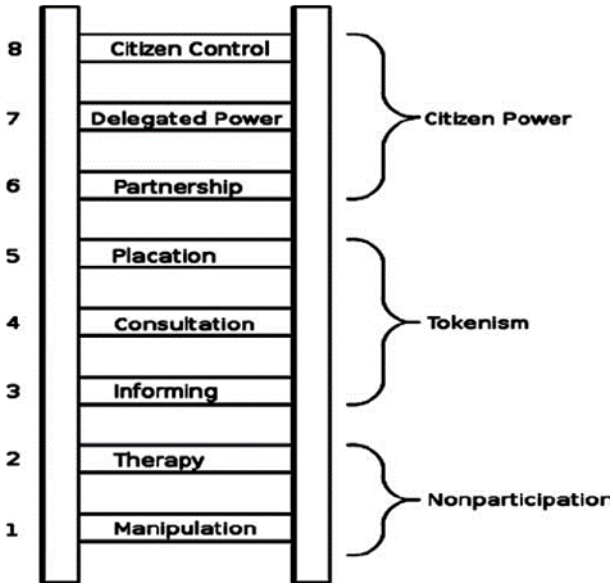

Fig.6: Arnsteins (1969) 'Ladder of Participation'.

The ladder approach outlined by Arnstein illustrates the different rungs towards full empowerment for citizen participation. This early model of scales of participation can be critiqued as an over-simplification, viewing full empowerment as the ultimate goal of participatory practices. It fails to address issues around how or who is involved and what is achieved (Tritter & McCallum, 2006). By posing the question of who participates and for what reason or end (Cohen & Uphoff, 1980), we can move beyond the ladder of participation to look at participation which is context-specific and does not work in a vertical scaled manner, whereby the higher the rung the more desirable the practise.

Participation can be seen from two main perspectives; normative participation whereby the focus is on the process and the democratic right of citizens to participate, and; pragmatic participation or participation as a means to an end, to achieve a better quality of decision making (Reed, 2008). Normative participation is concerned with the rights of citizens which can lead to collective action, social inclusion, empowerment, transparency and accountability. Pragmatic participation is concerned with participation as a mechanism to improve decision making and prevent strong opposition (Pretty, 1995). As noted, "participatory governance is expected to contribute to improving the 'quality' of decisions by incorporating locally held knowledge" (Newig & Fritsch (2009, P.198). This expectation may, however, be unfounded and participation may not necessarily lead to a better quality of outcome. As noted, "the quality of a decision is strongly dependent on the quality of the process that leads to it" (Reed, 2008, P.2421). Further research is needed as to whether decisions made through participatory processes are more effective (Reed, 2008). From a normative perspective on participation, built around citizen rights, it can be said that lay participation can lead to the legitimation of the process at hand (Stringer et al., 2006). Alongside this, the involvement of

local lay knowledge can help to illuminate win-win outcomes and contribute to the enablement of social learning. The assumption has also been posed that the "involvement of non-state actors in local decision making has the potential to open up established, non-sustainable actor-network" (Newig & Fritsch, 2009, P.200).

An alternative to the ladder of participation must be sought to move away from a linear depiction of what constitutes effective participation. While stakeholder participation must be grounded in the importance of empowerment, equality, trust and learning, the quality of the process is not dependent on how high on the ladder it sits. All relevant stakeholders should be outlined and analysed from the initial stages and clear objectives for the process need to be agreed upon at an early stage (Reed, 2008). From this undertaking, how participation should be addressed may become clearer. Davidson (1998) offers a Wheel of Participation whereby no method is placed as the ultimate goal, but rather effective participation requires suitable measures to be implemented to fit the context in question.

Fig. 7: Davidson (1998) Wheel of Participation

The wheel of participation consists of four quadrants: to empower, to inform, to participate and to consult. Each of these quadrants is made up of three segments, scaled to different levels of citizen control within the process. It moves beyond Arnsteins' (1969) representation of a utopian citizenry, where the ultimate goal is to have full control handed over to civil society. The key to participation is the use of appropriate mechanisms borne out of an understanding of clear objectives. "Different

levels of engagement are likely to be appropriate in different contexts, depending on the objectives of the work and the capacity of stakeholders to influence outcomes" (Reed, 2008, P.2419).

Doubts, however, have been cast on the utility of participatory approaches at a more general level. The legitimacy of a participatory orientation to research, particularly within development studies has been questioned (Cooke & Kothari, 2001). Alongside this, the work of Bluhdorn and Deflorian (2019) offers a post-Marxist, de-constructionist take on participatory forms of environmental governance, seeing participation as a performance that further legitimizes liberal consumer societies through active participation in all phases of policy. While this de-constructuralist outlook is enticing, it brings us no closer to finding a path towards mitigating and adapting to the wicked problem at hand. At the turn of the century, due to international geopolitics and economic policy, amongst other factors, more participatory approaches to research gained legitimacy, moving beyond the fringes of academic debate (Kindon et al., 2007). These two counterpoints- the mainstreaming of participatory approaches to research and questions of its utility and legitimacy- give further credence to Davidson's (1998) wheel.

The term participation can be called into question on two bases. Firstly, as being reduced to a 'right to vote', as the gold stamp of democratic politics. Secondly, by efforts to extend participation in political life to all citizens (Horvath & Szakolczai, 2018). While the former issue is one of distancing the individual from participation, diluting it simply to an exercise in pop-politics on a 4-year cycle, the latter calls into question, again, the utility of 'participation' as an ideal. Here, we can turn our attention to a critique of the hierarchical nature of Arnsteins' ladder. While thinking about participation in relation to political life, we can also begin to discuss participation within academia, for impact within policy, therefore; "participating in political life means to be capable (both externally empowered & internally able) to secure the possibility of living a real-life and at home to members of one's own community" (Horvath & Szakolczai, 2018, P.201). The importance here is a duality. Firstly, to be externally empowered (to participate in political life at a level deemed appropriate), and secondly, to be internally able (provided one can participate). Participation is based within one's own community, be that geographical, interest-based, or anything in between. By taking this more dualistic approach to participation we can situate our understanding in contrast to the de-constructionist mode of Bluhdorn and Deflorian (2019), and the utopian idealism of Arnstein (1989) and her disciples. These considerations with regards to participation are taken up throughout the thesis alongside the relevance of the MLP outlined previously.

2.3 Diffusion of Sustainability

The diffusion of sustainability is investigated in this study, through an analysis of the merging of top-down and bottom-up approaches to sustainable transitions with the MLP deployed as an interpretive tool. An understanding of diffusion is first outlined. Within social theory, there is a strong undercurrent rising that suggests a reconfiguration of the canon must occur to proceed justifiably. Contemporary social theory has been built upon historical foundations, borne about from political, economic and ideological circumstances as opposed to being constructed from a wide appreciation of the most original theories and insightful theorists (Thomassen & Szakolczai, 2011). In recent times, the work of Gabriel Tarde has been revisited regularly as part of this reflexive endeavour (Katz, 2006; Thomassen, 2012). Throughout the 1880s and 1890s, as two leading figures of French academic life, Durkheim and Tarde were involved in regular discussion about their opposing theories and methodologies. While Durkheim claimed social facts to be independent of individual experience, Tarde stressed the need for an internal perspective on the phenomenon under investigation. The discussions culminated in a debate in 1903 about the nature of sociology and its relation to other sciences (Thomassen, 2012). Durkheim ultimately won the battle and his theories played a fundamental role in the establishment of the school, while Tarde's work disappeared from sociological thought for close to a century. In recent times, however, through Deleuze, Latour and many more, the work of Tarde has been reinvigorated by its modern relevance and perhaps the war is not yet lost.

To Tarde, the social world, aligned with the natural world, is governed by regularities and repetition; imitation is the foundation of social life (Szakolczai & Wydra, 2006). The theory of imitation finds a suitable case study in the instance of children, but generalisations must not hinder the theory. While imitation is easily interpreted in children it also applies to adulthood, rejecting, as Szakolczai and Wydra note, the possibility of a rational or evolutional maturity being reached in adulthood. Imitation relates to any process of learning and with this, the course on an individual level is never complete (2006). Imitation then is a process that enables, through its undertaking, the continuation of imitative behaviours. As Tarde puts it imitation "results in the preparation of conditions that will make possible and that will facilitate new acts of imitation of an increasingly free and rational and, at the same time, precise and definite character" (Tarde, 1969, P.190). Imitation for Tarde is the basic process that ultimately leads to innovation, through continued imitative mechanisms innovation can occur. Many rational perspectives discard the theory of imitation as irrational, despite Tarde viewing it in a neutral space, as a natural law. The illusion people have that they are not imitating (in a manner which can be called irrational), restricts the possibility for inclusion in these 'rational'

approaches. Perhaps here we could call forth Tarde's concept of 'limited rationality' (Djellal & Gallouj, 2014. P.18). Tarde illustrated the idea of logical laws, whereby innovations which are aligned with the rational logic of a given society are more likely to spread than those which are not (Kinnunen, 1996. P.434). From a Tardian perspective, a consensus is arrived at through imitative processes and public engagement with the press, or in a modern context through digital information platforms.

Kinnunen (1996) illustrates the significance of the work of Tarde to the establishment and continuity of diffusion research. To him, diffusion is a descriptive concept; "the spread of social or cultural properties from one society or environment to another" (1996, P.432). Tarde's investigation of the diffusion of coffee drinking can be plotted on an S-shaped diffusion curve (later developed by Rogers in 1962) in keeping with contemporary use of the analytical S-shaped curve framework, (Kinnunen, 1996). Imitation can be seen as a key element in the process of diffusion. An S-shaped curve includes at initial level innovators (who themselves have emerged through imitative processes) followed by early adopters, early majority, late majority and laggards. The latter four distinctions can be said to act within the laws of imitation within the diffusion of practice. The link between Tarde's work and diffusion research has been adequately addressed in recent years within the literature (Katz, 1999; Kinnunen, 1996; Strang & Soule 1998). As he notes "society is imitation and imitation is a kind of somnambulism" (Tarde, 1962, P.87). As imitations occur beyond the first contact they move away from personal experience and intimacy (Szakolczai & Thomassen, 2011). This Tardian somnambulism increases when imitation moves beyond the initial 'touch' and is de-personalised. This grounding in social theory can assist in moving towards investigating diffusions of innovation, and from this develop a classification for the diffusion of sustainability.

Path dependency and technology "lock-in" can be seen as central features which hinder the scaling up of innovations (Garud & Karnoe, 2001, Foxon, 2014). Social norms, education and knowledge have been referenced alongside physical infrastructure, legislation, and finance as contributors to path dependency (Lovio et al., 2011). Despite the challenges faced with relation to the development of innovations, the early adopters take on technologies through investment, playing a key role in the creation of knowledge around the innovation (Lehtonen, 2003) and innovating themselves around the creation of new practices through interacting with and building upon the innovation (von Hippel, 2005). Diffusion of innovations, as an area of academic study, seeks to analyse and explain how innovative ideas and practices spread within and between communities once taken on by early adopters (Valente, 2005, P.98).

Diffusion can be seen to occur through three mechanisms; internal influence, external influence and mixed influence (Valente, 1993). At a most cursory level, internal influence for the diffusion of innovation is concerned with the spread of new ideas and practices through interpersonal communication between interpersonal contacts (Valente & Rogers, 1995). External influence is diffusion through external sources not related to interpersonal relationships. The media plays an important role in external influence alongside private sector triggers and policy developments. Finally, mixed influence involves both internal and external influence principles whereby both the wider landscape and interpersonal relationships impact the adoption of innovations.

Some key areas of interest within the diffusion of innovations literature concerns the uptake of new practices (i.e. early adopters, laggards etc.) and trying to understand why some individuals adopt an innovation while others do not. The relevance here to climate action, and more specifically the energy transition, is obvious. In the Irish context, through the publication of the Climate Action Plan (DCCAE, 2019), a pathway has been developed which aims to retrofit 500,000 homes and for there to be 1,000,000 electric vehicles on the road by 2030. While some grant aid may be available, to achieve these goals widespread diffusion must occur. Alongside this, lessons must be learned at the policy level about previous attempts to engage society on climate change and the energy transition. By way of example, the Power of One campaign (Diffney et al., 2009) referenced in Chapter 1, aiming to encourage consumers to develop more energy-efficient practices at the individual level led to short term increases in awareness but failed to have any long term impact (Diffney et al., 2013). The importance of collective conscience (Deane-Drummond, 2011) has been highlighted as a useful alternative to the individualist logic of the Power of One campaign, aligning with Tarde's initial theory of imitation and its relevance to diffusions.

In recent years, in relation to consumer behaviour, there has been a move towards social models, moving beyond traditional individualist approaches, established through 20th-century figures such as Bernays (Suarez, 2016) and expressed in campaigns such as the Power of One. Through disciplines such as neuroscience and social psychology, it has been suggested that humans should rightfully be defined through their true essence, as herd animal (Earls, 2003). This insight can be combined with a Tardian perspective on imitation, and on from this the diffusion of innovation theory, to move towards an understanding of how the solutions offered through climate policy may be implemented and spread amongst the public. A number of factors have been outlined which affect the rate at which innovations are taken up; 1- relative advantage of innovation, 2- compatibility with values, 3- complexity, 4- trialability, 5- observability (Rogers, 1995).

Diffusion, then, can be viewed as a process through which an innovation can be communicated using certain mediums or channels over time to members of a social group or system. Diffusion can be understood as a "cascading mechanism that leads to cumulative adoption of behaviours by some individuals even while their social position, or the resources associated with them, changes only trivially or remains unaltered" (Palloni, 2001, P.68). Borrowing from Clough et al. sustainability can be defined as:

> "a process that helps create a vibrant economy and a high quality of life, while respecting the need to sustain natural resources and protect the environment. It expresses the principle that future generations should live in a world that the present generation has enjoyed but not diminished." (2006, P.30).

The diffusion of sustainability is understood to be aligned with the definitions of both Palloni and Clough et al., whereby initiatives, projects or actions which support the creation of a vibrant economy and high quality of life, whilst respecting natural resources and the environment, are cumulatively developed or adopted. The framework of the MLP is used as a heuristic device to understand the diffusion of sustainability as it has been theoretically outlined here.

2.4 Multi-stakeholder processes and Community Engagement

Through the application of the MLP, an investigation of the merging of top-down and bottom-up approaches to the socio-technical transition to a low-carbon society can be situated. From this, through an understanding of participation from the perspective of Davidson's Wheel, how bottom-up and top-down actors can interact within a transition project can be interpreted. Moving on from this, ideas of engagement can be discussed, reconceptualising engagement as it relates to the involvement of community and civil society actors within nationally led initiatives.

New forms of communication, decision finding and decision making on issues that seek to bring together all major stakeholders can be defined as multi-stakeholder processes (Hemmati, 2012). Traditional approaches to governance (in government, business and civil society) are not sufficient to deal with the complex multi-dimensional nature of the issues presented by climate change. The idea of a multi-stakeholder approach is based on the pluralist tradition, first outlined by Dahl (1957), whereby different groups with different levels of power, can work together within a predefined structure to best achieve their own interests. The diversity of structural forms in which multi-stakeholder processes can occur is vast, with the selected form fitted to suit the context in question.

The need for more inclusive governance systems, which allow for top-down visions to meet with bottom-up initiatives, could prove fruitful with relation to just transitions at the regional level.

Multi-stakeholder approaches to governance, whilst gaining much support both in academic thought and in implementation at a policy level, have come under criticism for a number of reasons. Concerning the regional or local level, a voluntary public-private governance structure may ultimately favour those holding more power (namely private interests) which in turn may lead to the consolidation of the privatization of governance. The relevance of such multi-stakeholder partnerships has been called into question (Glasbergen et al., 2007). Another concern relates to the potential time requirements needed for more inclusive governance processes. This can be acknowledged in the context of the urgent need for effective measures of transitioning to be implemented. There is, however, some who see multi-stakeholder governance approaches as innovative practices which could help to overcome difficulties by bringing together key actors from the three segments of the multi-actor perspective (Avelino & Wittmayer, 2016); namely the state, the market and civil society, to design and implement more effective means for facilitation of transitions (Reinicke & Copeland, 1998; Streck, 2004). In relation to sustainability governance, as of yet, there has been little systematic empirical investigation of the multi-stakeholder approach as a solution to implementation and participatory deficits (Biermann et al., 2007, P.240). The top-down status-quo approach to delivering a low-carbon transition relies heavily on the implementation of climate-related infrastructure projects. These are, however, often met with opposition from citizens. Due to this, we must understand how communities can be engaged with on infrastructure developments, moving beyond traditional top-down implementation strategies.

Through viewing opposition as political participation we can move to a framing that focuses on engagement rather than opposition (Watson et al., 2015). A need to move beyond the Decide-Announce-Defend (D.A.D.) model, often found within organisations involved in the delivery of large scale infrastructure is noted in the literature (Komendatova & Battaglini, 2016; Cohen & Durrant, 2019). Despite this, recent examples exist in which citizen participation in development projects is still an exercise in top-down engagement, falling within the classification of tokenism (Goodman et al., 2020; see: Cardullo & Kitchin, 2019 for an Irish example). To move away from the D.A.D. model, an understanding of perceptions of opposition must be achieved. Place attachment, place change and visual impact are three of the many reasons for opposition found in the literature (Wolsink, 2007; Devine-Wright & Howes, 2010; Devine-Wright, 2009; Jones & Eiser, 2010). A lack of trust in developers (Wallquist & Holenstein, 2015), disagreements over the payment of compensation (Sovacool et al., 2011), a lack of information from project developers (Diduck et al., 2012), increased

noise, pollution or traffic, and safety concerns (Wolsink, 2007), procedural injustice (Cohen et al., 2014), and decreased property values (Filippova & Rehm, 2011) are also noted as issues.

With relation to supporting proposals, some reasons have been suggested such as a global rationale, being a supporter of the technology in question (Ellis et al., 2007), economic benefits of renewable energy, and trust in the scientific knowledge base (Barry et al., 2008). Welfare increasing aspects of a project can be attributed such as economic development, energy security, community compensation, personal compensation and green benefits (Cohen et al., 2014). Despite these reasons for supporting a development, there are still difficulties with regard to representation in discussions on the development. The idea of a 'silent majority' (Swofford & Slattery, 2010) has been used to describe the situation in which a minority of people who hold oppositions to a potential project are involved in discussions with developers in the public sphere while the majority in favour of the development stay quiet to not disrupt things within their community. As noted "people generally do not come forward with positive responses to planners' agendas" (Wolsink, 2000, P.58). While an understanding of reasons for opposition and support for projects found within the literature is an important starting point, here an emphasis is placed on opposition (and support) as a form of political participation, seeking to move towards an understanding of participation as engagement rather than opposition. This aligns with the conceptual focus on participation outlined (see: 2.2) and supports the suggestion that participation can add legitimacy to the process at hand (Stringer et al., 2006). This is done in relation to previous lessons on community engagement and the need for institutional change.

Opposition and protest across a range of policy issues have been rising in recent times (Carothers & Youngs, 2015), aligning with a long time discussion in political sociology since the 1950s including the work of Dahl (1950s), Bacharach and Baratz (1960s) and Lukes (1970s). Social acceptance of infrastructural developments is said to occur when the positive implications balance out or outweigh the negative implications of the development. In order words, the welfare decreasing aspects are balanced by welfare increasing aspects to leave each actor at worst neutrally affected, or ideally in a better situation and in favour of the development (Cohen, et al., 2014, P.3). Five response styles have been identified with relation to developments: 1. Resisting – going against the change or aspects of the change; 2. Not coping – feeling vulnerable and lacking a sense of control; 3. Only just coping – finding ways to put up with and manage the change; 4. Adapting – adopting a positive approach to accommodating the change; 5. Transforming – embracing the change to create something better than before (Leonard et al., 2016). Community engagement, as a crucial aspect of multi-stakeholder processes, can help to achieve effective and inclusive decision making, form

partnerships, increase adherence to policy, gain support for a project, and build capacity (Vella-Brodrick, 2017). Community engagement has been referenced as a practice in which:

> "the aspirations, concerns, needs and values of citizens and communities are incorporated at all levels and in all sectors in policy development, planning, decision-making, service delivery and assessment; and, by which governments and other business and civil society organisations involve citizens, clients, communities and other stakeholders in these processes" (United Nations, 2005, P.1)

Following the work of Valdez et al., (2018), an understanding of the reasons for opposition to the roll-out of large scale technologies can provide deeper insights, beyond being seen as a means through which to overcome them and deliver projects. The core values of locals can be understood and with this opportunities for participation emerge. Shifting public framing of a dispute within the community based on new information and new interlocutors is an important consideration (Galavan, 2007). Despite the potential of shifting frames, protest and opposition can be understood as participation in democratic processes and trying to overcome opposition whilst ignoring the underlying reasons for it "threatens the political self-efficacy of citizens and could pose a risk not just for the current project, but also for long term trust in democratic processes" (Valdez et al., 2018, P.139).

Community engagement centres on the involvement of community members in policy and project planning, delivery, or evaluation processes (Bice et al., 2019). It has been suggested as a potential factor in gaining social acceptance for infrastructure projects (Evans et al., 2011). Public opinion in Europe is generally favourable with relation to energy developments (Toke, 2005), yet whilst the infrastructural changes required to transition to a low-carbon society are favoured at a national level, extensive development can have negative impacts on local residents leading to opposition (Vella-Brodrick, 2017; Cohen et al., 2014). The unsustainable nature of Irelands dispersed rural settlement pattern (McGrath, 1998) means that the likelihood of infrastructural developments impacting upon someone's residence is higher than in countries with more concentrated development patterns. Social acceptance of infrastructure has been linked to trust in government, perceived benefits and risks (Bronfman et al., 2012). In light of this, "strong collaboration and attention to the capacities that facilitate community well-being are vital for the delivery of successful infrastructure projects" (Vella-Brodrick, 2017, P.3).

Level of Community Engagement	Engagement activity	Example
Basic Level (Building community awareness)	Informing, educating	Providing information about new policies related to noise from industrial and commercial premises
Mid-Range (Seeking and incorporating community feedback)	Consulting, involving	Getting input from the community about a proposal for a new bike path and using this feedback to revise the proposal
Higher Level (Capacity building and empowering the community)	Collaborating, co-design, decision-making and leading	Providing funding for the community to initiate and manage a project around preserving local history

Fig.8. Levels of Community Engagement (Vella-Brodrick, 2017).

Three factors impact social acceptance (Devine-Wright, 2011): personal (demographics), social-psychological (perceptions and experience), and contextual (siting, type of development). Alongside this, there are three dimensions of social acceptance: socio-political acceptance, community acceptance, market acceptance (Wuestenhagen et al., 2007). Organisations tasked with managing infrastructure developments and changes need to act as leaders across a range of critical factors such as engineering, project management, and community engagement (Vella-Brodrick, 2017, P.3). It is important to maintain, build, or rebuild trust as future energy transformation, and sustainability transformations more broadly may be blocked by distrust in institutions (Valdez et al., 2018, P.139). Despite the many merits of community engagement for the delivery of large infrastructure projects, some caution is warranted. Within the literature, the effectiveness of different engagement practices has been called into question (Cowell & Devine-Wright, 2018). From this, the tokenistic nature of some engagement practices has been noted (Dryzek, 2000).

This caution is important when addressing the third research question in this project. The levels of community engagement (Fig. 8) is illustrative of the need to reflect on what approach is required for the situation at hand. The need for institutions to commit to community engagement in the delivery of infrastructure must be coupled with a reflective awareness of what this engagement is trying to achieve for it to be undertaken in the most suitable way possible. Again, we must be cautious of Arnstein's ladder of participation, instead returning to Davidson's (1998) suggestion of a Wheel of Participation whereby no method is placed as the ultimate goal, but rather effective participation requires suitable measures to be implemented to fit the context in question. The establishment of

policy and regulation to “guide best practice remains wanting” (Bice et al., 2019, 294), and must not be seen simply as a matter of “engaging” wider stakeholders through a vague process defined as participatory.

Some research projects within the Environmental Research Institute, UCC, Ireland (ERI) and the MaREI Centre have investigated community engagement from different perspectives. An ERI workshop on community engagement with relation to the energy transition (Watson et al., 2015) reported a number of findings with relation to how to engage with communities. When looking towards community engagement it is important to build on existing community capacity. This may include, for example, the local GAA (national sports organisation), the parish, or a residents association. This can be a first step, but further engagement with the “unengaged” is often necessary. From this, it is important to ask a community what they need rather than tell them what to do. Through nurturing community development, locally viable and satisfactory solutions can emerge. It is important to work with the willing, i.e. those prepared to participate. It can prove useful to capitalise on how the community sees itself - their sense of identity and pride of place (Watson et al., 2015).

A later MaREI workshop focused on engaging communities in climate action (Watson, 2019). It found that people are at different stages of the climate action spectrum, with a need to begin each engagement from where people are at. The importance of moving from awareness-raising to action was also noted. Messaging is of central importance with a need for messages to be tailored to particular audiences. How they are communicated and by whom is also critical. The supports which communities require often relate to capacity building and resources, with a need to shift beyond volunteerism. Local people must be supported, through state agency resources, to take action. Working with key community leaders can often act as a bridge to the wider community. Also, it is important to engage young people, often left out of these conversations (see: Watson, 2019 for further details).

These two reports on community engagement as it relates to the energy transition and climate action have relevance to the development of large public infrastructure which can be found within the literature. The public should be included in the planning process using carefully worded communications (Evans et al., 2011) and developments should be spearheaded by organizations that are most highly trusted by the public (Bronfman et al., 2012). Outcome and process fairness should be of central importance throughout the development and aftermath of new infrastructure (Gross, 2007). Future visioning (Odou & Vella-Brodrick, 2013), meaning-making (Kraftl et al., 2013) and community-based scenario planning (Bennett et al., 2016) have recently gained traction as

mechanisms through which communities can engage in developments in their areas. The importance of highly trusted organisations is central as when it comes to the delivery of infrastructure citizens may have a sense of distrust towards institutions and agencies which are working from a top-down perspective (see: Aitken, 2010; Barry et al., 2008; for discussion on a lack of trust by objectors in a democracy).

Through following a top-down approach the energy transition in Ireland has to date been slow, with little consideration given to effective community engagement, although this is beginning to emerge as an important practice within institutions. As has been seen time and time again "government interventions that neglect or undermine (the) social infrastructure can go seriously awry" (Putnam, 1994, P.5). A change is needed in relation to how institutions interact with community groups and citizens to effectively go about implementing the measures needed to expedite the transition to a low-carbon energy system. Institutions have a key role to play within sustainable transitions and within this institutional change is considered of utmost importance (Jolly & Raven, 2015; Wirth et al., 2013; Geels, 2004). Niche practises can establish within regimes, leading to the emergence of niche-regimes that can disrupt established practices. Currently, within most institutions and public bodies, community engagement is understood as risk management, yet receives less weight of importance when compared to financial, actuarial or environmental risks (Bice et al., 2017). In relation to major infrastructural developments, community engagement practitioners are often pitted in a power struggle for legitimacy when placed alongside other aspects such as the engineering or financial sides of a project (Kemp & Owen, 2013). Research has a role to play in analysing novel approaches to governance that facilitate community engagement within public bodies, bringing about the merging of top-down and bottom-up approaches. A wider investigation of transdisciplinary research approaches is warranted within this context.

2.5 Transdisciplinary Research for Sustainability

There is an increased belief amongst researchers, stakeholders and funding bodies that co-produced knowledge can lead to enhanced opportunities for meaningful progress across policy, decision-making and practice in relation to sustainability issues (Irwin et al., 2018). As outlined by Funtowicz and Ravetz (1995), given the high stakes and uncertainty presented by contemporary ecological challenges, a 'post-normal science' approach is required that seeks to incorporate experiential (e.g. community, indigenous, local) knowledge. In parallel to this, and in a large part emanating from it, there has been a growing call for transdisciplinary approaches to research to respond effectively to sustainability-related issues (Brown et al., 2010; Pohl et al., 2017; Kampelmann et al., 2018; Köhler et al., 2019). The

drive for societal impact "is most explicitly expressed in and actively shaped by transdisciplinary research programmes" (de Jong et al., 2016, P.1397). This, however, can present challenges whereby the funding landscape encourages utility over the critical interrogation of dynamics at play. This point has been further investigated reflexively within Chapter 7 (See: 7.3.8), whereby my positionality with regards to Transdisciplinary research is outlined based on my experiences to highlight how it has changed through the process of undertaking this work.

At the turn of the century, a call emerged for joining up scientific and technological knowledge with political and social processes concerning complex interconnected systems related to sustainability (Cash & Moser, 2000; Kates et al., 2001), and was followed by the emergent field of sustainability science. An importance was placed on understanding global processes and their relationship to localised social and ecological processes. Traditional neo-Cartesian approaches to scientific investigation, specifically the application of the scientific method, involving a 'detached' or 'neutral' researcher conducting their studies, were called into question by this new approach. New forms of learning and knowing were championed as providing mechanisms to enable multi-actor collaboration across different sectors or social groupings in addressing the complex challenges related to sustainability (Kates et al., 2001). Stemming from the call for new forms of learning and knowing, is the need for new forms of research "that generate knowledge that matters to people's decisions and engages in arenas where power dominates knowledge" (Wiek, 2012, P.1). A plethora of research approaches have emerged or been reimagined in light of this need for co-produced actionable knowledge, often under the guise of Transdisciplinarity, influenced by the tradition of Mode 2 science (Ravertz, 1999). This has led to a call for an improvement in collecting and reporting on these processes as a measure of their efficacy and impact (Lemos et al., 2018), and on from this active learning through reflective practice (McDermott, 2014).

It is now widely accepted that partnership and collaboration with both academic and non-academic stakeholders are crucial to the goal of generating real-world impact, which lies at the heart of sustainability science (Spangenberg, 2011; Bieluch et al., 2017). This has drawn into question the role of the researcher, with those pursuing a transdisciplinary approach taking on a range of new roles such as the reflective scientist, process facilitator, knowledge broker, change agent and self-reflexive scientist (Horlings et al., 2020). Partnerships with actors outside of academia greatly expand the expectations placed upon researchers compared with traditional roles; assuming responsibility for activities such as guiding collective learning activities (Pohl et al., 2010) or implementing sustainability solutions in practice (Loorbach et al., 2011). Since little attention has been given to the challenges of undertaking these roles (Lang et al., 2012), practising researchers are invariably left "without the

proper vocabulary to explain and navigate the tensions and potentials that come with their 'new' activities and roles" (Wittmayer & Schäpke, 2014, P.484).

Within the disciplinary context of sociology, debate has long since continued about the role of the discipline, and the different traditions contained within; what it sets out to achieve and for what reasons (Turner, 2007). Some debate about the future of sociology has centred on two distinct but competing interpretations of the discipline's purpose and relevance, transdisciplinarity and tradition (Mišina, 2015). One argument in favour of a transdisciplinary approach is concerned with the complexity of contemporary phenomena and their multi-layers and multifaceted realities. Siloed disciplinary boundaries then cannot comprehensively, or even sufficiently in some cases, provide an interpretation of the complexity of dynamics at play (Carroll, 2013). One argument in favour of the traditionalist approach states that a move towards transdisciplinarity leaves sociologists in a more vulnerable position, weakening the strength of the discipline (Puddephatt & McLaughlin, 2015). The future of the discipline perhaps lies somewhere in the middle of these two positions whereby a transdisciplinary approach can be undertaken in certain contexts, whilst in others a more traditionalist approach is sought, with both modalities informing the other in an iterative process.

Transdisciplinarity, as with many academic concepts, has lent itself to several conceptions, including two particular perceptible conceptual "strands" (Mullally et al, 2017), involving at least five discernible major "clusters of meaning" (Klein, 2013). For many, a key aspect is the use of a *process* through which the production of knowledge is opened up to a wide variety of perspectives and viewpoints (Darian-Smith & McCarthy, 2016). Klein (2013, P.189) posits that "there is no universal theory, methodology, or definition of transdisciplinarity", it is useful to ground ourselves somewhere within the discussion. Firstly, an understanding of the difference between multi-, inter-, and transdisciplinary approaches. This has been developed previously within the work of Mullally et al. (2017). In a cursory manner, the discussion can be summarised as such; interdisciplinarity is set apart from multidisciplinarity as requiring deep engagement between a number of disciplines. This includes an understanding of respective terminologies and methods by the participants. It differs from transdisciplinarity which is commonly involving "not only multiple disciplines but also multiple non-academic participants (e.g., land managers, user groups, the general public) in a manner that combines interdisciplinarity with participatory approaches" (Stock & Burton, 2011, P.1098).

Additionally, a transdisciplinary approach is best suited to complex issues which cannot be easily classified as the domain of one perspective or discipline over another (Lawrence, 2004). It is therefore seen as most appropriate in dealing with complexity and complex systems, as such an approach helps to overcome narrow specialisation, a feature which has risen to prominence within academia since

the late 19th and early 20th Century (Darian-Smith & McCarthy, 2016, P.6). As Balsiger (2004) suggests, a transdisciplinary approach to research should move beyond any pre-established disciplinary frameworks, instead seeking to consolidate different forms of knowledge both inside and outside the academy to address the complex issue at hand. With climate change (impacting on complex systems at local, regional, national and global levels), and in light of the urgency needed and inertia present, the merits of a transdisciplinary research approach are evident. While there are difficulties in conducting transdisciplinary research (Fam & O'Rourke, 2020; Hoffmann et al., 2017; Aslin & Blackstock, 2010), it would seem evident that not only can it be implemented, but also that if done effectively it will lead to far more impactful, insightful and progressive findings then what is currently being offered. However, despite the increased importance being placed on transdisciplinary approaches (in particular within funding calls), the management and evaluation practices are still underdeveloped (Woelert & Millar, 2013).

It is now widely accepted that partnership and collaboration with both academic and community and civil society stakeholders can play a role in facilitating climate action. Aligning with the third research question in this thesis, consideration is given to the value of such transdisciplinary research practices in merging top-down and bottom-up approaches to sustainability transition initiatives, with my own reflections provided on my experience of undertaking action research (see: 7.3.7)

2.6 Community as a Contested Concept

Definitions of community have long been contested from the earliest sociological accounts provided by Tönnies in Gemeinschaft and Gesellschaft (2002 {1887}) and Weber (1978 {1921}), to theorists of the Chicago School such as Park et al. (1925) and Wirth (1935). Despite the long-standing debate on community within sociology, an outline is provided here which helps to refine the application of the term to this research project. To start, a range of different, yet connected, interpretations of community provided by Walker (2011, P.777–778) provides an insight into the vast rhetorical usage of the concept. These interpretations are indicative of community rather than comprehensive. Firstly, community is understood as a collective actor with agency that can interact with others. Agency is seen as different forms of capacity which interact with and shape social action in an undetermined manner, in contrast to more functionalist interpretations. In situating community within a stratified, vertical hierarchy, it is understood as a scale of action above the individual or domestic, but below the governmental. Place-related understandings imply a set of social relationships embedded in a geographical locality or territory, e.g. a neighbourhood and a village. Communities as networks can denote social relationships that exist within but also transgress geographical boundaries, e.g. communities of interest. When the idea of community is understood as a process, the emphasis is on

collaborative, consensual and voluntary involvement in which the quality of social relationships draws on stocks of social capital and trust. Community as identity denotes certain qualities of ways of living, including (self-) representation (Cohen, 1985).

Cohen (1985) places emphasis on culture over structure in the study of communities. The central question that he is seeking to understand is the way in which people demarcate their immediate and intimate social identities, the boundaries of their social lives which illuminate their sense of similarity and difference. Symbolism is seen as a central process in the creation of boundaries. 'Community', then to Cohen, is premised on two related assumptions, that members of a group share something in common that binds them together, and that this common shared article differentiates them in a significant way from others. The work of Jeremy Brent (2004) adds further nuance to debates on community within social theory. Within this work, it is outlined that times of community activity are generally not times of calm, but rather times of turbulence be it political, economic or social: 'community' is taken for granted, until it comes under some kind of threat Community then is conceived of as a desire, something which is continually replenishing itself as people seek voice and connectedness in all their imperfections. The paradox of community then is the paradox of desire. It is the desire *for* community, not its achievement, which itself is community. Engaging with community as a phenomenon then becomes an interminable task.

As McNally (2015) notes the success potential of Ireland's transition to a low-carbon society depends on the implementation of citizen participation, both in terms of policy support as well as activating citizen engagement in processes of change. The transition pathway cannot be led by governments and utilities alone (Mullally et al. 2016), but must instead be a symbiotic relationship with civil society in which community initiatives and civil society organisations operate to create social cohesion and engagement, with the potential to accelerate the transition by creating a "favourable context for the implementation of further energy efficiency projects" (Cogan, 2017, P.5). As Cogan (2017) notes, the small group of successful community-led initiatives to date in Ireland have been largely circumstantial, with a need for political commitment to ensure the emergence of such projects becomes normalised. At a grassroots level, community initiatives create an environment in which direct engagement can occur, leading to shared learning (Moloney et al. 2010). As we have seen with reference to the mainstream media's narrow framing on climate change in Ireland, shared learning processes will need to come from bottom-up engagement, be that community based or through the work of civil society organisations and NGO's. Citizen engagement can be differentiated from community engagement with the former applying to individuals at the national level and the latter to collective actors with the agency to can interact with others.

The grassroots community initiatives to date in Ireland offer an insight into the future potential of such projects to elicit an acceleration of the transition to a low-carbon society. As Brid Walsh (2018) suggests, community-led initiatives have gained less attention than their European counterparts. Seyfang et al. (2013) reference the emergence of a wide array of community-led initiatives throughout Europe. In Ireland, however, despite being the third-largest per capita Co2 polluter in Europe (Fox & Rau, 2016, P.226), we have witnessed but a few isolated examples. Cogan (2017), in analysing community energy projects in Tipperary and Mayo, suggests how such projects engender high levels of citizen buy-in and can create social contexts conducive to involvement. These projects were stimulated by local needs such as job creation and economic reasoning rather than global environmental concerns, aligning with the general media discourse. There is a need to rethink the 'needs' and 'wants' towards a societal model rather than an individualistic one. People are recruited to such initiatives by others in the community, and continued involvement occurs due to community gains rather than individual gains (Hoffman & High-Pippert, 2010). The need for the mass mobilization of community-led initiatives represents the potential to usurp "dominant individualist and consumerist lifestyles" which "run counter to community collectivism" (Middlemiss & Parrish, 2010, P.7560).

Continuing on from the work of Putnam (2000), participation in community work encourages active citizen engagement, which contributes to citizen empowerment, leading to the development of social capital and social cohesion. These can be seen to facilitate trust, and a community will accomplish more if it trusts and is trustworthy. Social capital has been framed as actual or virtual resources which individuals or collective actors acquire through taking part in "more or less institutionalized relationships of mutual acquaintance and recognition" (Bourdieu & Wacquant, 1992, P.119) which allow communities to function smoothly. Social cohesion is seen as "the willingness of members of a society to cooperate with each other in order to survive and prosper" (Stanley, 2003, P.5). It can, however, be a somewhat ambiguous concept, which can evoke nostalgic memories for a time long since passed which is deemed preferable or superior, despite a lack of tangible validation for the claim. As such, strong social cohesion can bind communities together, but can also accentuate the boundaries as experienced by those excluded. Locally based initiatives can often reinforce existing power inequalities or restrict the scope and impact of participation (Parvin, 2009). Historically, the "local" has been seen as a key site for building democracy and citizen participation (Gaventa & Jones, 2002). There is, however, a danger of falling into the "local trap" (Purcell & Brown, 2005), whereby it is presumed that action and decision-making at the local level are more likely to reap social and environmental benefits.

Community within the context of this thesis is interpreted as a process of desire to continue from the work of Brent (2004). Yet, also it can be considered on the basis of an attachment to place and a clearly defined geographical boundary. The application of community to the case study under investigation is further outlined in section 4.3.

Chapter 3: Methodology & Methods

Introduction

In this section the methodological aspects and practical considerations are first outlined; i.e. epistemology, standpoint, research design, ethics, and dissemination. Following this, an outline is provided for the different methods used for each of the five research aspects of the overall project. The first three relate specifically to the context of *Dingle Peninsula 2030* (3.6-3.8) further outlined in Chapter 4. The final two outline the methods used in relation to the national context, i.e. community engagement within public bodies and transdisciplinary research approaches.

3.1 Epistemology

In first outlining my methodological approach, and in keeping with the importance of reflexivity as introduced at the beginning of the thesis, I have sought to find my positionality through a number of approaches. Firstly here, through outlining the epistemological perspective of the thesis I locate myself within the research context and process, before moving on to look at my relationship to the subject under investigation and the research participants within the standpoint (See: 3.3). In keeping with previous research to date, an interpretivist approach has been taken to this project. Following on from the seminal work of Weber and the theory of Verstehen (i.e. the development of a methodological approach which seeks to 'understand' through interpretation or in this case participation) this work positions itself at odds with the positivist methods established by Saint Simon and Comte. From a personal perspective, all previous work has been aligned with an interpretivist epistemology. An interpretivist approach can be used to successfully extrapolate out from the micro to apply observations at a wider, societal level without discrediting the nuances of the context in question. Within the research in question, the answers cannot be clearly defined and the potential for unexpected results is significant. An interpretive epistemology was applied, so as not to exclude potentialities from emerging.

The social scientific production of knowledge previously outlined as Mode 2 (Gibbons, 2000) is concerned with a cross-disciplinary, solution-orientated approach to research undertakings. In contrast to Mode 1, whereby disciplinary demarcations are rigidly enforced and knowledge production is focused on fundamental research irrespective of applicability to context, Mode 2 knowledge production develops from context and can be interdisciplinary or transdisciplinary. The concept of Mode 2 is a useful starting point from which to discuss the epistemological considerations of an action research approach. Historically, participatory or action research approaches have been stymied in favour of methods of control over knowledge production; namely structural, linguistic and thematic control. Overcoming these controls will not be a rapid process, but

rather a long-term progression within research practice. Action Research, what Chaudhary (1997) would refer to as the popular method, is characterised by interaction, collective pursuit, a disseminative nature, collective and common issues, decentralization and questioning 'status-quoism'. If we look at a means of knowledge production around these central tenets as the guiding epistemological philosophy underpinning this research project, the suitability becomes self-evident. Interaction with key stakeholders of the multi-stakeholder approach is of central importance to the project, and crucial to effective research outcomes. As a collective pursuit, both within the academy and transcending this to actors within the context under investigation, common issues can emerge. Decentralization and the idea of questioning 'status-quoism', while central to the epistemology, are also evident in the topic of investigation; namely the relationship between top-down and bottom-up perspectives on the socio-technical transition to a low-carbon society with consideration towards effective collaborative practise and current institutional approaches to collaboration.

Yet, the implications of institutionalisation within a system inherently built upon modes of control of the means of knowledge production must not be brushed over with starry-eyed optimism. While aiming to conduct a research project within the popular method an awareness of where these controls could impact it must be made conscious. Firstly, the structural procedures underpinning research within an academic setting have implications for what can be achieved. Timelines, reviews, funding procedures, publication requirements etc. are all incorporated into the historical structure. While these structural boundaries must be adhered to, it is important to push them to their outer edges to arrive closer to truly participatory research practices. The approach taken to this thesis has led to a wide range of data being gathered with a participatory, action-orientated focus central throughout.

Alongside this, from a linguistic perspective on control, how academic and discipline-specific writing is constructed (this paragraph is a case in point) is a control over its accessibility and reach. To overcome this, researchers must be willing to write in different styles to different audiences, be they across disciplines or transcending disciplinary lines towards civil society and policy audiences. The true action researcher must find a balance between being both writer and translator, researcher and disseminator. Finally, with regards to thematic considerations of control, within academic canons and peer-reviewed journals themes become reinforced through the need for research building upon what has gone before. While this is essential to scientific rigour, through collaborative approaches with participants external to established research structures, new themes can emerge with the potential of investigating concerns and issues from a new perspective.

A central question, from a sociological perspective, when undertaking a transdisciplinary action-orientated approach to research is the subjective-objective tension that must be acknowledged, managed, and even embraced. My own positionality within the *Dingle Peninsula 2030* group, as a committee member on the collaborative committee, must be acknowledged as I operate as both an insider and outside simultaneously, shifting roles for different circumstances and situations. This insider-outside dichotomy should be seen rather as a continuum between the university and the community context (Herr & Anderson, 2014). Through this research project, I have acted at times specifically from the position of the University through preparing peer-review papers or presenting findings at academic conferences, whilst at others operating from the position of the community, organising and attending local events and partaking in meetings. On from this, there are also occasions when I am positioned somewhere in the middle. Simultaneously working alongside community partners and engaging in academic endeavours. In relation to action research an insider-outsider team, such as the one deployed within the case study context here, can be seen to be a favourable form of reciprocal collaboration. This, however, requires negotiation among different stakeholders, building trust and understanding around the value of collaboration in order to proceed "with a high level of trust" (Herr & Anderson, 2014, P. 48). I provide a reflexive discussion on this consideration and my place within the collaboration within Chapter 7 (See: 7.1.8).

As an early career researcher, the tension between managing both my participation in an insider-outsider team and my own fluid role as both inside and outside the case study context is a backdrop from which all research undertakings are set. As noted by Cochran-Smith & Lytle (1993) the incentives towards research outputs established within the University setting can lead to the collaboration being co-opted by the researchers. In contrast to this, there is a commonly held assumption that being actively committed to a group can lead to an uncritical and unquestioned position of approval in relation to the group and their actions. In such a case the validity of the research can be called into question as the research "goes native". The most widely cited path beyond this outcome, retreating to objectivity, can be termed as "going academic". I set out, however, to take a different path situating myself within this tension giving it regular consideration. As noted, "an alternative route is for this journeying to be made transparent- to be highlighted as an integral (or unavoidable) part of the research process" (Fuller, 1999, P. 223). This again is further outlined in Chapter 7 (See: 7.1.8).

3.2 Action Research

Action research has been previously defined as a methodological approach that can prove valuable on two levels. Firstly, as a means for practical problem-solving and the continued development of

scientific knowledge, and secondly, to enhance the proficiencies of the different actors involved in the process through inclusive collaboration. Enhanced understanding of a given social situation can be gained through the deployment of cyclical processes of data feedback, principally for use in understanding processes of change in social systems within an accepted ethical framework (Hult & Lennung, 1980).

When taking an action research approach, there is a sense of uncertainty with which the researcher must become comfortable. Ackoff (1999) defines this by the term 'messes', whereby the phenomenon under investigation is complex and multi-dimensional issues, which can only be contextually understood and partially resolved. This is at odds with attempts at objectivity often found in much of contemporary scientific enquiry. The action researcher approaches such 'messes' not to eradicate the mess, but rather to work alongside the participants to understand the situation at hand. In other words, the action researcher seeks to work with communities/actors to help improve upon the reality of a situation (Brydon-Miller et al. 2003). 'Messes' as a term for areas of investigation is aligned with the 'wicked problem' of climate change (Lazarus, 2008, P.1159). Within action research projects, then, uncertainty is ubiquitous, with research looking to investigate complex multi-dimensional processes in action, rather than retrospectively. While this is a danger, it is also an opportunity, one in which research projects can have a positive effect, both in real-time and for future initiatives.

This idea of moving research beyond a retrospective investigation of past events is aligned with the work of Chandler and Torbert (2003) who illustrate the wide expanse of reality which is not investigated through most social science studies and the value of first- and second-person investigations of the present and future and how these differ greatly from third-person studies of the past. With particular correspondence to this research, a key concern of action research is to not only analyse past events but to "also present phenomena, particularly the ongoing dynamics of human interactions in which one is a participant, as well as future intentions and the forward design of joint organizing" (Chandler & Torbert, 2003, P.134). All three temporal plains offer insights to important, but different, aspects of a situation; i.e. past experience, present situation and future expectations. A keen understanding of these dynamics is crucial to effective action research. This is not to claim action research to be holistic, but rather a contextual, empirical mode of investigation. As a research approach, it aligns with the central significance of participation in the project. The goals of action research, in some regards, have greater depth than more traditional approaches to academic enquiry with an action-orientated approach seeking "to bring together action and reflection, theory and practise, in particular with others, in the pursuit of practical solutions to issues

of pressing concern to people, and more generally the flourishing of individual persons and their communities" (Reason & Bradbury, 2001, P.1)

Participatory Action Research (PAR), as a subset of action research, can act as a bridge between the theoretical and epistemological considerations concerning the approach and the empirical experience of implementing the method. PAR takes a self-reflective approach to inquiry, relating to both researchers and participants (Baum et al., 2006). The objective-subjective tension within my work in undertaking this research is an important aspect of the research. While much confusion exists within the literature (Kindon et al., 2007, P.11), with distinctions increasingly blurred, an understanding of the self-reflective nature of PAR for both researchers and participants is important within the context of this research. That said, action research has been used as the classification of the approach to avoid engaging in a tired debate on the nuances of conceptual semantics.

3.3 Standpoint and Positionality

The standpoint taken is aligned with the epistemology noted above. At a most primary basis, this research is concerned with anthropogenic climate change and the ability of research to play some role in providing solutions to the need for a socio-technical transition to a low-carbon society. As noted by Baghel, "a preoccupation with the environment is no longer confined to a small set of concerned people, academics, and those bearing the brunt of disasters. Instead, engagement with issues like climate change happens worldwide, on a day to day basis" (2012, P.1). Environmental issues both academically and through volunteer mechanisms have been a focus of my attention for the last number of years. While this provides a useful drive to the work undertaken, it may also operate as a bias in how problems are approached. If climate change is the universal within the research project, then community engagement is the particular, holding influence across all three research questions. From an external perspective, the need for top-down engagement with local contexts to implement suitable programmes for decarbonisation is a theme that has arisen throughout much of my research. From a detached point of criticism, a finger can be pointed and wagged towards unsuccessful undertakings within climate policy.

Alongside this, however, is the need for self-reflection, situating my positionality. Starting the project as a 26-year-old Irish male, I am at the early stage of my research career. The cultural and social context in which I exist is one that influences this project. I have been studying within the discipline of Sociology, at University College Cork since 2010, interspersed with time spent abroad in Europe, Africa, Asia and North America. Experiences abroad have shaped my perception of

"Irishness" and the centrality this holds in my personality. I feel a connection to Ireland, as an Island. A strong sense of my desire to develop a career within academia has been present since starting out in University. While some aspects of my positionality are fixed, such as gender, race, and nationality, other aspects such as experience and life history are more fluid and are changed through the experience of undertaking a PhD. My social values and individual ethics are central to setting out on such a journey. Climate change and environmental degradation, to me, are amongst the most pertinent challenges faced in contemporary society. Alongside this, the need for wider societal participation in responding to these challenges is an opinion I hold.

My own academic biography to date consists of a continual interest in issues concerning both climate change and community. For my Masters dissertation, I focused on the role of civil society within the socio-technical transition to a low-carbon society, looking at a community based oppositional campaign to a wind farm development. Following on from this I began working as a research assistant investigating community energy initiatives across Ireland with a focus on the role of intermediary organisations in supporting the scaling up of community-led initiatives. The experience of undertaking both these research projects has informed the starting point from which I have undertaken this PhD thesis, yet a move towards a collaborative action-orientated approach is a new departure.

In locating my positionality with regards to this project, at an initial stage, there are three key areas I must consider. Firstly, my relationship with the subject under investigation. Secondly, my relationship with the research participants. And finally, my relationship to the research context and process. My positionality with relation to the subject under investigation is influenced by my views of climate change and participation outlined above and I must acknowledge its influence on my research. With regards to the participants in the study on the Dingle Peninsula, in the initial stage of the process these are people not known to me, who I have established relationships with through this research. This is further reflected upon in Chapter 7 (See: 7.1.8) as my positionality changes through the process, but at an initial stage, I develop relationships with participants, as a "student", someone considerably younger than the participants. While I cannot lay claims to how others construct their perceptions of me, my identity as someone in their late 20s studying within academia brings about certain associations which must be acknowledged. Participants within the study extend across different classifications from individuals working in large organisations, to local farmers. Preconceived notions of these different identities from my own perspective have an influence on the research. From the initial stages of the project, through following an action research approach I take

up an insider role, whilst still not being an "insider"; involved directly in the collaborative committee but not a local to the area.

On from this, with relation to the research context, the Dingle Peninsula, upon setting out to undertake this research I was aware of the area having spent time there on holidays and trips at different stages throughout my life. An affinity with the coastal tourist dynamic of the area stems from my own upbringing in Tramore on the South East coast of Ireland, a tourist town built around the beach. While this affinity is noted, I am an outsider to the area and try as I may to uncover the social, cultural and historical dynamics of the area (see: Chapter 4) this must still be understood. Continuing from his initial outline of positionality, through following a reflexive approach, the development of it through the PhD process is outline further within Chapter 7 (see: 7.1.8 & 7.3.8).

An action research approach to this project has been developed both due to guidance through supervision and reflexive analysis of previous research. To date, very little work I have completed has been truly engaged with the processes under investigation, instead seeking a detached view of proceedings. While this may have been successful in following the structures put in place within a University setting, it also leads to limited real-world changes. Action research is not a cure-all, but a solution-orientated approach may potentially offer forth some useful findings for practical implication, or at the least findings on what solutions aren't suitable in certain situations. As argued by Van de Ven (2007), action research, or what he terms engaged scholarship, "produces knowledge that is more penetrating and insightful than when scholars or practitioners work on the problem alone" (P.34).

In discussing the long-term vision underpinning continued commitment to action research, Brydon-Miller et al. (2003), draw on trust-building within community contexts where academic outsiders have often, and often rightfully, been treated with caution. As they note "A key value shared by action researchers, then is the abiding respect for people's knowledge and for their ability to understand and address the issues confronting them and their community" (2003, P.14). This idea of respect for local people and their knowledge has poignancy in the context of the Dingle Peninsula, where anthropologist Scheper-Hughes completed the field research for her 1979 publication *Saints, Scholars, and Schizophrenics*. While the book gained academic success within fields of psychological and medical anthropology, it was viewed by the Press in Ireland, and the people of the pseudonymized village of 'Ballybran', negatively, with its publication seen as an unethical violation of privacy. Some twenty years after the initial scandal, Scheper-Hughes returned to the Dingle Peninsula and the town of 'Ballybran', only to be exiled from the village a few days after her arrival (Scheper-Hughes, 2000). Although the context of Scheper-Hughes' work, an anthropological investigation into

sensitive psychological topics, is far removed from this research project, the lessons learnt give further credence to an action research approach.

There are, however, further nuances to the approach taken. Within Shaper-Hughes' work, the perceived unethical violation of privacy had an impact on the work. My own approach, whereby I seek to balance the tension of being an action researcher both within the collaboration and as an outsider to the community. Seeking too much distance from the subject matter, or alternatively becoming too embedded as a "project partner" rather than as a researcher can lead to problems. As an action researcher, I seek to work in close collaboration with the *Dingle Peninsula 2030* project in order to have a positive impact on the process under investigation whilst at other times taking a detached perspective in order to undertake the construction of analysis of the situation that is both under investigation and which I am collaborating on. Understanding how to manage this movement between inside and outside is held throughout the process of the research project and is further outlined towards the end of the thesis (See: 7.3.8)

The need to decarbonise the global economy is becoming more critically important every year. The 2018 UN IPCC report suggested that we have until 2030 to mitigate against irreversible climate damage (Barton & Foster, 2019). The severity of inaction does not need to be outlined. While a top-down approach will be most timely and costly in the short term, my own biases lead me to support the possibility of a decentralised, engaged process in which power for decision making on how to transition is redistributed (where applicable). It can be suggested that in the medium to long term this may prove more efficient. To truly transition, the means through which decision making occurs must be reanalysed. On a personal level, an awareness of the need for community engagement to expedite the process is strongly noted. The standpoint taken is rooted in prior research experience, analysis of other literature, personal characteristics, and the epistemological considerations outlined above. While these biases exist, awareness and analysis of where they may impinge upon the research process lead to richer findings that have been adequately scrutinised. Scepticism towards the narrative of "saving the planet" and techno-utopian perspectives has previously been outlined and on from this community engagement has been highlighted as a potentially positive development (Boyle, 2020).

3.4 Research Design

A mixed-method research design, which combines research methods to address a particular research problem (McKendrick, 2020), has been deployed here. While a mixed-methodological

approach must not be seen as a mechanism for arriving at an objective, definitive answer, it does have the ability to add supplementary layers of analysis when investigating complex issues, with multiple perspectives and multi-dimensional dynamics. Caution must be taken, however, when selecting a mixed-methodological approach, and "we should combine theories and methods carefully and purposefully with the intention of adding breadth or depth to our analysis but not for the purpose of pursuing objective truth" (Fielding & Fielding, 1986, P.33). When engaging with complex social phenomena, such as a multi-stakeholder approach to the socio-technical transition in a regional context, different methods can be used in unison to get a more suitable interpretation of a complex situation (Greene & Caracelli, 1997). Coupled with this the investigation of community engagement within public bodies and the analysis of transdisciplinary approaches to research gives credence to the selection of a mixed-method approach. Throughout the literature, there are a plethora of nuanced terminologies for what is classified here as a mixed-method approach (Campbell & Fisck, 1959; Swanson-Kauffman, 1986; Steckler et al., 1992; Caracelli & Greene, 1993). Creswell et al., (2003) offer a useful single definition which can be used as a starting point from which to further investigate a mixed-method approach, as applied to particular research designs:

> "A Mixed-methods study involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of data at one or more stages in the process of research" (2003, P.212).

Often discussions on the value of a mixed-methods study have been framed around the accompaniment of quantitative methods with qualitative methods or vice-verse, orientating the discussion around the need for research (or researchers) grounded in either of the two perspectives to bring an open mind to research topics and a willingness to investigate the potential of previously ignored approaches to add greater depth to the work. More innovative methodological approaches can, however, also be implemented within a mixed-method approach:

> "It can encourage researchers to see differently, or to think 'outside the box', if they are willing to approach research problems with an innovative and creative palette of methods of data generation. This palette could certainly include, for example, the 'qualitative standards' of semi-structured interviewing, observation and textual analysis, and the 'quantitative standards' of social surveys, demographic or economic data collection and analysis. However, if we are to think outside the box, then methodological creativity should extend into other dimensions – for example, with visual or sensory methods which are grounded in and interested in dimensions other than talk or text (visual, aesthetic, material, aural, bodily,

kinaesthetic), experimental as well as naturalistic methods, psycho-dynamic methods, bio-genetic methods, participatory methods, and so on." (Mason, 2006, P.13).

This research project takes a mixed-methodological approach using qualitative semi-structured interviews, participatory mapping and qualitative social network analysis (3.6); reflective journaling (3.7); exploratory interviews, ethnographic attendance of events and field notes (3.8); qualitative semi-structured interviews and an online workshop (3.9); and qualitative semi-structured interviews (3.10). This approach is undertaken and analysed through the first research question which seeks to understand how a mixed-method approach to action research can support a sustainability transition initiative.

At a practical level constructing and undertaking such a research design can prove time intensive and could lead to researcher burn-out if not properly managed. From a more methodological perspective, mixed methods do not ensure more comprehensive answers to research questions simply by looking at a problem from a range of perspectives (Bergman, 2008). Alongside this, taking a mixed approach is often insufficiently justified and there can be a failure to integrate findings, with them instead acting as separate answers to the same question (Bryman et al., 2008). To combat some of these concerns it is important to construct a research team with skilled members to conduct mixed-method design (Shulha & Wilson, 2003). Through the MaREI Centre, a transdisciplinary ethos has been developing over the last number of years. This piece of research has been guided through the Department of Sociology and Criminology, UCC, The Energy Policy and Modelling Group (EPMG) at the Environmental Research Institute (ERI), and the MaREI Centre. Supervision for the project has been housed between both the Department of Sociology and Criminology and the School of Engineering. Alongside such a diverse research team, the research design has been constructed so that all strands move forward at the same time, aligning with the work of Creswell et al. (2008, P.79). This idea of different research streams moving forward together is of central importance when looking at an action research approach to an active case, as the research plan must be flexible and responsive to changes in real-time to effectively investigate the circumstances at hand.

3.5 Ethics and Dissemination

When setting out to undertake social scientific research, consideration must be given to the role/ roles of research itself and how these roles may be perceived by participants in the study. Since the post-modern turn, public faith in science has been under constant threat (Haerlin & Parr, 1999). This has been seen within a range of topics from pharmaceuticals to climate change. At the deepest level

of scepticism, some citizens feel aggrieved by private sponsorship of research projects, and any agenda which may become attached to research findings. Many fail to see the value of research and due to this opt-out of participation. As noted by Haggerty (2004) "concerns about the ethical quality of research are characteristic of a society where anxieties about the unintended consequences of science and technology are increasingly common" (2004, P.392). Concerning the region under investigation, there is a precedent that offers an example of what not to do. The case of Scheper-Hughes (2000) illustrates the disruptive impact with which research can have within a community if the correct care for participants' privacy is not respected. Alongside this, when dealing with the deployment of renewable energy innovations in the Irish context an awareness must be present with relation to how previous developments have been treated. There has been widespread opposition to Wind Farms in the Irish context with over 50 oppositional groups active through the Wind Aware Ireland programme. Similar objections to solar plans are beginning to emerge (Roddis et al., 2018; Reitsma, 2020). When beginning to look at a research design from an ethical perspective these are potentially divisive issues that must be at the forefront of the researcher's mind.

Following the initial considerations around the perception of research, an action research approach can be justified for how it reconceptualises the relationship between researchers and participants in terms of levels of engagement and intended outcomes. With an action research approach selected, an application was made to the social research ethics committee (SREC) at University College Cork. Through this process, applicants must complete a self-evaluation and outline a number of the ethical considerations which are relevant to the project. Here I will briefly revisit some of those considerations.

With regards to the selection of participants, recruitment has been based on involvement in the *Dingle Peninsula 2030* project for section 3.6-3.8. Section 3.9 has gathered community development practitioners in 8 of the main public bodies concerned with the delivery of large scale infrastructure projects in Ireland, asking each organisation to select (or self-select) a representative associated with community engagement or development. Within Section 3.10, participants were gathered from the host institution by sending an all-access email looking for potential participants. Throughout all aspects, participants must be over 18 to be included. A gender balance minimum of 70/30 % has been achieved.

The information gained through any research process has the potential to prove to be sensitive and as such measures have been taken to ensure it is properly stored and protected. The researcher has an ethical obligation not to discuss research findings obtained through primary methods with others. Every participant was given a consent form that outlined their participation as voluntary, that they

could opt-out at any point, and that their identity would be anonymous in any future publications (see: Appendix 2 for sample consent form). Josselson (2007) highlights the importance of taking an ethical approach to protecting the privacy of the participants. There is a danger of people feeling uncomfortable in the process, yet also feeling obliged to continue against their will. Clarity in the consent form seeks to prevent this outcome. It was also made apparent to all potential participants that their participation is voluntary and no incentives would be given to people to encourage their participation. If this is not made clear there is an ethical concern that people may expect to be reimbursed for their time commitments.

Audio recordings have been used throughout where relevant. High-quality tape recordings prevent difficulties and potential misinterpretations of responses (DiCicco-Bloom & Crabtree, 2006, P.318). It is of central importance that this data is securely kept, aligned with the data protocol of University College Cork and the guidelines set up through the General Data Protection Rules (GDPR). Physical data has been stored in a locked filing cabinet at my office in the Environmental Research Institute (ERI), Lee Road, Cork City. Alongside this, electronic documents have been stored on an encrypted computer in a password-protected folder. As is common UCC practice data will be held for a minimum of 10 years. Aligning to work between University departments' data has been made available to the fellow PhD candidate previously mentioned. This consideration has been outlined in the consent form. If data is to be used in future publications, all identities will be anonymised, again aligned with the consent form. Data has also been gained from the fellow PhD candidate working in parallel with my own research. The consent form used in the collection of their data has outlined that the information will be shared with me.

As this is an active research design, suitable findings have been made available to key stakeholders within *Dingle Peninsula 2030* throughout the project. On from this, some media engagement has taken place. From an academic perspective, journal papers have been submitted for peer review, while others are still being drafted. Presentations have been made at 3 international conferences (IRG, London, 2019; IPASS, Acquapendente, Italy 2019; IST Vienna, 2020), and 3 national research symposiums within the MaREI Centre (2018-2020). A number of learning briefs have been developed (McGookin et al., 2020a; McGookin et al., 2020b) and the project has been highlighted online through several platforms (e.g. Science Foundation Ireland, U.N.).

3.6 Methods for Participatory Mapping of Stakeholder Networks

Having outlined the broad methodological considerations which apply across all aspects of the research, attention will now be given to specific aspects of the work. The initial intervention, the participatory network mapping, offers a starting point. Participatory network mapping techniques can be used in the application of qualitative social network analysis, with the benefit of achieving an awareness of perceptions of the social network from the inside, alongside the quality and meaning of the ties between actors. At a broad level through the use of visual and statistical elements, "social network analysis provides information that can be used to analyze the characteristics of groups and provide information to stakeholders about their groups" (Springer & de Steiguer, 2011, P.6). Through the innovative approach to undertaking social network analysis, this initial research intervention outlines the characteristics of the emergent network in a collaborative manner.

3.6.1 Mapping of a Transition Project

At a global level the need for action on climate change, and an expedited transition towards sustainability, has gained widespread consensus (Hansen, 2010; Houghton & Firor, 1995; Romm, 2018). To respond to this need, organisations can decide to come together in collaboration to provide more effective responses collectively (Savage et al., 2010). Collaboration, however, is a complex, powerful, and sometimes fragile process. Cultivation is required for successful collaborations to occur (Mattessich & Monsey, 1992). Alongside this, climate research is facing a turning point, whereby research is moving away from being about the problem at hand to being more orientated towards the facilitation of transformative changes (Fazey et al., 2018). In light of these recent developments with relation to research and policy, this investigation is a contribution to the emerging field dedicated to action research on sustainable transitions (Wittmayer & Schäpke, 2014; Wittmayer et al., 2014) through highlighting the use of a participatory mapping exercise for social network analysis of a collaborative transition project.

The multi-stakeholder project, *Dingle Peninsula 2030*, involves a number of key national agencies (such as the national grid operator, ESB Networks) and local community representatives coming together to explore the transition to a low-carbon future. The Dingle Hub (not-for-profit employment and innovation centre), ESB Networks, North East and West Kerry Development (community development organisation) and the MaREI Centre are working together to explore, support and enable the broader societal changes required for the low-carbon transition across the Dingle Peninsula and the multitude of cross-sectoral initiatives this entails. An action research approach has been taken here to the analysis of the social network which emerged around this multi-stakeholder project, using a participatory mapping method, adapted from the Net-Map toolkit

(Schiffer & Hauck, 2010). The Net-Map process takes place in a focus group, workshop setting, whereby a range of participants work together to map out the social network around the project they are collaborating on. A mapping exercise has been completed with key community (or bottom-up) representatives working on the project. As an initial research intervention within the overall research project, it outlines the social network around a number of emergent goals from a grassroots perspective, aiding subsequent investigations (See: 3.7 & 3.8).

This piece outlines the application of this method for the benefit of social network analysis, within the ethos of action research. Through the action research approach, the research uses a participatory network mapping exercise for key grassroots stakeholders to visualise the network in which they interact with relation to the goals they wish to achieve. When approaching research in this manner, the researcher must have a coherent vision of the approach and the logic and purpose of what the aims of the research are. This plays a crucial role in both the selection of methods and the analysis of different data sets and the correlation between the two (Mason, 2006). Through sitting on a collaborative committee, as part of *Dingle Peninsula 2030*, the researcher became aware of the general feeling within the group, at this initial stage, that there was a need for an intervention that brought together different grassroots organisations to discuss individual goals within the broader vision of the project. The participatory network mapping exercise was designed, in part, due to this consideration. A detailed outline of the collaborative committee is developed below (3.7).

A methodological innovation in applying an adapted version of the Net-Map toolkit to sustainable transitions management at the intersection between top-down and bottom-up approaches is focalised. As more top-down approaches have to date proved inadequate in bringing about change (Eyre, 2012), empirical case studies of bottom-up participatory processes with relation to project planning can help to inform understandings of how to effectively implement transitions at a policy level. This research explores this gap around participatory processes through an action research approach.

Fig. 9 The Dingle Peninsula highlighted in red on a map of Ireland

The innovative use of what has been deemed here as simply "participatory network mapping", built on the Net-Map approach, seeks to combine geographical (Brown & Eckold, 2019; Brown & Kyttä, 2018) and sociological (Emmel, 2008) approaches to mapping. In the geographical literature mapping has been used for issues concerning sustainability (Fahy & Ó Cinnéide, 2009), often with relation to communities (Gessa, et al., 2008). Within sociology, mapping is used for social network analysis sometimes with relation to ego networks (Edwards, 2010). Ego networks are networks as they appear to specific individuals, in this case, collaborators in the mapping process. Where more traditional geographical approaches focus on physical mapping of place, here instead the focus is on stakeholder networks as per the sociological literature. Within the sociological literature, no examples have been found of mapping with relation to sustainable transitions, with the approach here borrowing from the geographical literature in this regard.

3.6.2 Adapting the Net-Map process for participatory mapping

The participatory network mapping tool, Net-Map, can be used to map out actors, links between actors, the influence of actors, and different goals and where these goals intersect/ overlap. As a specific tool for social network analysis, Net-map has been adapted for use in the context of this

research project due to its ability to help visualise the relationships between actors, with the aim of helping to then facilitate group discussion within participatory processes (Schröter et al., 2018b). This adaptation is an innovative development, merging previous uses of Net-Map with principles of action research within the context of building local capacity in responding to climate change. Through the application of an adapted form, the claim that "as a tool for action research, the Net-Map process yielded visual, quantitative, and qualitative evaluation data, and it also enhanced the sense of shared purpose among network members" (Campbell et al., 2014, P.33) can be tested. Taking an ego network approach, whereby networks are analysed as they are perceived and reported by respondents (Wellman, 1983), participatory network mapping is a suitable method to deploy.

The Net-Map process can take place in a focus group, workshop setting, whereby a range of participants collaborate to map out the social network around the project they are working together on. For examples of the Net-Map process administered through a range of interviews see Schröter et al. (2018a). In the initial stage of the focus group it is essential for the facilitator to explain to the collaborators the purpose of Net-Map, i.e. it "helps explore those relationships that shape and affect the issue at stake but are not necessarily reflected in formal hierarchies or otherwise easily visible" (Schiffer & Hauck, 2010, P.236). Net-Map can assist in clarifying different stakeholder views in the development and implementation of projects, leading to increased social learning between participants with different areas of expertise and interest. The approach is aligned with the principles of action research by working in real-time with a group of actors, coming together to discuss an issue at hand or a project on which they can collaborate to outline potential synergies and/or conflicts around different goals and stakeholder links between goals. The process works as follows:

> "Net-Map uses figurines to represent different actors involved in a given activity. Lines connecting these actors are then drawn, using different colours to represent the various types of linkage existing between them, such as funding sources or hierarchy. After identifying who is involved and how they are linked, the next step is to determine how the various actors can influence the activity in question. To visualise who holds the greatest or least influence, the figurines are placed on 'influence towers' – the stronger the influence, the higher the tower. Finally, users map the goals of each actor, so that all the objectives, complementary or competing, become clear to the group" (Schiffer & Hauck, 2010, P.104).

The epistemological foundations of action research align with the net-map approach. As referenced (see: 2.2), the importance of participation is central to the research approach. At an

initial stage, some key grassroots organisations associated with *Dingle Peninsula 2030* have been gathered for participation in the research intervention which seeks to highlight the emergent network.

A representation of the adapted process is shown in fig. 10. The process has been designed to be engaging and hands-on in order to gain insights from all the actors involved. For further outlines of the Net-Map method applied to different circumstances see Ilukor et al. (2015, P.4-5) and Schröter et al. (2018b). An adapted version of the Net-Map process, defined here simply as participatory network mapping, has been used to apply greater suitability to the context in question. The use of influence towers has been withdrawn from the process due to the potential power conflicts which may emerge when discussing the relationship between top-down and bottom-up actors. Although an important issue, this is not relational to the purpose of this mapping exercise. The potential to create conflicts through undertaking the approach in a workshop setting must be acknowledged (Schröter et al., 2018a). Due to this consideration influence towers were withdrawn. Open group discussion occurred following the mapping exercise to facilitate potential social learning by drawing out key challenges faced. The net-map approach to participatory network mapping fits within an action research approach because it aims to interact with an active project to facilitate the visualisation of the network in which key stakeholders interact, with relation to the goals they wish to achieve, which can be revisited for project planning and management.

Fig. 10: Picture of Participatory network mapping Exercise adapted from Net-Map Toolkit (2015, 401)

The data gathered was loaded into a visualisation software, VisuaLyzer, to create a computer-generated map. The benefits for participants within the research process have been outlined, in keeping with the principles of action research outlined previously, as follows; understanding complex policy networks, determining who can serve as a broker, capitalising on the diversity of viewpoints, integrating network thinking into project planning and implementation, and using networks strategically to achieve personal success (Schiffer & Peakes, 2009, P.104).

The deployment of this research method has been selected with considerations as to its usefulness as an action research intervention at the early stage of a sustainable transition project, such as the one under investigation here. While the positives are clear, the limitations must also be acknowledged. The participants are unlikely to be representative of the overall stakeholder community (Glaser et al., 2018). To combat this limitation further research may be required to get a deeper understanding of the stakeholder community. The investigation of the collaborative committee and the diffusion of sustainability have enhanced the understanding of the stakeholder network beyond this initial intervention for social network analysis.

3.6.3 Social Network Analysis

Social networks consist of a range of actors and the relations between them, the analysis of these networks "comprises a broad approach to sociological analysis and a set of methodological techniques that aim to describe and explore the patterns apparent in the social relationships that individuals and groups form with each other" (Scott, 2017, P.2). A further definition of Social Network Analysis (SNA) is provided here, whereby:

> "The basic idea of social network analysis is that people do not act alone; their actions and the impact of those actions are determined by the social network structure in which they are embedded. This structure is viewed as a group of related actors, represented as nodes, and their interactions, represented as links between those nodes" (Campbell et al., 2014, P.26).

Social network analysis often relies heavily on a quantitative approach to data collection, whereby numerical data on social relations could be used to investigate the structural dimensions of social networks (Carrington et al., 2005). While quantitative approaches to social network analysis can offer valuable insights into social relations in a systematic and precise manner, they fail to account for certain dynamics which qualitative approaches can; such as an awareness of process, change, content and context (Edwards, 2010, P.5). In a contemporary sense, qualitative approaches to social

network analysis have gained more prominence. Anthropology provides some of the earliest examples of social network analysis. Barnes (1954), used a qualitative network approach to analyse a rural Norwegian fishing village, stating that; “the image I have is of a set of points some of which are joined by lines. The points of the image are people, or sometimes groups, and the lines indicate which people interact with each other” (Barnes, 1954, P.43). This depiction of a network is aligned with how quantitative networks are produced (using numerical data), but instead, qualitative methods have been used. Participatory mapping techniques can be used for social network analysis (Schiffer & Hauck, 2010; Emmel, 2008), whereby the development of a social network takes place in a participatory manner, allowing the points of the image, (or people) alluded to by Barnes (1954), to be involved in the process of developing the network. These interactional processes which lead to the development of a network can highlight findings with relation to the content and context of said network. An insider perspective can lead to rich findings, particularly when supplemented with an awareness of structure and form, or the outsider perspective:

> “Qualitative approaches add an awareness of the context which aids the interpretation of network maps and measures; they add an appreciation of the perception of the network from the inside, and an appreciation of the content of ties in terms of quality, meaning, and changes over time. What is also clear however from the variety of ways in which methods have been mixed, is that there is no ‘one best way’ of integrating quantitative and qualitative methods in SNA. As such, there is both a great deal of innovation in existing research design, and a lot more room for methodological development in the future” (Edwards, 2010, P.24).

Lievrouw et al. (1987) talk about the reality of social networks, whereby they can be defined by a general ‘messiness’. A range of different actors with different objectives and interests is an untidy start point when undertaking social research. When the relations between these actors are added to the investigation, things become even more complicated. Approaching social network analysis to arrive at a well-defined and absolute depiction of the network under investigation will ultimately be futile. Heath et al. (2009) have investigated the difficulty of bordering social networks. A simple question of where something starts and ends becomes a difficult task within SNA. Concerning the Dingle Peninsula, while the regional border can be defined geographically it is more uncertain when trying to border the social network. ‘Supporting members’ (Michaud & Audebrand, 2018) outside of the region may prove to have central roles in the social network. The idea of messiness quickly becomes evident. This parallels the earlier notion of messes (Ackoff, 1999) and the complex, multi-dimensional nature of action research. Lievrouw et al., (1987) outlined how social networks are

always combined, never existing in isolation, going on to suggest that to complement this the methods used to investigate them should too be mixed (Edwards, 2010, P.25). Understood through the multi-actor perspective, the research intervention assists at an initial stage in highlighting niche innovations that can be established through grassroots organisations with the potential to collaborate with regime actors and organisations moving towards embedding as a niche-regime. The undertaking of the social network mapping has been guided by the central conceptual focus on participation, bringing participants together to actively map the network as it appears to them.

3.6.4 Selection of Participants

In the initial stage of this research project, all potential stakeholders on the peninsula with the capability of partaking in *Dingle Peninsula 2030* were outlined using the Multi-Actor Perspective as outlined in Chapter 2 (see: appendix. 1). Following this, preliminary interviews with ten stakeholder representatives occurred to assess who would serve as potential participants. Regular attendance of events in the area (see: appendix 3) served to guide the selection of key stakeholders. This process was critical, preliminary work; "you need to be confident that the informants you speak with are ones who have a good understanding of the network in question and can offer an accurate picture of the members of this network" (Prell, 2012, P.66). As noted, all relevant stakeholders should be outlined and analysed from the initial stages of a project and clear objectives for the process need to be agreed upon at an early stage (Reed, 2008). From the preliminary work, four organisations (and representatives within) emerged as key actors to date, with them invited to take part in the process. A limitation of this investigation must be recognised within this. From the perspective of planning, the involvement of community organisations in participatory processes has been sought. However, due to the emergent nature of the *Dingle Peninsula 2030* project, whereby there were not many organisations actively involved at the time of investigation, the number of community organisations suitable for participation was limited despite the wide range of associated (or potentially associated) organisations at the early stage. Alongside this, awareness must be given to levels of involvement, with some being more active than others. One must remain cognizant of issues that can potentially arise from viewing participation in a hierarchically scaled manner. The groups selected and representative participants were as follows:

Transition Kerry, a local environmental volunteer group linked to the transition network, with a key focus on energy and food. The chairperson was selected as the representative. The chairperson is a male aged between 40 and 50 who works as an organic farmer on the peninsula and has developed

a business around the production and sale of organic produce. He is a native of Co. Kerry and have been based on the peninsula for 20+ years.

Mol Téic, the not-for-profit innovation hub, acts in a facilitative role of all projects related to *Dingle Peninsula 2030*. The manager was selected as the relevant representative (also an active member of the collaborative committee, see: 3.7) The manager is a female aged between 40 and 50 who is trained as an engineer and worked previously in science communication and outreach. She is a native to the peninsula with a long family lineage in Ventry.

Údarás Na Gaeltacht, the regional authority responsible for the economic, social and cultural development of the local indigenous language community, with the employee involved in energy projects selected. The employee selected is a male aged between 50-60 who has been employed with the regional authority for 20+ years and is a local native of the peninsula

NEWKD, the local community development organisation, with the lead stakeholder on the socio-economic profile of the peninsula selected (also an active member of the collaborative committee, see: 3.7) The lead stakeholder is a male aged 50-60 who has been actively involved in community development both on the Peninsula and wider across County Kerry for 20+ years. He is not a native to the peninsula but has been based there for over 30 years.

Another limitation is that the goals of stakeholders may sometimes be grouped together. Participants should be encouraged to diversify between different goals and stakeholders to the greatest extent possible to get a holistic representation of the network. As an elaborate data collection tool, the process requires a lot of time for completion, this again should not be taken lightly when setting out to use a participatory network mapping approach, such as the Net-Map method. The need for ethical issues to be taken into serious consideration, particularly surrounding sharing the identity of participants in the process with the wider stakeholder network, is a self-evident issue. Within an action research approach, it is not possible to outline all potential ethical considerations, due to the unfolding and emergent nature it entails. There are, however, some ethical principles that can be followed surrounding the quality of relationships (Coghlan & Shani,

2005), confidentiality and anonymity (Williamson & Prosser, 2002), and balancing conflict (Walker & Haslett, 2002).

Lievrouw et al., (1987) outlined how social networks are always combined, never existing in isolation, going on to suggest that to complement this the methods used to investigate them should too be mixed (Edwards, 2010, P.25). The use of ten preliminary interviews, participatory network mapping, and focus group style discussion following the mapping achieved this mix. For validity, all participants received a copy of the completed visual map after the workshop to feedback any errors or oversights which may have occurred.

An outline of the adopted participatory network mapping process used in this study is provided below:

3.6.5 Materials

1. A whiteboard for drawing the influence network maps (one per interview);
2. Multi-coloured actor cards to note down the participant actor names, preferably adhesive paper (‘‘post-its’’);
3. Circular cards to note wider stakeholder groups (number depends on the range of actors, about 80-100 for complex setups);
4. Figurines (optional) to represent the different participant actors; and
5. Different colour felt pens (five-eight) to draw different types of links between actors.

Outline of process for completion of participatory network mapping workshop	
Activity	Objective
1. Preliminary interviews with key stakeholders	Using interviews to build relationships with actors in the area to determine who could provide a useful contribution to the workshop
2. Phone call/ email contact with selected participants	An initial phone call with selected participants to gauge interest in attending a workshop, followed by an in-depth email outlining the process
3. Preparatory planning for the workshop	Working with participants to find a date and time which suits everyone, with flexibility of researcher key. All necessary supplied should be gathered and a venue should be booked.
4. Workshop running order developed	Researcher should draft a running order for the workshop to keep within the event time frame. The running order should cover necessary steps in the participatory network mapping exercise, whilst still being flexible to emergent issues.

5. Participatory network mapping stage 1	All participants are asked to read an ethics form, to be sent at end of process, form also sent before the workshop for people to read. Dictaphone can be used to record conversation. Everyone introduces themselves and a little about their relationship to the project in question. The group of participants sit around a table, with a whiteboard placed face-up atop the table.
5.2 Participatory network mapping stage 2	Participants are asked to collaboratively list all the different stakeholders currently involved in the range of initiatives being discussed. Colour coding is used to define those within the region and those outside the region
5.3 Participatory network mapping stage 3	Participants are asked to outline their individual goals from the perspective of the community organisation which they represent. Colour coding is used for short (-1 year), medium (1-5 years), and long (5+ years) term goals.
5.4 Participatory network mapping stage 4	A discussion is facilitated to outline what are the key supports provided (or which could be provided) to achieve the different goals. Here 5-8 support types should be drawn up, and colour coded using different felt markers.
5.5 Participatory network mapping stage 5	Now the stakeholders from 5.2 are connected to the individual goals from 5.3 using the supports outlined in 5.4. Where supports are currently in place solid lines and used. Where potential support could be provided a dotted line is used.
5.6 Participatory network mapping stage 6	Finally, a discussion takes place on what has been outlined on the map. Sample questions include: (1) What stakeholder supports are in place to achieve certain goals? (2) How to deal with competing goals and how to strengthen on complementary goals? (3) How to achieve the range of goals in light of the diversity of the stakeholder network. (4) Stakeholders to outline key issues they have with relation to their goals/ overall project to increase awareness of different issues for different groups.
6. Post-workshop activities	Following the workshop (within a few days) contact should be made with participants in thanks to their contribution to the exercise. Once the mapping has been digitalized it should be sent through for fact-checking with participants. In this instance, a large A2 printed version of the map was posted to participants. At this stage, an evaluation of the process can be undertaken with participants if deemed relevant.

Table 1: Outline of process for completion of participatory network mapping workshop

As an innovative approach to social network analysis, building an adapted form of the net-map process, the outline provided (Table 1) can be implemented by other practitioners seeking to engage in a process of participatory social network analysis from an ego perspective. From this, we can look towards the collaborative committee and its role in facilitating the development of *Dingle Peninsula 2030,* on from the goals, visions and supports outlined by grassroots organisations.

3.7 Reflective Practice on Collaboration

Following the initial participatory mapping workshop, further research was conducted on the collaborative committee which developed and facilitated the management of *Dingle Peninsula 2030* through a multi-stakeholder approach to governance. The reflective approach to the evaluation of the collaborative committee is outlined here. The use of reflective practice can help to draw out understandings on the benefits and challenges and learnings from an individual level which can then be shared collectively to improve upon collaborative processes.

3.7.1 Collaborative Committee

Despite its complex and often fragile nature, collaboration is essentially a process to reach goals that cannot be achieved, or at a minimum, cannot be reached as efficiently, if each organization acts alone (Bruner, 1991). This is where it gains its power. Coordination involves joint activity, allowing individual organisations to maintain their own goals and responsibilities. In contrast, collaboration requires the creation of joint goals to guide the collaborators' actions (Roberts & Bradley, 1991). As a process, collaboration can also be characterized as “a means to an end, not an end in itself” (Bruner, 1991, P.6). It enhances the potential to discover novel, innovative solutions. Groups responding to a problem in different ways can come together to constructively explore their differences and to seek solutions that go beyond what they each thought was possible. The process leads to a shared and deeper understanding of the challenge and results in solutions that could not have been achieved by any one group working alone (Roberts & Bradley, 1991, Gray, 1989). Collaborative activities and programmes also maximize the expertise of each collaborator (Bronstein, 2003). As noted previously (see: 3.6.1), successful collaborations require cultivation (Mattessich & Monsey, 1992) and this reflection on practice (Sherry & de Haan, 2012).

Within *Dingle Peninsula 2030* a collaborative approach has been taken from the outset with four organisations working together as a collaborative committee. These are the not for profit, Dingle Creativity and Innovation Hub (Mol Téic); the local community development organisation, North East West Kerry Development (NEWKD); Ireland’s national electricity distribution system operator, ESB Networks, and a research centre, the MaREI Centre, the SFI Centre for Energy, Climate and Marine. There are 7 members of the collaborative committee. These include a board member, and the Manager of Mol Téic, the Local Area Manager within NEWKD, ESB Network’s Dingle Community Engagement Manager, and a community engagement specialist and two PhD students from MaREI. Alongside this, the Communications and Public Engagement Manager within MaREI acts as an associate member of the committee. From a research perspective, a transdisciplinary approach has

been taken throughout, working across University College Cork's Department of Sociology and Criminology and the School of Engineering within a community context.

As collaborative projects are creative, sometimes experimental, and endeavours are fraught with inevitable and unexpected structural, organizational, and process challenges, almost all aspects of the process must be open to continuous re-examination and re-evaluation (Roberts & Bradley, 1991). Feedback can then be used to strengthen collaborative relationships and their effectiveness (Bronstein, 2003). A process of reflection has been deployed to provide insights into the multi-stakeholder collaborative governance approach under investigation.

While action with regards to the energy transition in Ireland has been largely driven in a top-down manner to date, niche level bottom-up energy transition projects are also evident (Watson et al., 2020). *Dingle Peninsula 2030*, however, through taking a multi-stakeholder approach can be studied to investigate effective measures for implementing a collaborative approach where 'top-down' meet 'bottom-up' perspectives, with local community-based organisations working with national public bodies and research institutes.

Policy led initiatives have resulted in 28.1% of Ireland's electricity generation coming from wind in 2018 (Yue et al., 2020). Yet, top-down approaches to the transition towards sustainability have not been effective in facilitating the necessary change at a societal level, with increased ambition needed to meet targets set. Alongside this, emergent opposition to policy-led initiatives is a challenge for top-down approaches to the energy transition (Koecklina et al., 2020). Traditional approaches to governance (in government, business and civil society) are not sufficient to deal with the complex multi-dimensional nature of the issues presented by climate change. More inclusive governance systems, which allow for top-down visions to meet with bottom-up initiatives, could prove fruitful in relation to regional energy transitions. Bottom-up initiatives such as community energy projects have, in some cases, proved successful, but often fail to scale up their activities due to the lack of coherent infrastructural support to community needs (Watson et al., 2020).

The initial grassroots mapping (3.6) can outline some aspirations, goals and linkages from a bottom-up perspective. On from this, through focusing on reflections from the core collaborative group the interaction across scales, borrowing again from the heuristic device of the MLP, can be understood. The interaction of established regime actors (e.g. ESB Networks) in collaboration with emergent niche organisations (e.g. Mol Téic) can bring about socio-technical transitions. Geels et al., (2018) suggest that it is through the interactions between the incumbent regime and radical niche innovations that transitions can occur. The reflective practice applied to the investigation of the

collaborative committee can help to situate an understanding of this interaction between different actors, starting from different positions within the structure of the three-tiered perspective. Some emergent developments and initiatives were borne out of interactions between the niche, regime and landscape, manifested in many cases through the working of the *Dingle Peninsula 2030* collaborative committee, which is investigated.

3.7.2 Reflective practice as method

Any discussion on methods of reflection must begin by acknowledging the need for clarification on what the practice of reflection is understood to be (Jay & Johnson, 2002) and the need for a theoretical foundation (Thompson & Pascal, 2012). The understanding is grounded in the experiential-intuitive model found in the work of Schön over the rationalist-technicist model of Dewey. Despite the benefits of Dewey's model (Simpson et al., 2004; Miettinen, 2000), an interpretation of reflection as outlined in the works of Schön (1987; 1991) proves more pertinent due to its emphasis on special expertise and intuitive processes that are established by professionals through their work. When looking at a diverse multi-stakeholder collaboration, the range of different professional expertise, skillsets, training and intuitive understandings can be best outlined reflectively through an experiential-intuitive model. The idea of reflection-for-action, a "process of planning, thinking ahead about what is to come so that we can draw on our experience in order to make the best use of… resources available to us" (Thompson & Pascal, 2012, P.317), has been applied here with the 'action' defined as participation in a collaborative committee for a regional sustainability transition project. Following on from the work of Bleakley (1999), reflection can be understood as a form of action, a process through which future events or actions are orientated.

The collaborative committee within *Dingle Peninsula 2030* has met regularly throughout this project to discuss plans for the different range of initiatives (29 monthly meetings over 33 months, alongside many topic-specific meetings (See: Appendix 4). Through taking a transdisciplinary research approach, working across Sociology and Engineering within a community context, the initial research design was inherently influenced by the principles of reflexivity (Popa et al., 2015) and on from this critical reflection (Thompson & Pascal, 2012). The need to differentiate between reflexivity and reflection is warranted, with both playing a role in critical reflection. Reflexivity is a form of reflection which acknowledges our own influence in the process, our personal, cultural and social circumstances that influence our work. Reflection, in a literal sense, is the process of thinking about the work we undertake (Thompson & Pascal, 2012). This can be isolated from our personal biases if detached from reflexivity. Both of these factors are important for critical reflection to occur.

Reflection as a process of learning is of central importance. Within sustainable transition studies learning practices have been highlighted as an important yet underexplored area, despite no explicit reference to reflection (Van Mierlo & Beers, 2020). Reflection within governance structures for sustainability transitions is also an important consideration from an institutional and cross-institutional perspective (Sol et al., 2013). In this analysis, a number of questions were designed which each member of the group would reflect upon over a few months. This approach enables reflection-in-action (Hébert, 2015, P.365) whereby the questions posed for reflection would influence action, enabling participants within the group to undertake a process akin to the outline provided by Schön and further developed by Bleakley, with the theoretical dimension of reflection-for-action (Thompson & Pascal, 2012) necessary within a 'live' project. Upon completion of the guided questions for reflection, each member of the collaborative committee returned their responses to a designated to me as lead on the research intervention, for compilation. On from the compilation of responses the answers were given back to each member to ensure each answer covered the necessary reflections. The questions posed were as follows:

1. What do you personally bring to the Dingle 2030 collaboration – in terms of skills, experience, information, network of contacts, etc?
2. What have you practically done to contribute to the collaboration since the beginning?
3. What does your organization bring to the table?
4. Can you describe the benefits of the collaborative process so far?
5. Can you describe any challenges that have emerged during the collaborative process so far?
6. Can you suggest how to overcome them?

3.7.3 Guiding Questions for Reflection

The work of Schön has been brought into question for lacking a theoretical foundation (Fook et al., 2006). The guiding questions used here were influenced by the idea of critical reflection (Mezirow, 1990), whereby reflection in and of itself is not sufficient, but rather critical reflection must involve "thinking about one's practice and critically deconstructing how we have developed these skills and responses with a view to developing new theories of practice for the future" (Hickson, 2011, P.831). The reflections were compiled into a number of tables and graphs and used to draw out findings on the collaborative process to date. These were then revisited by each member of the group for further development to ensure they were representative reflections. This method acted as a first instance of reflective practice for this group and is representative of reflections from an individual perspective in relation to their organisations. The reflections do not represent an objective

understanding of the situation. Despite this limitation, the rationale for this process was to critically reflect on the collaborative multi-stakeholder process underway in relation to the governance of *Dingle Peninsula 2030*. Within the practice of reflection two key considerations (Fook, 2002) have driven the method used here. Firstly, the rationale for this process is to learn from the diverse organizational and individual experiences of working collaboratively on a project of this nature, which is then analysed within a research setting to draw out findings. We can relate this then to earlier discussions of the insider/outsider position which I have held throughout this research project.

Four topics were selected through which to analyse reflections; 1.- Personal networks, 2.- Individual capacity, 3.- Organisational capacity, and 4.- Benefits/challenges/solutions for collaboration. The range of guiding questions previously outlined was used to facilitate reflection over a 3 month period within the longer timeframe of the project. Reflecting on the collaborative committee gives insight into the governance approach which has enabled the diffusion of sustainability locally and nationally in light of *Dingle Peninsula 2030.*

3.8 A Mixed-method Approach to the Diffusion of Sustainability

Within this piece of the research, diffusion has been investigated and highlighted through a qualitative approach combining exploratory interviews, ethnographic attendance of events and meetings, and secondary desk research. The aim is to outline the different emergent projects and initiatives which have developed in light of *Dingle Peninsula 2030* through a process of diffusion. A more in-depth data-centric approach to diffusion research would have proved insightful in this context but due to the time limitations placed on the 3-year research plan, a more rudimentary outline of the different aspects of the diffusion process has been developed with relation to the theoretical understanding of diffusion highlighted previously (see: 2.3).

3.8.1 Developing a process for investigating diffusion

A range of different diffusion models have been developed within sociology and applied to a range of different social situations. There is, however, an issue with regards to the suitability of these models in certain situations, due to the need to internalise theories, assumptions and constraints within the models with relation to a range of factors such as socioeconomic status, preferences, decision-making processes, and individual constraints amongst other factors. As has been noted, "the conditions for identification of a diffusion process from observables are fairly hard to meet, much harder than what is normally implied in traditional applications of diffusion theories and models to sociological and demographic analysis" (Palloni, 2001, P.67).

Studying the diffusion of sustainability, in relation to environmental issues, is a well-developed field within tourism (Horng et al., 2017; Chaudhary & Kumar, 2017; Smerecnik, 2011). For our purposes, however, an investigation of the diffusion of sustainability in relation to regional transition projects is missing from the literature. Our contribution is to outline it as an important area of investigation moving forward, and offer an initial methodological approach to capture it as an embryonic development. It continues from the initial mapping (3.6) which outlined the emergent social network around grassroots goals, and the collaborative committee (3.7) which highlights the governance structure of the overall project, to chart the emergence of sustainability initiatives within and beyond the community in light of *Dingle Peninsula 2030*. The potential for sustainability to diffuse throughout a community, or to other communities, or to nationally led initiatives should be acknowledged as a mechanism through which to deliver the socio-technical transition to a low-carbon society. Although, it may not be as immediately quantifiable as switching from petrol to electric vehicles, or from retrofitting aspects of the housing stock, the diffusion of sustainability as an idea that can influence the later development of community projects across a range of sectors has a significant role to play in the journey.

Concerning *Dingle Peninsula 2030,* the range of different diffusions leads to a number of issues with relation to the theories, assumptions and constraints which would be needed within the model. For example, the factors influencing the diffusion of technology are vastly different from the diffusion of climate education. Alongside this, due to the increased national and international attention given to decarbonisation and sustainability, the external factors placed upon the diffusion process would also need to be attributed within the model. Further research, detached from the active nature of this research projects relationship with *Dingle Peninsula 2030*, may prove insightful with relation to the diffusion of sustainability in the region. The need for a broader time frame for an in-depth investigation of diffusion must be noted here. With this in mind, the different aspects of the diffusion process have been highlighted in a visual contained in the results section (see: 5.3). I have outlined the key diffusion processes, giving an overview of each with information garnered from exploratory interviews, attendance of events and meetings and secondary desk research. The interviews and meetings were conducted and undertaken in relation to other aspects of the wider research agenda with findings relevant to developing a visual representation of diffusion drawn out alongside the necessary information for outlining each of the diffusions. This was then supported and verified with secondary desk research.

3.8.2 Exploratory Interviews

As noted, “in-depth interviews can provide rich and in-depth information about the experiences of individuals” (DiCicco-Bloom & Crabtree, 2006, P.319). In the initial stages of the research project, exploratory interviews were conducted with key stakeholders actively involved in the *Dingle Peninsula 2030* project. These interviews helped to draw out findings with relation to the emergence of different diffusions of sustainability (they also assisted with the selection of participants for the participatory mapping, see: 3.6; provided context on the Dingle Peninsula within Chapter 4; and guided one aspect of the discussion on diffusion; see: 7.2.3). *Dingle Peninsula 2030* set out to assist in the development of sustainability projects across the five core sectors of agriculture, energy, marine, transport and tourism. There was not, however, a prescriptive approach to what different projects would look like, with the overall project allowing different initiatives to emerge organically. The diffusion of sustainability into different aspects of the community and beyond was charted through the use of exploratory interviews which investigated these different initiatives as they emerged and developed. The interviews were conducted in rounds. From the first round of exploratory interviews, some key questions emerged which were revisited with new participants in the second round, with some new questions added based on the development of different initiatives within the over-arching project. Alongside this, some participants in the first round were re-interviewed in the second round to chart the development of the project from individual perspectives, to highlight learning processes and the challenges which emerged. The analysis of data must occur concurrently with data collection so that research questions are developed through the process (DiCicco-Bloom & Crabtree, 2006). Undertaking exploratory interviews in this way is a novel approach to dealing with the investigation of a live case with many moving parts. A structural depiction of the process can be seen in below (Fig.11).

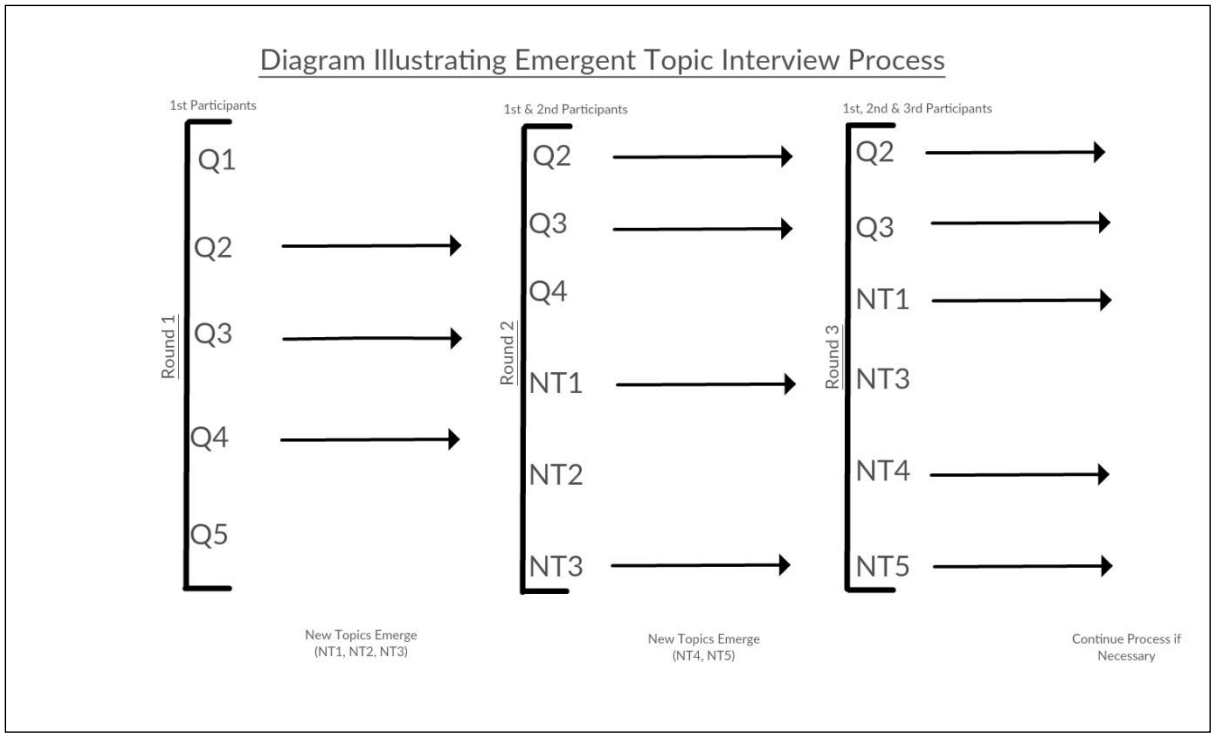

Fig.11 diagram illustrating emergent topic approach to exploratory interviews.

Within the interview process itself, it is important to build rapport with respondents (Douglas, 1985). If the research aims to be actively engaged in the area of investigation, with the objective of positively impacting upon the situation through research, then the management of social relations is of crucial importance. A researcher must develop a trusting relationship with interview participants, and illustrate the value of participation. The use of exploratory interviews, to act in unison with the attendance of meetings and events, and secondary desk research has contributed to an understanding of the diffusion of sustainability as outlined across a range of initiatives outlined in the results (see: 5.3).

3.8.3 Attendance of meetings and events

The exploratory interviews assisted in gaining knowledge about different events on the peninsula acting as areas of preliminary discussion for the emergence of initiatives across the different sectors targeted through *Dingle Peninsula 2030.* Throughout the 3 year process of the PhD research, 29 internal meetings and 34 external events and meetings were attended. A list of these is included in Appendix 3 & 4. Through the regular attendance of meetings and events, the range of different initiatives which were representative of the diffusion of sustainability were followed from initial conception and development up until the point of conclusion of the PhD research (January 2021). It is not possible, therefore, to give a conclusive overview of the impact of *Dingle Peninsula 2030* on

the diffusion of sustainability across the region and beyond due to the limitations placed upon the research with regards to the timeframe.

Despite this, through the ongoing emersion in the region, the action research approach taken, and the inclusion on the stakeholder collaborative committee (meeting monthly for 33 months, alongside other topic-specific meetings) an understanding of the diffusion of sustainability under the timeframe in question has been achieved. In keeping with the action research ethos of this project, a number of events have been led by the research team which seek to assist in the diffusion of sustainability, taking lessons from *Dingle Peninsula 2030* and developing relationships and networks both nationally and internationally to build upon the capacity developed moving forward.

3.8.4 Secondary Desk Research

Whilst difficulties exist with relation to the ability to investigate the diffusion of sustainability whilst undertaking an action research approach to a study in real-time, triangulation of data has been achieved through the use of secondary desk research to support findings from the exploratory interviews and the attendance of meetings and events. Data triangulation (Denzin, 1974), while offering rigour to an investigation, must not be interpreted as a means through which to lead to a singular proposition about the topic under investigation, but rather it can result in convergent, inconsistent and contradictory evidence which must be interpreted, distilled and formulated by the researcher (Mathison, 1988). Within the investigation of the diffusion of sustainability, as it related to *Dingle Peninsula 2030*, desk research has been used to analyse media representations, presentations, publications, minutes from meetings, notes from events, and policy considerations as they relate to the seven different diffusions. Although directly attended meetings are included in Appendix 3 & 4, no reference is given to secondary data with relation to presentations and minutes from meetings and notes from events due to confidentiality issues. For example, with relation to the transport initiative, no meetings were directly attended but the diffusion of sustainability-related to the emergent transport project is outlined with reference to secondary data.

This research section on diffusion, through looking at both local and national diffusions leads us into the national scene and the investigation of community engagement practices within public bodies.

3.9 Workshops and Interviews on Community Engagement

In this section the approach taken with relation to the investigation of community engagement within public bodies in Ireland is outlined, continuing from the contextual considerations previously discussed (see: 2.4). The three distinct phases of this approach are outlined; the initial workshops,

the semi-structured interviews, and the online participatory workshop. On from this the evaluation procedure undertaken for the online workshop is outlined.

3.9.1 Three phased approach to investigation

In keeping with the ethos of action research, whereby "the processes of inquiry must be participatory and seek to establish a sense of community amongst the participants" (Stringer, 2014, P.xxi), a number of initial workshops were held with community engagement practitioners within eight national public bodies to investigate shared narratives on climate action. . The public bodies which are included in this group consist of Ervia (operator of gas and water networks), Irish Water (national water utility), Coillte (national public forestry and land management organisation), ESBN (national operators of the electricity distribution system), CIE (Ireland's largest public transport provider), Eirgrid (develop and operate national electricity transmission system), SEAI (Sustainable Energy Authority of Ireland), and a number of individuals employed within the Climate Action Regional Office's (CARO) working alongside local authorities to deliver climate action initiatives. These workshops were facilitated in an informal, dialogue style to draw out considerations in a participatory and collaborative fashion. 'Chatham House' rules were used, meaning no empirical data from these initial workshops are included in the results. From this initial process, community engagement emerged as a key consideration, leading to the undertaking of exploratory interviews on community engagement within public bodies. On from this the need for a space for the sharing of experience and a document outlining current good practice on engagement were drawn out as of central importance. This led to the facilitation of an online participatory workshop (in light of Covid-19). The three chronological phases of the research design are shown below (Table 2) and from this, the semi-structured interviews and online workshop are highlighted.

Chronology of Research Design	
Phase 1	Initial workshops, facilitated by the research institute, to investigate shared narratives on climate action for public bodies. Community Engagement emerges as an important element of this.
Phase 2	Semi-structured interviews with participants from the initial workshop to investigate community engagement approaches within different public bodies. The need for a workshop on institutional experiences and shared learning towards a good practice document emerges as a central element of this.
Phase 3	Online participatory workshop held with participants, with input given by each to the design of the event. From this good practice, challenges and solutes emerge and research paper and policy document are compiled, with input from participants.

Table 2: Three phased mixed-method approach to study.

3.9.2 Qualitative Semi-Structured Interviews

In qualitative research, the semi-structured format is the most commonly found within the interview method (DiCicco-Bloom & Crabtree 2006). Here, it has been deployed for its flexibility. The ability to improvise has been noted as an advantageous quality of the format (Polit & Beck, 2010), with the interviewer afforded the opportunity to digress from the guiding questions set to delve deeper into certain interviewee responses. Aligning with action research, whereby the aim is to arrive at collaborative, participatory outcomes which can have benefit beyond the academy, this flexibility is a useful tool. For the interviewer, knowledge of the area of investigation was developed through previous studies and through involvement in the initial workshops. Gaining this knowledge is an important first phase in semi-structured interviews (Turner, 2010).

Based on the previous knowledge of the area of investigation, gathered through the two avenues outlined above, an interview guide was developed (Table 3). The interview guide can be used to direct the discussion towards the area of investigation (Krauss et al. 2009, Cridland et al. 2015). Internal testing of the interview guide was used (Chenail, 2011) to further develop questions prior to the interviews. Ten interviews were conducted over a 3 week period. Interviewee's had a broad range of disciplinary expertise from engineering and project management to communications and community development. Due to the restrictions imposed by Covid-19, five of the interviews were conducted online. Consent forms were used either physically or digitally, to outline the ethical considerations of the process (see: Appendix 1 for a sample consent form).

Interview Guide for Semi-Structured Interviews
What does community engagement mean?
Your personal experiences of community engagement to date?
Why do you think community engagement is important from a personal point of view?
Your role within your organisation and your career to date within the organisation
Community Engagement within your organisation, how it has developed over recent years
Community Engagement within your organisation, how it is currently implemented
Where does community engagement fit within your organisational structure?
(a) What are the important factors for successful community engagement (b) what are the key barriers to successful community engagement?
Discuss the emergence of this public body grouping; what do you hope to achieve, what are your expectations, fears etc.
How linked in with other public bodies are you on issues not related to community engagement

What are the strengths of your organisation when it comes to implementing a community engagement strategy?
What are the weaknesses of your organisation when it comes to implementing a community engagement strategy?
Examples of good C.E. (personal experience, within the organisation or national/international cases)
Examples of bad C.E. (personal experience, within the organisation or national/international cases)

Table 3: Interview Guide for Semi-Structured Interviews.

In keeping with the use of 'Chatham House' rules for the initial workshops, all interviews were anonymised by individual and public bodies they represented. This enabled an open discussion on challenges within their organisational setting. The findings from interviews were drawn up under thematic headings (see: 6.1.1).

3.9.3 Online Participatory Workshop

Following the analysis of the findings drawn out of the interview process, in keeping with the methodological principles of action research outlined previously, the value of a further intervention was warranted. This intervention had a dual aim; (a) to build capacity - creating an environment where participants can share and learn from each other and; (b) to develop a policy document on good practice for community engagement within public bodies in the Irish context. Due to the Covid-19 lockdown, an online participatory workshop approach was taken. Due to a lack of experience in online workshops, facilitation support was provided by an external company. The outline for the workshop is included here (Table 4).

Workshop Schedule
Intro - Ice breaker / Project update (10 min)
Activity 1: Engagement Scenarios - Sharing Good Practices & Identifying Gaps (30 min)
Activity 2: Digging Deeper - Common Challenges & Solution Finding (30 min)
Activity 3: Share Back on Activity and Group Discussion (20 min)
Concluding Remarks- (10 min)

Table 4: Workshop schedule for the online workshop

The method choice was guided by the belief that through "offering people a role in research and planning and facilitating multi-stakeholder involvement in processes, participatory research methods", such as workshops, can lead to long-term solutions to complex problems (Valencia-Sandoval et al., 2010, P.66). The workshop consisted of dividing the participants into two groups,

one who would work through questions related to a community in opposition to a project, and one who would work through questions related to a dispersed or disinterested community. During Activity 1 & 2 the participants were moved into breakout rooms on the video conferencing software platform Zoom. Alongside this, Mural- a workshop note-taking app- was used. Mural allowed a note-taker to take notes whilst the participants worked on a task within the breakout room, led by a facilitator. All participants could view the notes on-screen during the discussion.

The two scenarios (a community in opposition and a dispersed community) were outlined to the participants depending on which group they were in. This was supported by the use of guiding questions (Table 5) and parameters that influence the situation (Table 6).

Guiding Questions
What are the first steps you would take to engage with this community?
What methods of engagement do you think would be useful to deploy in this community and why?
What has worked before for you- what methods/ techniques? What learning can you share?
What are the gaps/ challenges you could anticipate facing here/
What are the new ways to connect during Covid-19?

Table 5: Guiding questions for the online workshop

Parameters that influence the situation
If there are multiple organized groups
If you have links to a number of them already
If the community are very aware of environmental issues
The type of organisation consulting
The type of project i.e. a large scale infrastructure project
If the process was evaluated
If the impact was displayed to the community

Table 6: Parameters that influence different community engagement situations

The guiding questions and the parameters were used to ensure the workshop captured the broad and diverse range of situations that can be encountered when dealing with community engagement. From the initial interviews, this emerged as a key consideration whereby *good practice* should be outlined as opposed to *best practice*, or a one size fits all solution. The Mural app was used to work through the guiding questions in light of the parameters, for each of the two scenarios, across an

example 5 step plan which participants could remove or edit as suited. The five steps were 1) research and mapping of who to contact, 2) outreach at the start of a project, 3) continued engagement, 4) gaining feedback on the process, and 5) evaluation and outcome. The initial steps (1-3) were more developed than the later steps (4-5). Once the exercises in breakout rooms were completed, participants feedback to the wider group. Following the workshop, the Murals were left open for participants to input further information into their scenario and the alternative scenario. The constant comparative analysis method (Hewitt-Taylor, 2001) was used to code data into themes

3.9.4 Evaluating online workshop intervention

As noted, the use of an online setting for the research workshop was something novel for the research team. With this in mind, it was decided that an evaluative process would prove insightful to gather learnings that could be shared across the research institution in light of the implications which the Covid-19 pandemic has had on qualitative research practices. The use of qualitative social science research methods online is not new (Salmons, 2015), however, the recent Covid-19 pandemic has made these forms of intervention much more commonplace, often moving qualitative research practices which were designed as being conducted in real life into the online sphere. The applicability of video software (such as Teams and Zoom) for qualitative research is underdeveloped (Lo Iacono et al., 2016; Weller, 2017). There is an emergent and immediate need to consider deeply the practice of engaging in qualitative research in an online sphere- particularly with relation to video software- and the implications of this for both researchers and study participants. This emergent need, if not addressed, may have lasting implications on the academic legitimacy of qualitative approaches in favour of more immediately applicable quantitative approaches. While literature exists about online workshops in a teaching environment (García, 2018), here the focus is given to online workshops as a method for qualitative social science research. Five questions were designed by the research team. These were:

1. How useful did you find the workshop?
2. Did you enjoy the workshop?
3. What didn't work well? Responses
4. What worked well? Responses
5. What is your one key learning? Responses

These questions were circulated to participants immediately following the workshop through an online survey. The findings from this survey have been outlined in Chapter 6 (see: 6.1.3).

3.10 Semi-structured interviews on Transdisciplinary Research

Continuing with the national scene, we now move on to an investigation of transdisciplinary approaches to research engaging with community and civil society stakeholders. This continues on from reflections from the collaborative committee as they relate to the role of MaREI within the multi-stakeholder partnership (3.7). Here, however, it moves beyond the first-hand experiences and reflections from the research within the *Dingle Peninsula 2030* project, to investigate transdisciplinary approaches to research engaging with community and civil society stakeholders across the research institution, involved with a range of separate projects/ initiatives. The method used for analysing transdisciplinary approaches to research from practitioner experience is outlined here.

3.10.1 Qualitative Semi-Structured Interviews

A series of semi-structured interviews were conducted with a range of researchers involved in research with community and civil society stakeholders, continuing from the approach outlined above (see: 3.9.2). A small sample size was used, focusing in-depth on ten practitioners within the host institution. As Rubin and Rubin (1998, P.51) explain "qualitative interviewing is appropriate when the purpose of the research is to unravel complicated relationships", deployed here with relation to researchers, academic institutions and community and civil society stakeholders. A disciplinary range was sought in order to capture the diversity of experiences in a cross-departmental investigation. By opting for a purposeful sample (Patton, 1990) the research findings have more depth than other approaches such as convenience (Etikan et al., 2016) or snowball sampling (Emmel, 2013). The sampling method selected in the research design was of critical importance to the approach taken. As noted by Glaser and Strauss (1967), a theoretical sample is one in which theory, questions and analysis guide the sampling process. Limitations on sample size were imposed due to the relatively small number of practitioners undertaking suitable research approaches within the host institute. Despite this, selective purposeful sampling enabled in-depth conversations to be facilitated. A selective approach was used for finding respondents to the ten interviews, using the following criteria;

> "potential participants should have experience of working with industry, communities, policymakers, NGOs etc. in a collaborative, engaged, co-produced, and two-way approach e.g. stakeholders are actively involved in research design, in the research work itself, and in the implementation of research findings post-project."

A research institute within the host University, which brings together a wide range of researchers exploring environmental challenges, provided a link to researchers attempting to address highly complex sustainability issues such as climate change, food security or energy policy in a transdisciplinary manner. Using the small sample size, ten interviews took place with researchers across many disciplines including; government and politics, ecology, civil engineering, energy engineering, business and marketing, economics, geography, and social science. A brief summary of the research areas of the interview participants is provided in Table 7.

Research area	No. of participants
Deliberative and participatory governance	1
Energy policy	1
Climate adaptation	2
Community energy planning	1
Lived experince of energy / climate change	2
Food security and sutainability	1
Sustainable agriculture	1
Wildlife conservation	1

Table 7 - Overview of the interviewee's area of research

3.10.2 Guiding Questions

Once the selection of the interviewees was completed the interview outline was further developed. The use of semi-structured interviews was selected as a suitable form for the interviews to take with relation to investigating the challenges and motivations of researchers engaging with community and civil society stakeholders within their practice. The approach enables the interviewer to ensure some fundamental questions are covered, whilst also enabling the interviewee to digress from the pre-prepared questions. This flexibility towards a conversational form is relevant here in relation to understanding challenges and motivations from the individual's perspective. The guiding questions which were established are included here:

1. How would you define the research approach you take?
2. What motivates you to undertake research in this way?
3. What is your experience of working in this manner to date?
4. What are your experiences of working in this manner within your institution?
5. What are the key challenges you face in relation to this research approach, specific to your department?

6. What are the key challenges you face in relation to this research approach, at an institutional level?
7. How can this research approach be better supported?
8. Do you work with other disciplines as part of this research approach?

Following transcribing the recordings the data was be analysed thematically (Braun & Clarke, 2006) using the constant comparative analysis method (Hewitt-Taylor, 2001) to code data into themes. Once coded, categories were created around different themes where similarities and overlaps were present across different interviews. Following analysis of the interview transcripts, the research sought to both define the research practises outlined by participants and investigate the potential 'institutionalisation' of these approaches. While a mixed-methodological approach must not be seen as a mechanism for arriving at objective, definitive answers, it does have the power of gaining a greater understanding of the issues at hand from a broader perspective.

In summary, this chapter has provided an outline of the methodological considerations of the project. The first three research interventions (3.6-3.8) focus specifically on the regional context. Now, in Chapter 4, an overview of the Dingle Peninsula will be provided.

Chapter 4: Regional Context; Corca Dhuibhne 2030/ *Dingle Peninsula 2030*

Introduction

Throughout the preceding chapters, the Dingle Peninsula has been briefly discussed. Now a broad outline of the area will be provided alongside a description of the sustainable transition project in question. This section has used secondary desk research and some quotations from exploratory interviews (see: 3.8.2). Within this chapter, the scene is set for the presentation of findings related to the regional transition project contained within Chapter 5, before situation this within the broader national context in Chapter 6.

4.1 The Dingle Peninsula

The Dingle Peninsula on the South West of Ireland was once infamously described by National Geographic as “the most beautiful place on earth”. While such claims are equivocal, the natural beauty of the area cannot be questioned. Historically, the Peninsula is imbued with the story of Ireland, from 1st Century Clocháns and 4th Century Ogham stones to 16th Century Elizabethan walls and 19th Century Famine workhouses, the area offers a storied microcosm of Ireland's past. Scenically, the sandstone Slive Mish Mountains, the Slea head drive, and Mount Brandon are a few amongst many features of exceptional natural beauty in the area. As such, the historical and scenic aspects of the area have given rise to an active tourism industry, both nationally and internationally. Culturally, the peninsula is a vibrant centre for the arts and music with anecdotal claims made that 44 different festivals take place in the area annually.

While tourism is a key component of the economic profile of the area, due to the inclement weather patterns of the region it acts mainly as seasonal revenue with the winter months on the peninsula being populated predominantly by local residents. The Western side of the area is a Gaeltacht region (a district where Irish is the primary language). As of 2016, the peninsula is home to 12,508 inhabitants across its landmass of 583 km², with over 1.1 million visitors each year. A demographic outlined of the peninsula is included below (Figure 12). The main town, named Dingle, has a population of just over 2,000. Other parishes in the area include; Lispole, Camp, Blennerville, Castlegregory, Ballyferriter, Cloghan, Inch, Annascaul and Keel.

The region, while popular amongst visitors, sits on the outermost southwestern edge of the country, rurally isolate from the main urban hubs. Geographically;

> "the Dingle peninsula stretches westwards about 50km into the Atlantic Ocean, with the Blasket Islands as an offshore extension of the mainland ridge. Its mountainous spine extends from Sliadh Mis (Slieve Mish) in the east to the transverse bulk of the Cnoc Breannáin (Mount Brandon), the gateway to Dingle town, in the west. Beyond the town, and bisected by a high pass, are Sliabh an Iolair (Mount Eagle) and Cruach Mhárthain (Croagh Marhin), its most westernley mountains. The Coastline is irregular and, along its length, the peninsula varies between 6 and 20km in width from north to south, with no point more that 8km from the ocean". (Hayes-McCoy & Judd, 2017, P.4).

The peripheral nature of the area is an important consideration within the context of this research project and the regional sustainability project which has been developed.

4.1.1 The Dingle Peninsula as Community

On from the geographical context of the area, some quotations from initial exploratory interviews with locals (see: 3.8.2) from the peninsula have been included here alongside secondary analysis of interviews undertaken by Hayes-McCoy & Judd (2017). These are used to provide insight into the community. Within this a strong sense of the community spirit, although not explicitly defined, within both the town of Dingle and the villages of the wider peninsula becomes apparent.

Community Spirit on the Dingle Peninsula
"The people are shaped by the landscape, the landscape is shaped by the people and there's an instinct there to help and support each other" (Hayes-McCoy & Judd, 2017, P.8).
"People in the West depend on each other, and there's a lot of mutual support" (Hayes-McCoy & Judd, P.25)
"You'd have a big sense of community in the villages" (Hayes-McCoy & Judd, P.43)
"I think there are strong community bases there. Not just in Dingle town; Castlegregory and Glehane and working back towards Dunnquin and Ballyferriter and Ventry, there is network hubs that are already quite active and can get people involved in things" (Exploratory Interview)

Table 8: Quotes on community spirit

While the cursory notion of community spirit can be outlined there are further nuances needed surrounding the emergence of different communities of interest on the peninsula. Here, we can invoke some earlier work on communities in the Irish context from Adrian Peace (1986), which outlines 3 distinct "communities" existing within one small village demarcated by physical boundaries, social differences, the mechanisms for communication, and modes of unification across these established boundaries. Some distinct "communities" which we can outline with relation to

their boundaries are the community of Dingle town as distinct from the communities “Back West”, following the roads West and North West from the town. Within the town, social life is predicated on the interactions on the main street, in shops and pubs, and at the host of regular events held in the town throughout the year. Back West social life is often centred around the parish, the GAA, and smaller village centres. Another example, this time of a non-physically defined community, can be outlined with regards to the Irish language community as compared to non-native speakers. Mechanisms of communication are used to decipher the initiated, to the slightly initiated, to the uninitiated. Initial greetings in Irish quickly establish who is fluent and who is not. Often those not comfortable in their own abilities to converse in Irish, despite being quite proficient, are quick to downplay their fluency. The area of the region designated to Irish being spoken as a first language (Gaeltacht Corca Dhuibhne) is interspersed with both speakers and non-speakers. The population is 8,729 with 6,185 Irish speakers (CSO, 2011); two communities contained within one. Although the sites of social interaction may in most cases be the same, there are different modes of communication through which people can communicate based upon which community they inhabit.

This central importance of language to these two distinct communities within the region played out in a conflict in the early 2000s after a 2005 ruling outlawed the use of English place names in the Gaeltacht area. The 700-year-old placename of Dingle was replaced with An Daingean, with signage officially updated throughout the town. A campaign to reinstate the name Dingle emerged with unofficial updates made to place the name Dingle back on road signs. A compromise was reached in 2011 whereby a bilingual description of the town was settled upon. An Daingean has been replaced with the more traditional Daingean Uí Chúis, and the town name decided as Dingle/ Daingean Uí Chúis. The two communities in one reached a consensus in part due to the importance of Dingle as an international brand for tourism.

These provide just a few insights into the multiple ways in which communities of interest can manifest in a distinct location, continuing on from the work of Peace (1986). Others can be outlined with relation to employment type (See: 4.1.3) or locals and blow-ins (See: 4.3.2), or with regards to Gaelic Football between the Dingle and West Kerry teams. On from this more demographical distinctions can be made. Women of the Dingle Peninsula and Men of the Dingle Peninsula, young people and elderly people, or rich people and poor people. Within all these central and significant notions of difference we must ask if a unifying community could ever exist. Peace, however, goes against some notions at his time of writing around the decline of community, instead in his case study context finding no such decline but instead 3 distinct communities which come together in

spite of their differentiation through notions of outsiders and the role of cooperative associations. Some similar modes of unification can be outlined with regard to the Dingle Peninsula.

The creation of the brand of "Dingle" is something that plays a unifying role. It comes to be defined as "our" place by locals, a place in which tourists can come to visit for a small window in the year, a time in which employment in the tourism sector booms, before reverting back to normal life. The creation of the brand presents a simulacrum of the area which only locals can see through. The roads play a unifying role. Both the Slea Head Drive and the Connor Pass as central passages from the nucleus of Dingle Town west to Ballyferriter and North to Brandon are shared spaces of unifying natural beauty. These passageways are a regular point of conversation, either in passing or at length and transcend many of the boundaries created through distinct communities of interest. On from this, the physical conditions which people on the peninsula must endure (or embrace as is more often the case) act as a mode of unification. This hardness of life is something that is represented through the landscape, through the history, and through the inclement weather made all the more severe by the mountainous nature of the region.

While offering some outlines of the modes of unification that may envelop the distinct and bounded communities of interest, the diverse forms that community takes are important considerations when discussing notions of community engagement and community-led projects more broadly. This is a complex and ethically subtle situation in which I must reflexively interpret my own positionality through the process as outlined the Chapter 3. I have sought to gain a good grounding in different dynamics on the peninsula in order to inform my approach to the research, and my own place within it. In initially undertaking the work I boldly laid claim to my plans to learn the language, before feebly settling for cúpla focal. In some contexts, for example with those individuals strongly committed to the Irish language. I held my nerve for as long as possible in introductory conversations before reverting to English to explain my limitations and outlining my genuine appreciation for the language and my desire to learn it at some stage. This often led to discussions about the role of the secondary education system in non-Gaeltacht regions. Within the collaborative group, a decision was made towards *Corca Dhuibhne 2030/ Dingle Peninsula 2030* in light of the conflicts outlined above.

The Dingle Peninsula, as like any region, is full of complexity with regards to the notion of community. Diverse and bounded communities of interest exist whilst some overarching modes of unification are also present. Throughout engagements, I need to remain aware of these be they Dingle Town and Back West, Irish speaker and non-Irish speaker, or farmer and shopkeeper.

4.1.2 Demographics and Emigrations

While a sense of community is strong within the peninsula, there is also widespread emigration, with a history dating back to the middle of the 19th Century. Today, young people leave the peninsula for work or to attend college in cities in Ireland or further afield in America, Australia or the U.K., often never to return. This emigration pattern has been acknowledged as a key concern in the analysis of the secondary data found in the work of Hayes-McCoy & Judd (2017);

> "One of the biggest changes here is the number of people who are left in the villages. When I was growing up if you walked through a village there were always people outside doing things, kids playing on the roads…emigration I suppose has changed that" (Hayes-McCoy & Judd, 2017, P.107).

Looking quantitatively at the area, as of 2016, 41% of residents are aged above 50, well above the national average of 30%. One of the most striking demographical insights is that the population on the peninsula aged 20-29 is 9% compared to the national average of 12%. While some of this difference can be attributed to the lack of a third level institute on the peninsula, it also suggests that young people are not returning to the area on completion of their education.

	National		Kerry		Dingle Peninsula			
0 - 4 years	331,515	7.0%	9,020	6.1%	760	5.9%		
5 - 9 years	355,561	7.5%	10,153	6.9%	736	5.7%		
10 - 14 years	319,476	6.7%	9,618	6.5%	740	5.8%		
15 - 19 years	302,816	6.4%	9,106	6.2%	824	6.4%	Dingle	National
20 - 24 years	273,636	5.7%	6,715	4.5%	559	4.4%	28.2%	33.2%
25 - 29 years	297,435	6.2%	7,114	4.8%	547	4.3%		
30 - 34 years	361,975	7.6%	9,722	6.6%	761	5.9%		
35 - 39 years	389,421	8.2%	11,025	7.5%	843	6.6%		
40 - 44 years	357,460	7.5%	10,687	7.2%	914	7.1%		
45 - 49 years	326,110	6.8%	10,418	7.1%	865	6.8%	30.7%	36.4%
50 - 54 years	299,935	6.3%	10,152	6.9%	943	7.4%		
55 - 59 years	270,102	5.7%	9,787	6.6%	987	7.7%		
60 - 64 years	238,856	5.0%	9,156	6.2%	981	7.7%		
65 - 69 years	211,236	4.4%	8,584	5.8%	892	7.0%		
70 - 74 years	162,272	3.4%	6,540	4.4%	637	5.0%		
75 - 79 years	115,467	2.4%	4,427	3.0%	344	2.7%		
80 - 84 years	81,037	1.7%	3,024	2.0%	239	1.9%		
85 years plus	67,555	1.4%	2,459	1.7%	240	1.9%	41.1%	30.4%
All ages	4,761,865		147,707		12,812			

Figure 12: Demographic nationally, in County Kerry, and on the Dingle Peninsula

A history of emigration can be traced back to at least The Great Famine when between 1841 and 1851 many of the townlands and villages of the peninsula were devastated both by emigration and starvation. Many of these villages have not since recovered, with the town of Dingle gaining prominence through the 20th Century as the nucleus of the peninsula. Many villages lost close to

half of their populations during this time with Ballyferriter (-50%), Dunquin and the Blasket Islands (-48%) and Minard (-48%) most affected, followed on by Kilquane (-43%), Kilmalkedar (-43%), Garfinny (-44%), Kinard (-43%) and Ventry (-42%) (Census 1841-1851). Emigration has a cultural precedent on the peninsula, and although it occurs today due to less severe circumstances than those of the 1840s, it is still concerned with people leaving the peninsula in search of a perceived improvement in the standard of living.

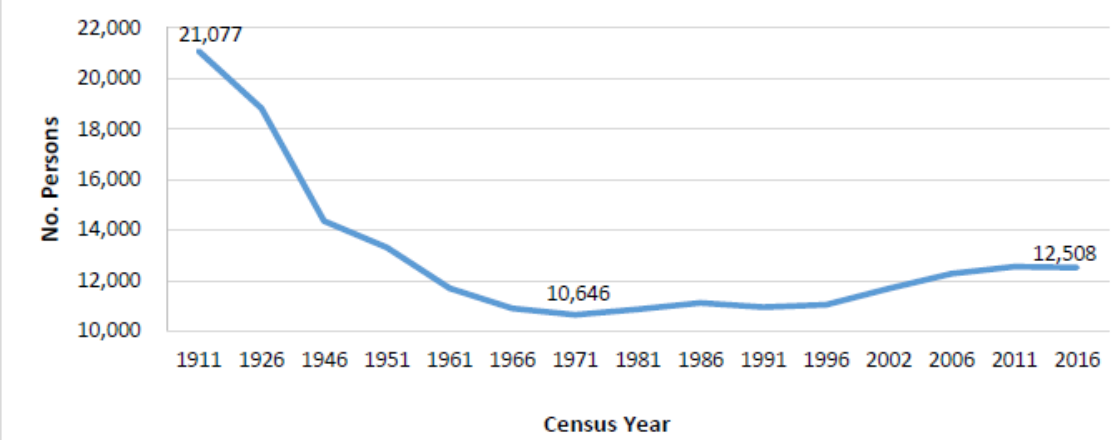

Fig. 13 Population of Corca Dhuibhne (Dingle Peninsula) from 1911-2016.

While emigration is an issue, it is also seen as an opportunity to create the structures to enable people to return to the peninsula, as illustrated through analysis of the initial exploratory interviews;

> "I also think there is such a strong affiliation with the area here I think everyone who is from Dingle really wants to come back here, or wants to see it being successful so that is one strength. I think if we put the eco system in place for people to come back here, they will come back because if you give them the opportunity there are many many people who really would like to... I don't think you can say that about everywhere" (Exploratory Interview)

Another concern outlined through the exploratory interviews, and linking back to the earlier discussion on tourism, is the need for sustainable tourist strategies to preserve both the environmental and social strengths of the area.

> "I think people realise on the peninsula, especially with the growth of tourism in the past decade, the importance of the environmental issues. That we have to be seen to be proactive on environmental issues. We have to be seen to protect the environment. We have to be seen to be using energy wisely and water wisely. We get lots of talk of congestion on the peninsula. There are so many buses and cars and is there a better way of doing things. So I think some

people are aware that tourism is very valuable but it also could be damaging to the peninsula. It gives you the wrong impression, or it simple gets too crowded, the carbon footprint of getting here and getting around here is high." (Exploratory Interview).

The relationship between the area and the environment is explored through the *Dingle Peninsula 2030* project, with specific relevance to decarbonisation and the creation of sustainable solutions to developing the peninsula moving forward.

4.1.3 Unsustainability and Employment

On the western coast of the peninsula, at Ferriter's Cove, some of the earliest archaeological evidence for agriculture in Ireland have been found, dating back to c. 4,000 B.C.(Woodman et al., 1999). Since then, the area has had a long and storied relationship with labour and employment. Throughout the 16th Century, the port in Dingle town operated as an important hub for merchant ships trading goods with France, Spain and Britain. Throughout the 19th Century, Dingle was one of the poorest and most isolated regions in the country, heavily reliant on subsistence farming, culminating in the aforementioned devastation caused by the Great Famine. *Dingle Peninsula 2030* is centred on the creation of a sustainable future for the peninsula, with employment seen as central to this. Historically, however, the area has been defined by unsustainability in different forms. The colonial creation of plantations throughout much of the east and midlands of the country pushed displaced peasants West towards Dingle from the 16th Century onwards. This was not the only means through which the Peninsula was impacted by the occupation of Ireland, with the area suffering damage and destruction through both the Nine Year's War (1594-1603) and the Wars of the Three Kingdoms (1639-1653) during the reign of Charles I.

In the contemporary case, as outlined by Ó Caoimh and McGookin (2021), the Peninsula has a lower proportion of high social class categories of employment than the national average. There is limited manufacturing-based employment opportunities leading to a small number of people in occupations classified as manual and semi-skilled (See: Fig 14). Relatively speaking there is a higher percentage of 'own-account workers', related to the tourism industry and there is a higher significance of both agriculture and fishing. Both sectors, however, are situated within the unsustainable current practices and historical timelines which have led to the contemporary situation. There is a heavy focus on dairy and cattle on the peninsula, due not only to topography but due to national policy and its ever-changing nature. The support of grants and schemes is essential to make farms economically viable. Fishing in the region, as with much of the world, has been impacted by the intensification and globalisation of activity, with has led to the degradation

of Irish fisheries and global marine destruction alongside the societal impact of the evaporation of these established communities.

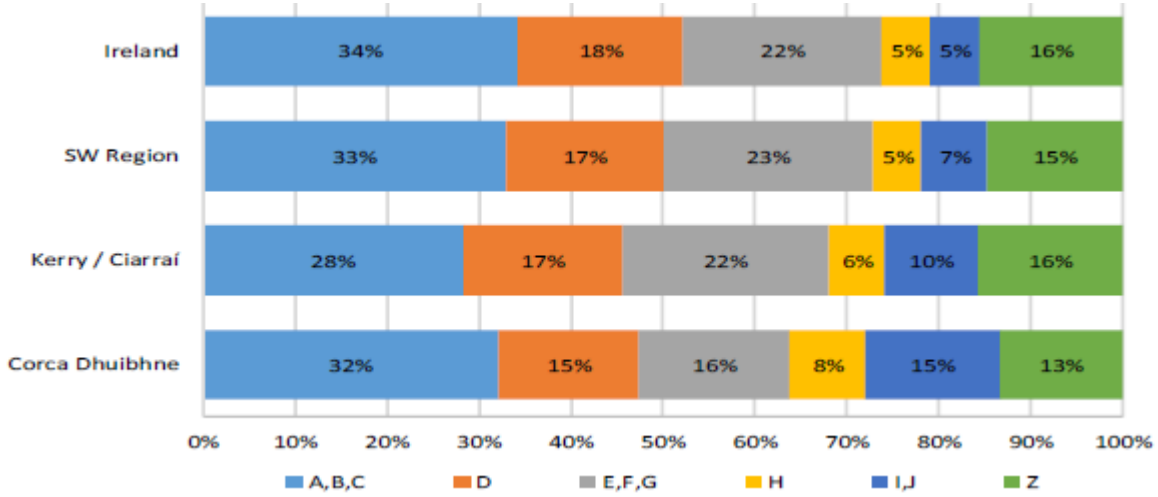

Fig.14 Social Class Composition for employment for 2016. A Employers and managers; B Higher professional; C Lower professional; D Non-manual; E Manual skilled; F Semi-skilled; G Unskilled; H Own account workers; I Farmers; J Agricultural workers; Z All others gainfully occupied and unknown (Ó Caoimh & McGookin, 2021, P. 20).

The high degree of "own-account workers" predominantly associated with the tourism sector also draws out aspects of the unsustainable nature of the region. Predicated on its natural beauty, tourism in Dingle suffers from negative practices with relation to bus tours, air travel, holidays homes and Airbnb. Its seasonal nature means that employment is often precarious, yet labour intensive in the busy season with people working long days without days off for weeks and sometimes months on end. In seeking to investigate *Dingle Peninsula 2030* and its vision for a sustainable future, an awareness of the unsustainability of the region is necessary, both to situate where a desire for this may stem from and to help situate and suspicion which may exist towards claims of salvation.

4.2 Corca Dhuibhne 2030/ *Dingle Peninsula 2030*

The Dingle Peninsula 2030 project is borne out of a notion of community as desire, as per the previously outlined work of Brent (2004). The desire relates to rectifying some of the issues of unsustainability as outlined. The Dingle Creative and Innovation Hub, or simply the Dingle Hub (Mol Téic), was officially opened in April 2017. The hub operates as a not-for-profit entity and a community enterprise initiative, using technology to bring employment opportunities and business start-ups to the peninsula, utilising the 1 GB fibre connection which has been installed. Key partners working with the hub include Eir (national broadband provider), Dingle Business

Chamber, Údarás na Gaeltachta (regional authority responsible for the economic, social and cultural development of the Gaeltacht), Kerry County Council and Net Feasa (Internet of Things business on the peninsula). The hub on inception aimed to facilitate the creation of 100 new jobs within five years. This was noted by a board member;

> "the first thing to see if we can create employment, the concern when you looked at the demographics and everything and Dingle was an aging community and Kerry was aging but Dingle in particular and young people, any of those locally were in seasonal employment generally poorly paid, and that was in tourism" (Exploratory Interview)

As well as the employment aims, the Dingle Hub was established to be a centre for education, partaking in the 2018 University College Cork (UCC) University-Wide Module on Sustainability. The module was taken by over 20 people on the peninsula who met at the hub each week to digitally attend classes facilitated by UCC. This highlights the potential of digital connectivity for rural areas in relation to education. An outline of the plans around education for the Dingle Hub are detailed on their website as such;

> due to "the importance of education and the need to provide the educational skills and knowledge to enable people to prosper and thrive in what is now being called the 'Fourth Industrial Revolution' (i.e the interconnected world of people and things and the growing importance of data), it is planned to develop an educational programme about the issues involved in such a transformation and that will be based in Dingle" (Dingle Hub, 2021)

The Dingle Hub has acted to develop *Dingle Peninsula 2030* or *Corca Dhuibhne 2030* (Irish translation), as a collaborative project aiming to transition the region to a low-carbon, sustainable community by 2030. The project was formalised in early 2018. It is a multi-stakeholder collaboration working across scales, including grassroots community organisations, regional authorities and national agencies in developing and delivering a range of sustainability projects across the sectors of marine, agriculture, energy, tourism and transport. Grassroots innovations, within transitions research, are outlined as differing "from market-based innovations because they foreground moral values and collective aspirations, aim to change social practices and 'ways of living', are highlight contextual, and are often developed in response to local problems (Geels, 2019, P. 193). *Dingle Peninsula 2030*, although not strictly an example of a grassroots innovation due to the multi-level collaborative governance and partnership at its core, aligns with some of the characteristics of such. The Dingle Hub operates in a facilitating role between the different actors, organisations and community representatives involved in the range of different initiatives

under the umbrella of *Dingle Peninsula 2030*. Acting both as facilitator, and in many cases initiator, the Dingle Hub seeks to support a transition aligned with the initial vision set out for *Dingle Peninsula 2030.* The key objectives of the project are to work with the local community, schools, business and farming sectors to explore, support and enable the broader societal changes required for the low-carbon transition, whilst also working to identify employment opportunities and to help create the conditions for a sustainable economic future for the area. The collaborative committee (see: 3.7.1) is central to the operations of the project. The multi-stakeholder approach to a regional sustainability transition is evident within the *Dingle Peninsula 2030* project and has acted as an initiative through which the merging of top-down and bottom-up approaches can be investigated. As mentioned, the vision of *Dingle Peninsula 2030* ranges across range of areas, with some baseline information about these sectors provided below;

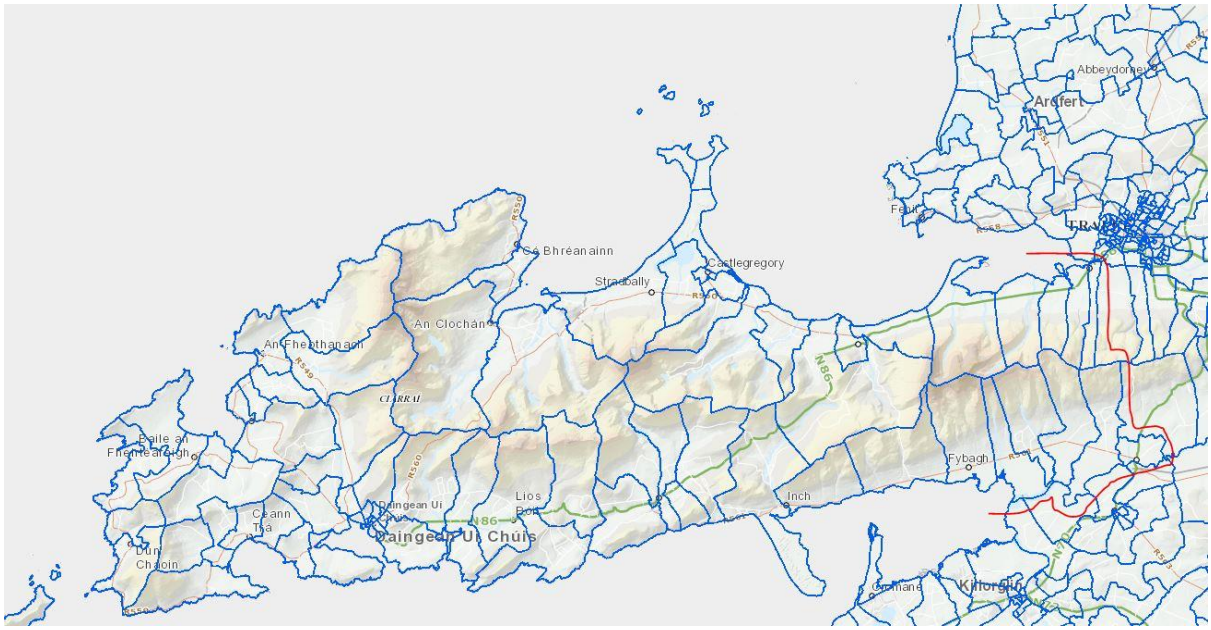

Fig. 15: Project Boundary for Dingle Peninsula 2030; all land west of the red line.

4.2.1 Energy

On the Dingle Peninsula, we see a significantly different pattern of energy usage to the national average. This can be attributed to numerous factors such as the rural and isolated nature of the area, leading to above-average residential and transport demand; and the high dependence on tourism, farming and fishing within the economy.

	Ireland		Kerry		Dingle	
	GWh	%	GWh	%	GWh	%
Industry	28,435	23%	442	13%	3.51	1%
Transport*	43,265	36%	1,436	43%	150.3	48%
Residential	31,448	26%	992	30%	99.2	32%
Services	15,782	13%	343	10%	37.7	12%
Agriculture / Fisheries	2,628	2%	136	4%	19.5	6%
Total	**121,558**		**3,348**		**310.2**	
kWh/capita	25,527		22,669		24,799	
kWh / capita (Transport)	9,086		9,722		12,014	
kWh / home** (Residential)	18,524		18,265		20,523	

Fig. 16: Energy balance nationally, in County Kerry, and on the Dingle Peninsula

Due to the lack of connection to the natural gas grid and the aforementioned dependence on private car travel, the Peninsula is heavily dependent on imported oil. The total cost of energy across the five sectors outlined in the above graph is estimated to be in the region of €36.5 million per year.

4.2.2 Transport

With regards to transport and more specifically private vehicles, there are 0.55 cars per person in Dingle town, higher than 0.46 for Kerry and 0.43 nationally. Alongside this, 67% of commuters travel less than half an hour to work or school. Public transport links across the peninsula are extremely limited. Some small private bus services are in operation, but not at a sufficient level for the whole peninsula, due to the dispersed nature of dwellings. 43% of the energy balance of the peninsula is taken up by transport, aligning with national figures. The rural nature of the area impacts the development of public transport infrastructure over time. Due to this, as noted, the area is heavily dependent on private transport for mobility. There are 702 cars per 1,000 of the adult population on the peninsula, which exceeds both the national (558 per 1,000) and county figures (622 per 1,000).

4.2.3 Agriculture

On the Dingle Peninsula, 5.2% of people are employed in agriculture, a figure much higher than the national average due to the rural landscape of the region. The agricultural sector in Dingle is dominated by three approaches; cattle rearing and finishing (47%), dairy farming (18%) and sheep farming (17%). The last 18% consists of mixed grazing and mixed crops. At the County level, Kerry has the 2nd lowest average farm earnings in the country with 61.6% of farms earning less than €15,000 per annum. This may suggest an opportunity to diversify farm practices in some cases towards more sustainable measures in light of decarbonising ambition.

4.2.4 Tourism

The tourism sector currently acts as the primary employment sector on the peninsula. It is also operating as a mostly seasonal sector, with tourism picking up in May and slowing down in September. As noted, the area attracts estimates of 1.1 million visitors per annum. With this, there are issues with the environmental strain placed on the area. The use of large buses to bring tourists around the peninsula creates problems with relation to emissions. The isolated nature of the peninsula also heightens the environmental impact of bringing tourists to the area for short stays.

4.2.5 Marine

Within the marine sector, there is a need to measure water quality, water levels, temperature, conductivity, dissolved oxygen, PH and nitrates to predict environmental changes and events. This information can be used to understand and predict the impact that natural events and human interventions have on the environment. This information within the marine sector can prove useful to local enterprises, the general community, farmers, aquaculture businesses, the local authorities and state businesses. Through a project with Net Feasa, a local Internet of Things (IoT) network development company, a project has been developed to use sensor nodes to monitor the indicators mentioned above in six locations, including 2 harbours and 2 rivers on the peninsula.

4.3 Situating the Regional case within the Theoretical context

4.3.1 Socio-technical transitions and Dingle Peninsula 2030

A study by Geels (2018) on system transformation and current challenges in transitions research and the multi-level perspective gives an optimistic outlook on some of the approaches taken in *Dingle Peninsula 2030.* The need to move analysis from single niche-innovations, which can be found across the transition management literature, to an analysis of whole system change can be usefully undertaken in the regional context in question due to the holistic approach to the transition which has been suggested. The proliferation of studies investigating short term actions and micro-level strategies can also be overcome through the long-term timeline outlined for the transition of the Dingle Peninsula, with the potential to look beyond the micro, to understand meso and macro-level developments. A bottom-up emphasis is found in much of the literature. The processes which occur within the regime and landscape need to be outlined as these are often contributing forces to the ability of a niche-innovation to take hold. As noted, “increasing socio-political concerns about climate change can lead to changes in regime-level institutions” (Geels, 2018, P.228).

In the contemporary case, several Irish policy developments (such as the Climate Action Fund, Project 2040, the National Adaptation Framework, the Citizens Assembly on Climate Change, the National Dialogue on Climate Action, and the Climate Action Plan) may lead to considerable changes within the regime, which will be impactful on the potential of niche-innovations to be influential agents of change. The non-linear nature of transitions must be acknowledged, alongside the interactions between the landscape, regime and niche levels of the MLP.

The diffusion of sustainability in this research project relates to the *Dingle Peninsula 2030* project and the diffusion of initiatives, projects and activities which have occurred during the timeframe of the investigation. Both the local and national instances of the diffusion of sustainability are considered valuable insights, whilst remaining cognizant of the limitations of the investigation due to the constraints imposed by the research timeframe.

Dingle Peninsula 2030 involves interactions with institutions, therefore it is important to analyse the institutional changes which may occur to enable effective collaboration between top-down actors and bottom-up initiatives. The investigation of community engagement within public bodies at a national level and the analysis of transdisciplinary approaches to research within Universities have been undertaken alongside the regional case-specific research on *Dingle Peninsula 2030* to gain an understanding of the blurring of margins between top-down and bottom-up approaches.

Innovations within the regime will emerge which threaten the status quo. This will need to be properly managed to usurp the status quo, i.e. the traditional top-down approach. As noted, "participatory processes in a multi-level governance context often seem to be characterised by hierarchically set policy goals" (Newig & Fritsch, 2009, P.209). More flexible planning must be implemented to liberate the voice of community participants or citizens. The membership of a national public body (ESB Networks) within the collaborative committee for *Dingle Peninsula 2030* acts as a novel governance structure for community engagement within public bodies in Ireland, with potential learnings for the wider national public body network with relation to climate infrastructure development. In some cases, "because of their commitments to existing socio-technical systems, incumbent firms often oppose sustainability transitions" (Geels, 2019 P. 194). Primarily concerned with electrification, the wider implications of sustainability transitions can draw out tensions for ESB Networks. The importance of research, engaging with projects such as *Dingle Peninsula 2030* is noted, to chart developments with relation to community engagement within public bodies.

4.3.2 Concepts of community in context

Continuing on from the previous discussion on the contested nature of community (see: 2.6), the Dingle Peninsula is defined firstly as a geographical place-based community (see: fig. 15). The community is made up of numerous symbolic boundaries, or contested publics, defined by parishes, sports clubs, culture, language local activities, amenities, labour types etc. The main areas in the region are Dunquin, Ballydavid, Ventry, Dingle, Cloghane, Castlegregory and the Maharees, Camp, Annascual & Inch, and Lispole & Minard. While community within these diverse areas are established through the symbolic construction of boundaries there still lies a unifying sense of community that operates across the whole peninsula (Table 8). This is not, however, to suggest a homogenised culture, but rather an overarching frame of community to which most inhabitants relate to. As noted, the area is a popular tourist destination and has a large amount of holiday homeowners, adding further nuance to notions of community such as an extremely busy seasonal trade across hospitality sectors and tourism when compared with the much quieter winter months when many permanent residents more to unemployment or part-time work. This has influence on the social dynamics of daily life across the seasons of the year.

Within the *Dingle Peninsula 2030* project community operates in a manner aligned with Brent's (2004) notion of community as desire. Here, desire is firstly predicated on the goal of bringing sustainable employment to the peninsula and on from this the vision of a sustainable community across a range of sectors as referenced previously (4.2.1-4.3.5). Continuing from the work of Brent, community in this context operates as a desire for something which may never, in fact, be achieved but it is in the pursuit of this desire that community is formulated, stabilised and continued. *Dingle Peninsula 2030* is predicated on this desire for community, the desire for a sustainable community that is more self-sufficient with relation to tourism, agriculture and tourism, and which can provide careers for people in the local area in order to prevent further emigration from the region. The project is dependent on this desire for community and seeks to enable the emergence of this desire amongst others in the area. As Brent notes, this desire is what constitutes community rather than any defined endpoint, despite connotations to time contained within the outline of *Dingle Peninsula 2030*.

Chapter 5: An Action Research Investigation of a Regional Transition Project.

Introduction

This section outlines results across the first 3 research sections as they relate to the investigation of the *Dingle Peninsula 2030* project. In the first section (5.1) the mapping process will be outlined in relation to results. The focus is given to initial findings, goals of organisations, short, medium and long term goals, organisations in the wider network, and post-workshop individual organisational networks. This section highlights the regional and national network in place to assist grassroots community organisations in achieving their goals and the supports required. In the second section (5.2) a reflective approach has been taken by the four partners within the collaborative committee for *Dingle Peninsula 2030* (Mol Téic, NEWKD, ESB Networks, MaREI) to understand different aspects of the collaborative approach taken. This is done with relation to personal networks, personal capacity, organisational capacity and benefits and challenges of collaboration. By focusing in on the collaborative governance structure it moves beyond the initial scoping map which outlined the emergent project and the goals of grassroots organisations within this. Finally (5.3), the results of the investigation into the diffusion of sustainability are outlined. Seven specific diffusions have been analysed through the application of the methods outlined previously (3.8). Each of the seven is outlined to highlight the diffusion in question, its development and status at the close of the research project. Finally, the diffusions are related back to the mapping exercise, building upon linkages within the initial network, and highlighting the role of the collaborative committee in influencing the diffusion of sustainability moving our focus to impact.

In this chapter, results are provided as they relate to the first and second research question contained in this project, i.e. (1) How can a mixed-method approach support an action research investigation of sustainability transitions?, and (2) How can we understand the diffusion of sustainability in an ongoing regional transition project using the multi-level perspective?.

5.1 Characteristics of the emergent stakeholder network from a grassroots perspective.

As noted previously (3.6), a workshop was completed with four grassroots community organisations (Mol Téic, Transition Kerry, NEWKD, Údarás na Gaeltachta) on the Dingle Peninsula with links to the *Dingle Peninsula 2030* project. As an initial research intervention, it sought to outline the goals of

these organisations in relation to the project. Their levels of direct involvement were different, with Mol Téic and NEWKD directly involved, and Transition Kerry and Údarás associated to different degrees. This workshop sought to outline the short-, medium- and long-term goals of each organisation. It also outlined the support network both locally and nationally/ internationally in place to achieve these goals and potential stakeholders that could be added to this network. The range of different supports required to achieve the different goals was also outlined. The participatory approach to stakeholder mapping was informed by the net-map process and acted as an innovative approach to participatory social network analysis from an ego perspective. Following the workshop, the data gathered was collated into a visualisation using the VisuaLyzer software. Here, the qualitative insights taken from the participatory workshop setting are structured for the purpose of quantitative analysis. However, no claims are made of objectivity, with the workshop representing an ego network approach, in the emergent, niche phase of the project- from a grassroots perspective. Despite this, insights can be gathered through the analysis of data collected through the process as it relates to individual participant goals as part of the *Dingle Peninsula 2030* initiative.

5.1.1 Initial Findings

Here, some of the high-level findings from the participatory mapping exercise are outlined before drawing out specific findings as they relate to goals, supports, and organisations within the network.

• A total of 156 Linkages were outlined through the mapping exercise, 46 of which were potential linkages, or capacity to be developed. This highlighted the well-networked nature of the groups, alongside the potential to further expand the diverse network moving forward.

• 118 links were from organisations to goals, 43 of which were potential linkages. This expressed the strong linkages with relation to goals alongside the potential to bring in more organisations with relation to specific determined goals.

• 38 linkages were between organisations, 3 of which were potential linkages. The potential to use pre-existing linkages between organisations to develop new strategic goals moving forward can be noted.

• 15 of the organisations represented were local to the peninsula. This highlighted the potential to further develop the network locally, expanding upon the pre-existing capacity through bringing in new locally embedded groups.

• 31 were organisations external to the peninsula (although some had involvement on the peninsula). As many of these organisations were potential linkages, this emphasised the ambition of

the overall project, seeking to operate locally whilst being established within the national and in some cases international context.

Following this the information gathered was organised into 5 key tables, looking specifically at the 118 linkages to goals. The tables cover the linkages of participant groups to goals outlined, support types as they relate to goals, linkages to goals grouped by organisation, number of links to goals grouped through short-, medium-, long-term status, and most represented organisations through links to goals, excluding participant organisation

Name	Number of Links	Of which potential
Mol Téic	16	0
NEWKD	13	3
Transition Kerry	10	0
Údarás Na Gaeltacht	5	0

Table.9: Linkages of participant groups to goals outlined

From Table 9 (above) the centrality of Mol Téic becomes apparent, which supports its role as the facilitator of projects related to *Dingle Peninsula 2030*. This is to be expected due to the central role which Mol Téic has played in the development of *Dingle Peninsula 2030*. This facilitation role is central in enabling the successful development of initiatives. Both NEWKD and Transition Kerry are also strongly linked to initiatives, through the provision of numerous supports. NEWKD, as the community development organisation, has a remit to operate in collaboration with the community and Transition Kerry's modus operadi is aligned with the overarching vision of *Dingle Peninsula 2030*. Údarás Na Gaeltacht, at this early stage of the project, were not as linked into suggested goals, providing support to 4 of the 6 goals outlined from their organisational perspective. While having some interest in energy projects, the remit of Údarás Na Gaeltacht extends far beyond, into rural regeneration. They do, however, provide support across all five of the support typologies (Table 10) outlined by the participants, highlighting the internal capacity of the organisation.

Support type	Number of Links	Of which potential
Mutually beneficial networks	37	16
Financial support	28	14
Volunteer support	23	12
Management, administration, communication	17	4
Access to groups/organisations	13	0

Table.10: Support types ranked by appearance with relation to goals.

During the workshop, the different support type's necessary to facilitate the completion of goals was decided upon by the group. A key feature of this process, when looking from a bottom-up perspective, is the centrality which the development of mutually beneficial networks plays for the participants. As a research intervention at the early stage of a multi-stakeholder approach to transitions, we can see the early establishment of the wider network needed. The research intervention, from an action research perspective, can assist in highlighting this need for the further development of the network across the participant organisation in a collaborative manner. Further supports such as financial and volunteer support are more heavily weighted towards potential supports illustrating the next stage of project development building upon the mutually beneficial networks which have been established.

Visualised Participatory Network Map

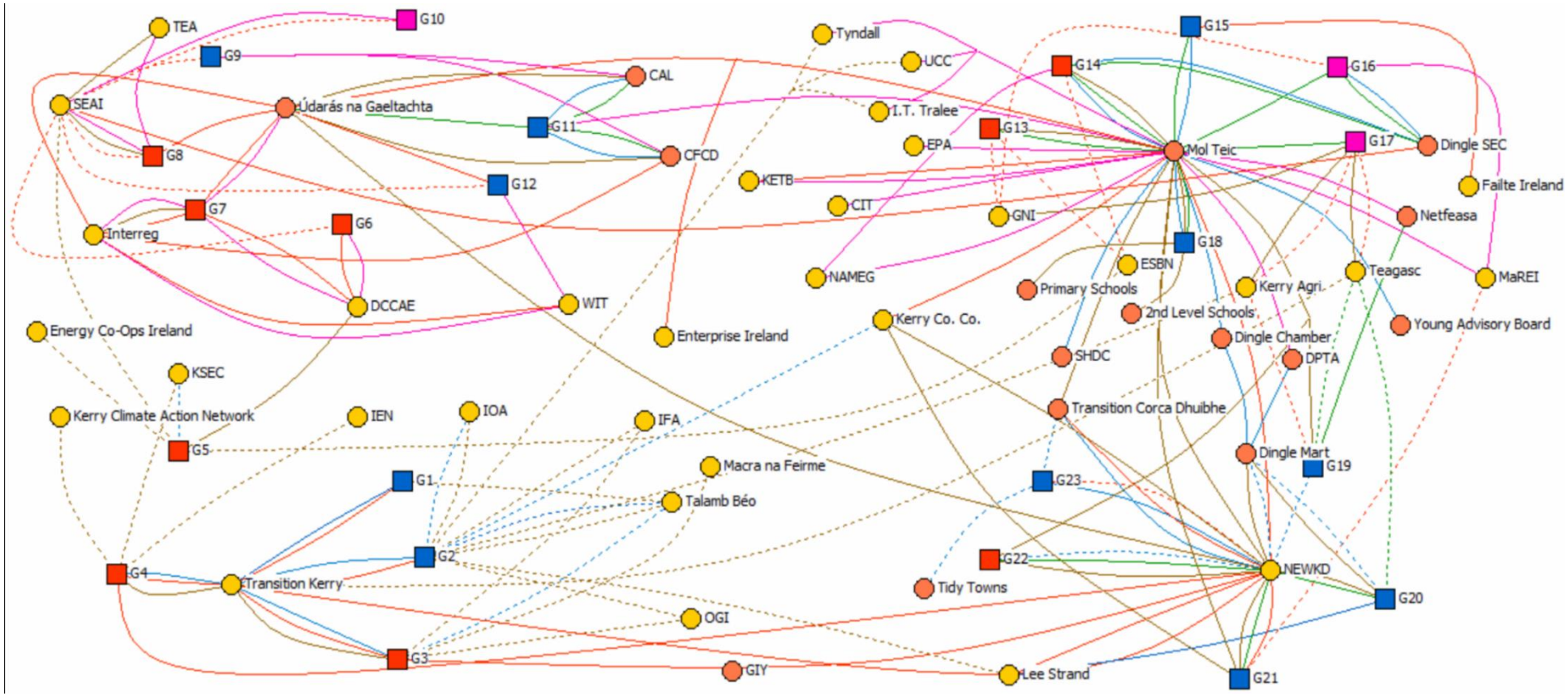

Fig. 17 Visualised Participatory Network Map

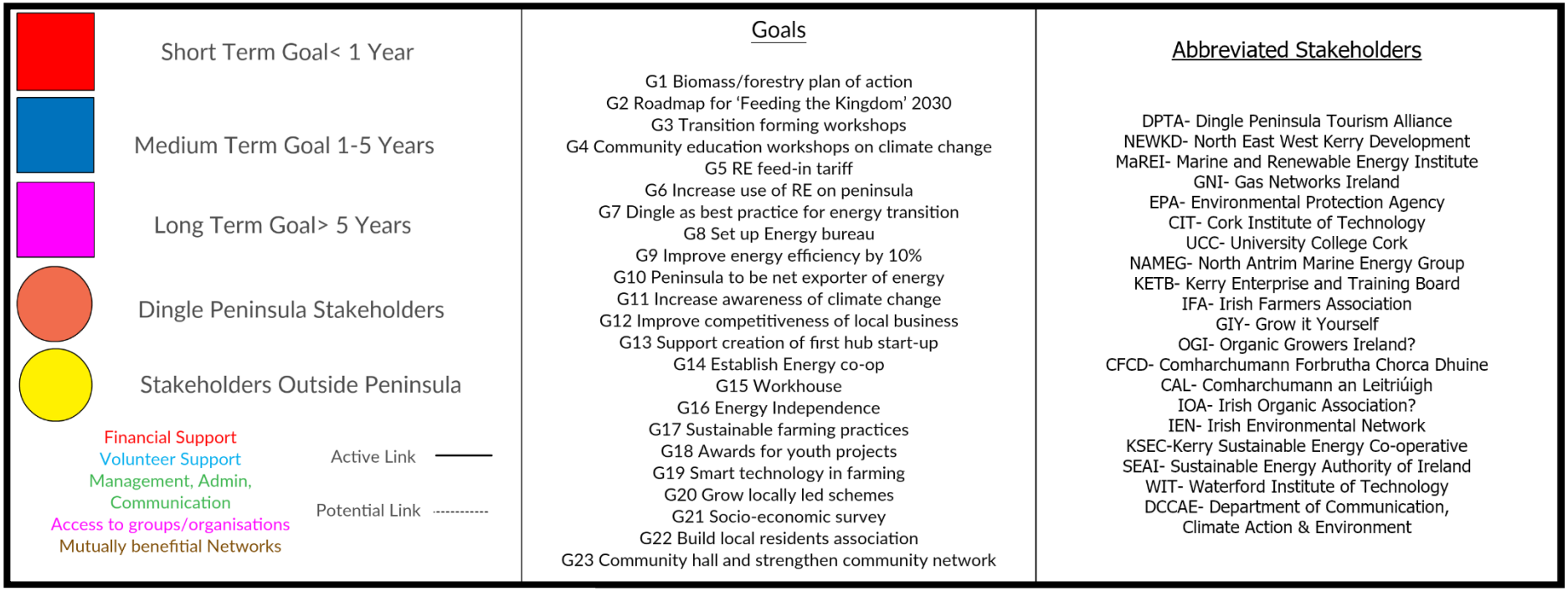

Fig. 18: Legend for visualised participatory network map

5.1.2 Goals of Organisations

Goals of Organisation	Number of Links	Of which potential
Transition Kerry (G1-5)	35	21
Údarás Na Gaeltacht (G6-12)	29	5
Mol Téic (13-18)	30	10
NEWKD (19-23)	23	7

Table.11 Goal links grouped by organisation

Through looking at goals as they relate specifically to the participants/organisations who outlined them the organisational make-up can be highlighted. Transition Kerry, as a volunteer organisation, requires the development of further capacity with relation to the goals which have been outlined. The difficulties faced by volunteer organisations to leverage supports and build capacity to achieve goals is a common occurrence. The need to build greater financial and volunteer supports is regularly noted as a challenge within volunteer organisations in the Irish context (Watson et al., 2020). Through highlighting the potentiality of many of the links for the volunteer organisation through a collaborative exercise such as this, shared learning can be achieved on the difficulties faced when compared with professional or employment-based organisations. By way of comparison, Údarás Na Gaeltacht, as a fully funded state body with a mandate with regards to the development of Gaeltacht regions, has established many of the links they highlighted. The long-established nature of Údarás, alongside its fully funded nature, has assisted in ensuring that it is well networked with relation to its' goals. NEWKD, similarly, as a community development organisation in the local area is well networked surrounding their goals. Perhaps most interestingly, Mol Téic, as a relatively new organisation when compared with the others under investigation, has established a high number of linkages with relation to goals (20), with further capacity to grow the network through consolidating potential links (10).

5.1.3 Short, Medium and Long Term Goals

Goal Type	Number of Links	Of which potential
Short Term (<1 year)	50	19
Medium Term (1-5 years)	54	18
Long Term (5 + years)	13	6

Table.12 Number of links to goals grouped by goal timeframe

Short- and medium-term goals were the predominant features of the network outlined. The three long-term goals outlined, of which there were 13 established and potential links, were aspirational with relation to energy and agriculture. Goal 10 and Goal 16 focused on the peninsula being a net

exporter and energy independence while Goal 17 focused on sustainable agriculture. While the long-term goals were not heavily linked to supports or clearly defined the short- and medium-term were, highlighting the focus on actionable solutions, guided by a wider awareness of the framing vision which is being worked towards (represented through the long-term goals). The focus on more immediate issues is representative of the relatively new nature of the overall project. However, by outlining some more visionary goals in the longer term, the project goals can continue to align with the overarching 2030 framing which is so fundamental to the project. At the wider level, it is important to note the relationship between timeframes and future visioning in contemporary society and modernity more generally. As noted by Mary Catherine Bateson "the great irony of our time is that even as we are living longer, we are thinking shorted" (2011, P.22). The need for humanity to move towards long-term thinking with regards to a range of grand societal challenges faced, of which climate change is one, may prove critical with relation to achieving the necessary measures needed to avert the dangers posed. This is not in any way meant as a criticism of the participants, but rather it acknowledges the focus on shorter-term goals as being a symptom of a wider societal phenomenon that should not be ignored.

5.1.4 Organisations in the wider network

Organisation	Number of Links	Of which potential
SEAI (External)	9	6
DDCAE (External)	5	0
Dingle SEC (Local)	4	4
Talamb B (External)	4	4
Teagasc (External)	4	3
CAL (Local)	3	0
CFCD (Local)	3	0
ESB Networks (External)	3	2
GNI (External)	3	2
Interreg (External)	3	0
Kerry Agri (External)	3	2

Table.13 Most represented organisations through links to goals, excluding participant organisation

Finally, the ten most networked groups (excluding the participants) has been represented in Table. 13. External stakeholders to the peninsula account for seven of the ten organisations. Despite this, many of the linkages are potential, illustrating the need to establish external connections to support goals. Overall, across the 118 links to goals, 81% of local links were established while only 52% of the

external links had been established. This highlights both the importance of the local network as a mechanism through which to build upon projects at an initial stage and also the need to find mechanisms through which to tap into external stakeholder supports in the scaling up of projects.

5.1.5 Post-workshop de-brief

A week after the workshop, participants were contacted for a debriefing session about the research intervention. Some initial findings were presented to participants in relation to the mapping exercise. In taking an action research approach an emphasis is placed upon enhancing the proficiencies of the different actors involved in the process. Alongside the outputs from the workshop, whereby participants outlined their goals and the supports in place to achieve those goals in a visual, collaborative manner, the de-brief asked participants to highlight any potential further reflections from which useful outputs could be developed. Through this, the idea of mapping out linkages as they relate to specific goals was raised as something of interest to the group. This assisted in decluttering the wider visualisation so that it could be used to focus on individual goals.

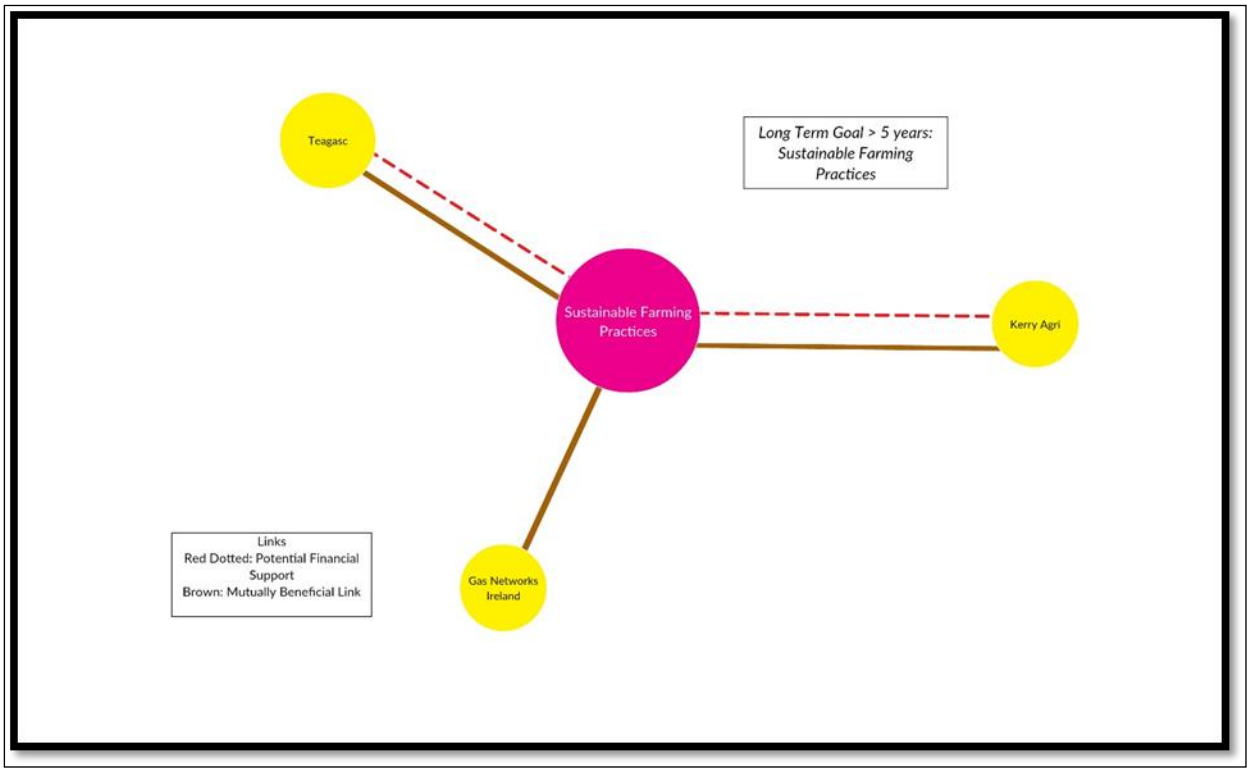

Fig. 19: Examples of post-workshop mappings on individual goals

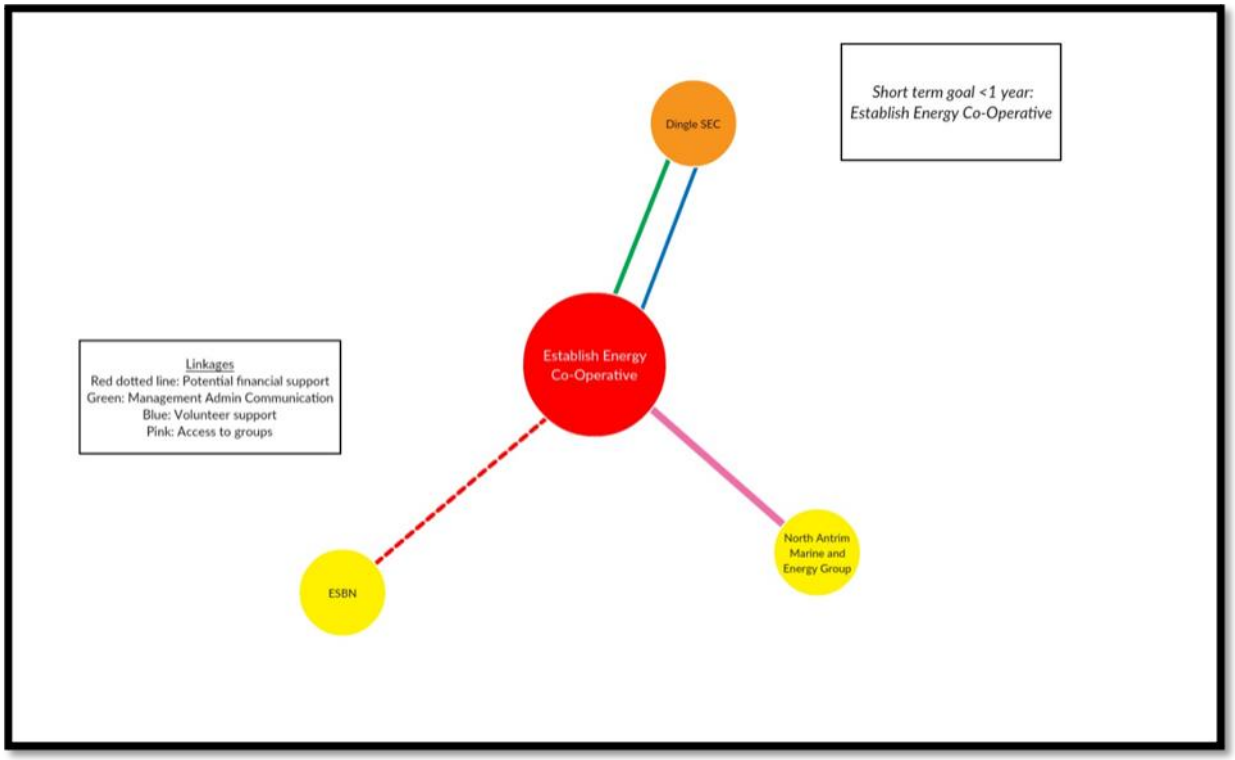

Fig 20: Examples of post-workshop mappings on individual goals

An importance was placed on ensuring that the workshop intervention provided the necessary outputs to prove useful to participants and the simplified diagrams surrounding individual goals were developed and circulated to the participants. From a research perspective, the need for flexibility to respond to the emergent needs of the participants must be considered to maintain an action research ethos

5.2 Networks, Capacities, Benefits & Challenges of Collaborative Governance

Moving beyond the initial intervention which outlined the goals and networks of grassroots organisations related to the emergent niche initiative, this section focusses on the stakeholder collaboration at the core of the *Dingle Peninsula 2030* project through the establishment and continuation of the collaborative committee consisting of Mol Téic, NEWKD, ESB Networks and MaREI. The formalising of the collaborative committee, consisting of top-down and bottom-up organisations, potentially represents a move from niche towards niche-regime (Haxeltine et al., 2008). As noted previously (3.8.3), the group was engaged in regular meetings (29 attended) and continuous email interaction throughout the process. The hands-on nature of the collaborative committee meant that attention needed to be ring-fenced for reflecting on the working of the group in parallel to the ongoing collaboration being undertaken. A reflective approach to evaluating collaboration has been taken. The key findings of the reflective practice on collaboration are

outlined here across the themes of personal networks, personal capacity, organisational capacity, and the benefits and challenges of collaboration.

5.2.1 Personal Networks

In Fig. 21, the personal networks of individuals have been outlined. These have been separated into two categories - those based on the peninsula (yellow), and those based off the peninsula (blue). Where two organisations within the collaborative committee have mentioned the same network it has been referenced twice (i.e. local community - NEWKD and Mol Téic). The diverse range of both local and national networks that the collaborative committee can access is clearly illustrated. Working in silos, from the perspective of a public body, a community group, or a research institute, the scope of personal networks would be far more limited than what is highlighted here. ESB Networks and MaREI were supported by Mol Téic and NEWKD in offering access to local networks. In the case of ESB Networks, the employment of a community engagement manager enables the leveraging of local networks and the establishment of further local linkages.

Personal Networks	
Participants	**Capacities**
Mol Téic	Local community networks, national agency/governmental contacts
MaREI	Funding networks, university, national community energy/environmental sector
ESB Networks	Public body contacts, internal institution networks
NEWKD	Local media, local environmental network, local community networks

Table 14 - Personal networks of the organisations

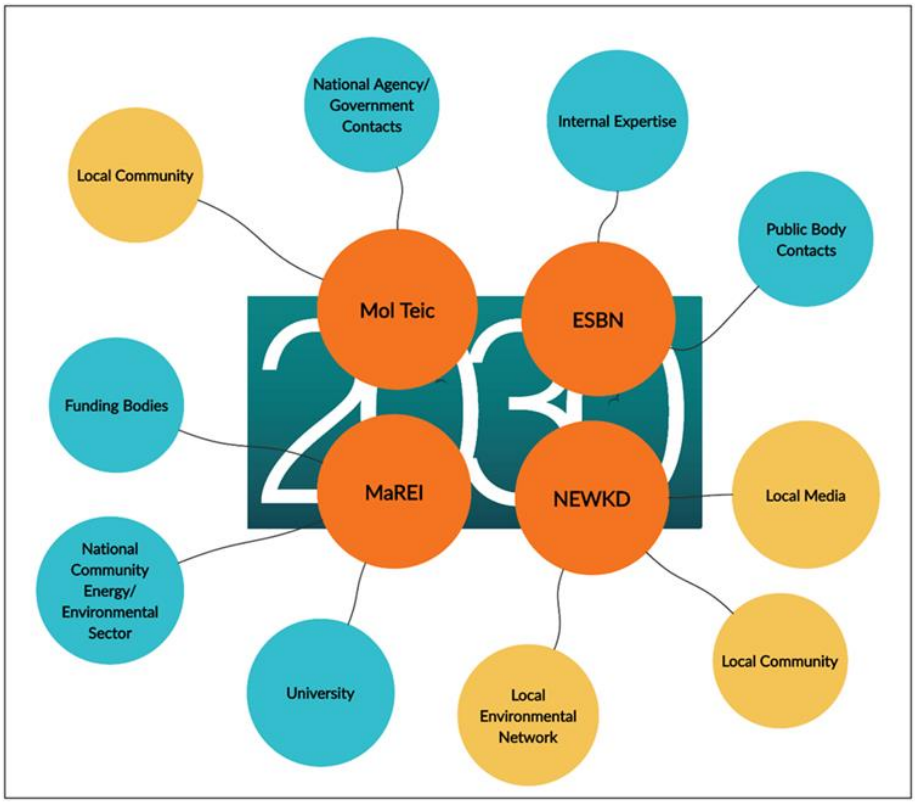

Fig.21 Wider networks of individual members of the collaborative committee

5.2.2 Personal/individual capacity

Personal or individual capacities refer to the individual skill and ability of actors, their personal resources, understanding of sustainability, and their willingness to act (Middlemiss & Parrish, 2010). These are summarised in Table 15. Community initiatives often rely on the resources of their members (skills, knowledge, leadership, values and enthusiasm), encompassing both intrinsic motivations and collective action capacities. This classification acts as a bridge between individual and collective actions. Personal capacity is often characterised as the 'champion' role (Hall et al. 2013), which reflects the importance of key nodes in the network, and has been shown to play a role both in garnering social acceptance (Simpson, 2018; Ruggiero et al., 2014) and influencing behaviour change (Parkhill et al., 2015). It must not, however, be simply equated to the individual champion.

Personal capacity can be developed through volunteerism and employment, with both of these having different dimensions when acted upon. In a positive sense, volunteerism can often come from a vocational drive, with people embedded in the community. Concerning employment, personal capacity can benefit from being structured and resourced professionally. Looking at the negatives, personal capacity related to volunteerism may suffer from burnout or a lack of resources, whilst personal capacity based on employment may be inhibited (in some cases) by organisational norms.

Personal Capacity	
Group	**Capacities**
Mol Téic	Facilitator, Convenor, Supporter, communication skills, technical competence, engagement experience
MaREI	Energy engineering expertise, engaged research, report writing, public engagement and outreach, group development
ESB Networks	Decision making, conflict management, strategy development and implementation
NEWKD	Community development, partnership approach, inclusive approach to engagement

Table 15. (Above) Personal capacity is drawn out from personal reflection

5.2.3 Organisational capacity

The values of established organisations in the community and how they align with the values of sustainability provides (or prevents) the existence of organisational capacity. Through these organisations resources and supports are provided within the community (Middlemiss & Parrish, 2010). Central to the organisational capacity of formal groups established in the community is their participation in everyday life, acting as established members within different sectors within the community e.g. sporting, cultural, political, environmental and residential. While a specific intent towards sustainability is useful, it is this wider embedded aspect of their operations that can provide the greatest influence, particularly in light of the national drive for sustainable practices moving forward.

In Table 16 the organisational capacity classification has been used for all members of the *Dingle Peninsula 2030* collaborative committee group, both those pre-established in the community (Mol Téic, NEWKD) and those with a presence in the community as part of the project (ESB Networks, MaREI). While acting as an institution at a broader level, ESB Networks through their collaboration in the wider *Dingle Peninsula 2030* initiative can be seen to operate as an organisation in the community, with regular engagement through events and initiatives within the area. Similarly, while acting predominantly as a research institute, through taking an engaged approach to research as part of *Dingle Peninsula 2030*, MaREI can be classified as acting through its organisational capacity with involvement in engagement activities, workshops and outreach events in the community, whilst still having a primary directive towards research findings.

Organisational Capacity	
Group	**Capacities**
Mol Téic	Local/national support (public bodies, private companies, community bodies), attract diverse skillsets in the community
MaREI	Funding for engagement activities, expertise in climate mitigation and energy research
ESB Networks	Finance, Technical Expertise, Influence, Public Relations
NEWKD	Track record bringing investment into the community. Track record of working with the community. Established structure of communities throughout the peninsula.

Table 16. (Above) Organisation capacity is drawn out from personal reflection

5.2.4 Benefits and challenges of collaboration and their solutions within the process

The idea of critical reflection is aligned with the process of thinking about challenges and their solutions. The process, however, has been called into question by some as it "conjures up a focus on the negative aspect of an interaction or experience" (Hickson, 2011, P.832). The focus has been given to benefits alongside challenges and solutions. Critical reflection on benefits across several organisations can lead to insights into how these positives can be built upon and where, in some cases, capacity may be missing to ensure benefits are utilised. The results contained in Table. 17 are a compilation of responses from all participants fitted within their individual organisations.

Organisation	Benefits	Challenges	Solutions
Mol Téic	Local/Policy Impact. Open, Transparent, Trusting. Key expertise of each group.	Lack of flexibility in funding, slow response of public bodies to engage on the ground. Lack of mechanisms for a large organisation to collaborate with community organisations. Day to day financial support. Lack of organisational mechanism that value collaboration in itself.	Engage public sector at senior level for initial buy in. Solve problems collaboratively. Keep local media informed. Link initiatives to national/global challenges. Demonstrate value in collaboration make case for financial support for community groups to engage with research projects
MaREI	Trust, Links to local community. Key expertise of groups. Good communication, joint decision making. Strong interpersonal relationship.	Pressure for time specific outputs not aligned with time commitment of building relationships. Funding. Internally underestimated time/resources required. Logistics of location. Formalizing partnership with industry organisation. Communicating outputs, outcomes and impact and evaluating project. Financial imbalances between organisations. Different deliverables. Structuring for community involvement. Finding time for reflection. Pace of new projects.	New structures and more time given to collaborative/engage research projects. Co-ordination of collaboration needs support, clarity of expectations of each organisation from start, more time needed for reflection, evaluation and forward planning. Funding for on the ground engagement person.
ESB Networks	Ability of group to learn from one and other. Key expertise and experience of each group.	Difficulty in getting clearance internally on decisions made. Understanding it is a collaboration.	Being open/honest but respectful at all times, Understanding what the issues are and coming to the table with solution as opposed to problems, having a positive can do attitude. Being resilient and persistence
NEWKD	Key expertise of each group. Strong interpersonal relationship developed. Multi-disciplinary approach.	Exploring and identifying vision and value of project. Collaboration challenged by industry partner. Commitment to real collaboration where all partners are equal. Protocols for completion of written documents.	Agreement about the writing/finishing of documents Long term commitment from ESB to the area

Table 17. (Above) Benefits, Challenges and their solutions drawn out from personal reflection

Moving on from specific reflections from the collaborative committee, we can look at the diffusions of sustainability that have emerged in light of *Dingle Peninsula 2030*

5.3 Outline of Diffusions of Sustainability from *Dingle Peninsula 2030*

Continuing from the mapping exercise, building upon linkages within the initial network, and following on from highlighting the role of the collaborative committee attention is given to the diffusion of sustainability, moving our focus to impact. The goals and network outlined (5.1) and the collaborative committee (5.2) will be referenced throughout as they relate to the diffusions. Within the context of the investigation of the diffusion of sustainability, in light of *Dingle Peninsula 2030,* the approach taken has been guided by the use of exploratory interviews, the attending of events and meetings, and secondary desk research as outlined (see: 3.8). Through this approach seven key diffusions of sustainability, influenced by *Dingle Peninsula 2030* have been outlined. In this section, these seven diffusions are highlighted. Due to the ongoing nature of the project, only a snapshot in time can be represented here with relation to the diffusion of sustainability. How the project and the emergent initiatives within it develop in the coming years will only become known with time. The information contained here is up to date as of January 2021.

Fig.22: Visual Representation of the diffusion of sustainability as part of Dingle Peninsula 2030

5.3.1 Sustainable Energy Community

In April 2016, the Sustainable Energy Authority of Ireland (SEAI) re-launched its Sustainable Energy Community (SEC) programme, including an open call for local communities to become SECs and join the SEC Network. An SEC is a community in which members work together to develop a sustainable energy system for the benefit of their community. To do so, they aim as far as possible to be energy efficient, to use renewable energy where feasible and to develop decentralised energy supplies. An SEC can include all the different energy users in the community including homes, sports clubs, community centres, churches and businesses. The SEC Network is a support framework designed to enable a better understanding of how communities use energy and to save energy across all sectors. The Network's core purpose is to catalyse and support a national movement of SECs operating in every part of the country. There are now SECs operational all across Ireland. Being a member of the network enables SECs to engage and learn from project site visits, seminars, events, and case studies. SEC's are supported through the SEAI to encourage communities to be as energy-efficient as possible, to use smart energy technology and to use renewable energy where possible

In April 2018, the Dingle Peninsula Sustainable Energy Community (SEC) was established through Mol Téic (Dingle Creativity and Innovation Hub). This represents the emergence of a niche innovation space within the local community, which is still aligned with the established regime structure provided by SEAI for the development of sustainable energy communities throughout the country. The interplay between different levels of the MLP is evident. The initial step for the SEC was to investigate the current energy balance on the peninsula to act as a baseline for the development of future projects under the SEC classification. Alongside this, a 'Register of Opportunities' identifying what specific projects could be undertaken to reduce energy usage and encourage the transition to renewable energy was undertaken. The Dingle Peninsula SEC, in October 2018, commissioned the production of an Energy Master Plan (EMP) for the peninsula, completed by consultants selected through a tendering process and further developed with support from MaREI (Energy Master Plan, 2020). The EMP, published in February 2020, determined how much energy is currently being used on the peninsula. With this data, a roadmap was created as a guide towards a more sustainable future on the peninsula.

Currently, the peninsula has a yearly total energy demand of 310 GWh, costing €37 million. The EMP outlines the potential to reduce the yearly demand to 224 GWh, saving €8 million. 70GWh of this demand could be met using energy from local renewable resources. Following the roadmap within the EMP would also allow for the creation of new skills and employment opportunities on the peninsula. Homes on the Peninsula spend 12.5% more on energy than the national average. In some

areas with higher levels of car ownership or older homes, houses may spend 20% more than the national average. Within the register of opportunities, pathways were outlined in relation to residential, transport, services and industry. On from this renewable energy options were outlined with relation to anaerobic digestion, solar PV, wind, hydro and ocean energy.

This initiative can be linked to a number of the initial goals outlined through the grassroots mapping (see: Fig. 17). Goal 9, to improve energy efficiency by 10%; Goal 6, increased use of renewable energy on the peninsula; and Goal 14, to establish an energy co-op can all be aligned with the establishment of an SEC and their achievement could be supported through this development. The central role of SEAI within the initial mapping (see: 5.1) is built upon here, with them taking a central role in supporting the SEC. This aligns with previous work on support networks for community energy initiatives in Ireland, where SEAI was seen as providing a central role (Boyle et al., 2021). Within the collaborative committee, Mol Téic through leading the initiative, and MaREI through supporting the EMP, have been influential in the establishment of the SEC. As a diffusion of sustainability, the emergence of the sustainable energy community acts on two levels. Firstly, at the local level, the SEC operates as a vehicle through which to bring in a wider range of local community members. The group is open to locals getting in touch and joining the group. With this, the register of interest outlines clear pathways and the investigation of renewable energy options highlights potential future options for further diffusion into energy generation moving forward. At a national level, the establishment of the SEC acts to bring *Dingle Peninsula 2030* into the wider national SEC network containing over 500 groups. To date, the joining of this network has led to the organising of a webinar on 11th November 2020 by MaREI and SEAI as part of SFI Science Week, consisting of an armchair chat with members of the *Dingle Peninsula 2030* group about their experiences with the project to date. The event was attended by over 200 people, many from within the national SEC network.

5.3.2 Anaerobic Digestion Feasibility Study

A feasibility study has been completed, assessing the potential use of biogas to meet the peninsula's energy needs sustainably and affordably. Biogas is currently used worldwide in domestic, agricultural, municipal and industrial applications. This study provides the necessary information to develop a vision for including the use of biogas in *Dingle Peninsula 2030*. This initiative has been developed through the meeting of farmers at the 2018 Farmers Forum in Dingle which included a presentation from MaREI on the potential of anaerobic digestion to provide a sustainable solution to local farms with relation to the creation of biogas. Following the emergence of a steering group of

interested local representatives, a request for tender for consultants to develop a feasibility study on Anaerobic Digestion was published on behalf of the Dingle Hub as part of the Dingle Sustainable Energy Community. Within the language of the MLP, the emergence of an investigation into anaerobic digestion for the peninsula represents a potential diffusion at the niche level with the possibility to disrupt the established regime with regards to gas production and consumption.

The successful consultant was XD Sustainable Energy Consulting Ltd, with funding for the study provided by LECO through Údarás na Gaeltachta, and Gas Networks Ireland. As an established regime actor, the involvement of Gas Networks Ireland highlights the interactive nature of the different levels within the MLP. The feasibility study assessed the viability of an anaerobic digestion plant for the Dingle Peninsula (XD Consulting, 2020). The initial feedstock analysis found that silage, cattle slurry, food waste, sewage sludge and fish waste has the potential to provide 305 GWh of energy to the region, nearly meeting the total demand of the peninsula of 315 GWh as determined by the Energy Master Plan, completed as part of the Dingle Sustainable Energy Community, supported by the Sustainable Energy Authority of Ireland (SEAI).

The context of the feasibility study was provided by the national legislative and policy framework, aligning with Agenda 2030 and the Paris agreement and set forth by the Climate Action Plan (DCCAE, 2019), which outlined Ireland's decarbonisation pathway for 2030, moving towards net-zero by 2050. Alongside this, at the county level, the Kerry County Development Plan 2015-2021, highlights the importance of a range of renewable options in accordance with the Renewable Energy Strategy. The significant potential of bioenergy was highlighted within the plan. On from this Transition Kerry Sustainable Energy Roadmap from 2013, highlighted within the feasibility study, outlined the potential of biomass in the study of County Kerry to be estimated at circa 2 TWh/yr or 50% of final energy usage. Within the roadmap, bioenergy has a central role to play in the transition. In this context biomass resources such as forestry, residues, energy crops, grass silage, and organic wastes can be used to produce heat, power and transport fuels. The feasibility study for the Dingle Peninsula aligns with this need for the development of biomass resources within the wider county context.

As part of the feasibility study, a stakeholder workshop was organised to discuss the potential of anaerobic digestion for the peninsula and some of the challenges faced by the community. Some challenges included; the declining income of the farming sector, increasing age profile of farmers, lack of employment opportunities for young people on the peninsula, and the changes that climate change and other environmental issues pose for farming. Through the stakeholder workshop, a set of principals were developed to meet with a determined vision for "Dingle to become one of the

leaders in the development of the rural bio-economy in Ireland, with biogas and a circular economy helping to create new job opportunities and securing the future of farming while contributing to meeting the community's energy needs in an affordable, equitable and sustainable manner" (XD Consulting, 2020, P.9). These principals included; biogas infrastructure to be community-owned, biogas to be produced and used locally, and biogas to be promoted as part of the drive for eco-tourism on the Peninsula.

Goal 1 within the initial mapping (Fig. 17) outlined the need for a biomass plan of action. The feasibility study, building upon Transitions Kerry's Energy Roadmap, has assisted in working towards this goal. Goal 6, an increase in renewable energy; Goal 16, energy independence; Goal 12, improved competitiveness of local business; and Goal 17 sustainable farming practice (amongst others) can be supported through the development of AD on the peninsula. Gas Networks Ireland, as an external stakeholder, were central to funding the project, along with Údarás na Gaeltacht. Within the feasibility study, several potentially viable locations for the development of the necessary biogas infrastructure were outlined. The second interim report on the feasibility of the anaerobic digestion for the peninsula was approved by the project steering committee in 2020. The project steering committee consists of local stakeholders and technical experts. The development of the feasibility study represents a diffusion of sustainability from the *Dingle Peninsula 2030* project, through the SEC, to some members of the local farming community and may in future represent a viable local source of sustainable gas supply.

5.3.3 West Kerry Dairy Farm SEC

One of the ESB Networks Ambassador Trial participants (see: 5.4.3), a farmer on the peninsula with a strong interest in energy-related initiatives and their role for the agriculture sector in Ireland moving forward, took part in the Community Energy Mentor Course (5.3.6). Participation in this course, coupled with the experiences gained through the ESB Networks Ambassador Trial, led the individual to begin pursuing options for decarbonising the local dairy farms on the peninsula. Through the support of the Dingle Peninsula SEC, a submission was made to SEAI for the creation of the West Kerry Dairy Farm SEC, which was approved in April 2020. This submission was led by the aforementioned individual and supported by a second member of the energy mentor group. West Kerry Dairy Farm SEC has been created seeking to alleviate unnecessary electrical usage in the dairy sector and work towards decarbonising energy supply in the future. The dairy farm SEC represents the first such initiative of dairy farmers within the SEAI SEC network. Up to 100 dairy farms (of the 120 on the peninsula) are associated with the SEC.

Following the initiation of the SEC application a steering committee was formed which consists of dairy farmers from across the peninsula along with other members of the general community who understand the issues associated. As part of the SEC designation, the group must establish an energy master plan (EMP) including both domestic dwellings and farm buildings. In October 2020, funding was given by SEAI to develop the EMP. Maximum grant aid of €10,000 was awarded to the group which can be used to bring in a consultancy firm to develop the assessment of the sector. By way of preparatory work, and as part of an MA dissertation project, an energy engineering student within UCC, completed a report investigating the feasibility of using renewable energy on the peninsula to alleviate grid pressure in the area, with a specific interest in the dairy sector. This, along with the Dingle Peninsula SEC EMP has acted as informing documents for the group.

The West Kerry Dairy Farm SEC has been supported in part by MaREI, who assisted in organising a meeting between the SEC, Teagasc (semi-state authority responsible for research and development, training and advisory services in the agri-food sector), the Department of Agriculture and themselves. The meeting, held in August 2020 acted as an opportunity for the Department and Teagasc, as regime actors, to learn about the West Kerry Dairy Farm SEC and their plans moving forward but also for the representative of the SEC to voice some concerns and challenges faced. The department of agriculture, missing from the stakeholder mapping, and Teagasc, a predominantly potential link, have become embedded within the *Dingle Peninsula 2030* project through involvement in the dairy farm SEC. On the 23rd of December, through the Dingle Hub website, The West Kerry Dairy Farm SEC invited quotations for a suitable consultant to deliver the master plan for the group. As of January 2021, the group is awaiting the closing date for the receipt of quotations. The development of the West Kerry Dairy Farm SEC operates as an example of the diffusion of sustainability through several developments. The initial *Dingle Peninsula 2030* project, along with the Community Energy Mentor course (5.3.6) and the ESB Networks *Dingle Project* (5.3.4) have been influential with regards to the emergence of the diffusion of sustainability into the local agricultural sector.

Although, in its infancy, the emergence of a local champion to lead the establishment of the SEC could have a significant impact with relation to decarbonising the dairy sector in the region. Moving from the five Ambassadors selected by ESB Networks (outlined below), the role of one in bringing together up to 100 local farms to think about energy usage acts as a primary example of the diffusion of sustainability which is apparent across the peninsula. A number of the goals outlined through the initial mapping can be related to the emergence of the West Kerry Dairy Farm SEC. These include Goal 17, sustainable farming practices; Goal 19, smart technology in farming; Goal 6,

increase the use of RE on the peninsula; and Goal 7, Dingle as best practice for energy transitions. The achievement of these goals is not guaranteed due to the emergence of the Dairy Farm SEC, yet as a diffusion of sustainability, it operates as a positive development with relation to the wider journey towards achieving the goals outlined by the grassroots participants (5.1.3).

5.3.4 Diffusion of Technologies

In September 2017, chief executive Pat O' Doherty and the Managing Director of ESB Networks (Electric Supply Board Networks) Margarite Sayers appeared on RTÉ (Irish national broadcaster) in the town of Dingle to announce plans for a pilot project in the area. The *Dingle Project* involves trialling smart grid infrastructure and technologies, for scaling up at the national level. Following the initial announcement, a formal launch was undertaken on 3rd April 2018. The trailing of smart grid infrastructure on the peninsula included updates to the pre-existing network, alongside the deployment of technologies such as EVs, solar panels, smart meters, battery storage and retrofitting to ambassadors selected from within the community. The project team from ESB Networks consists of a project manager, a community engagement officer, an asset manager and a communications and I.T. specialist. The community engagement officer on the *Dingle Project* also acts as a member of the collaborative committee for the *Dingle Peninsula 2030* project.

The Ambassador programme was launched on 17th December 2018 in a local pub on the Dingle Peninsula. At this event, the five ambassadors were presented to the audience. They consisted of four local families and one family business. As previously noted, demonstration projects, such as the ambassador programme;

> "have proven to be an important instrument for policy-makers, researchers and firms in helping to reduce uncertainty and to facilitate learning about the acceptance, desirability and adaptation of new technology in society. Interaction with societal actors, monitoring experiences with governance of such projects and policy learning are important issues" (Klitkou, 2016, P.97).

The participative approach allied to the demonstration project seeks to facilitate active engagement with future energy technologies. Alongside the Ambassador programme, an EV trial has been established whereby 17 electric vehicles are soon to be distributed to successful local applicants to trial the experience of driving an electric vehicle over a 12 month period. The participants consist of the 5 ambassadors alongside 10 new applicants and 2 share cars which people on the peninsula can sign up to use. Due to Covid-19 both the EV trial and the ambassador trial has been delayed or held

up due to issues with procurement of the vehicles and technologies in light of government restrictions. The EV trial has begun as of February 2021 and research is ongoing in this area. Finally, as part of the *Dingle Project*, 20 solar panels have been distributed to homes across the peninsula, again through an expression of interest form, administered to the public at the Dingle Food festival from the 5-7th October 2018 (see: Appendix 3 for an outline of events attended through this research project).

Due to the 'live' nature of the project, and the limitations placed on the overall project due to the Covid-19 pandemic there are currently no quantifiable measurers to assess the diffusion of technologies. Despite this, it has opened up interactions with regime actors and local citizens. Both ESB Networks board members and senior managers within the Commission for Regulation of Utilities (CRU) visited homes on the peninsula to see the integration of new technologies first hand. This opening up of space for interaction between different segments of the MaP can be viewed as a positive development. At a local level, there is anecdotal evidence gathered through exploratory interviews with the 5 selected ambassadors about an increase in local awareness about different technologies and in some cases a willingness to purchase low-carbon technologies such as those contained within the trial. Alongside this, a general interest in the area of low-carbon technologies can be suggested as rising through the running of the *Dingle Project*. This is seen through the expressions of interest related to the initial ambassador trial and the later EV trial. There were roughly 250 expressions of interest for the ambassador programme with 398 expressions of interest for the EV trial. Anecdotally, it could be suggested that this 55% increase represents an increased awareness of the technological changes required for the low-carbon transition highlighted through ESB Networks's engagement on the peninsula. Finally, at a broader level, through the use of ambassadors the diffusion of technologies and the diffusion of energy interest more broadly can be seen through the community energy mentor course (see: 5.3.6) and the West Kerry Dairy Farm SEC (see: 5.3.3). The diffusion of technologies can assist with a number of goals as they appeared in the initial grassroots mapping. Goal 6, increased use of renewables on the peninsula; Goal 11, increase awareness of climate change; and Goal 16, energy independence can all be supported by the diffusion of technologies across the peninsula. The approach taken by ESB Networks represents a move away from established regime practices with relation to developing electricity system projects.

5.3.5 School Climate Action

As part of SFI Science Week 2019, a 'climate hack' was organised through MaREI taking a 'serious game' approach to scientific communication. A 'serious game' is an interactive approach that is designed with the intention to teach rather than purely entertain. It is a very commonly used method of engagement in both climate change and energy transitions research (Undorf et al., 2020; Gugerell et al., 2017). The interactive outreach event was designed to align with the nationwide science week initiative and sought to highlight the work of *Dingle Peninsula 2030* to young people on the peninsula and get them involved in discussions around decarbonising the region. The template used for the climate hack was informed by previous interventions (Krzywoszynska et al., 2016; Thomas et al., 2018; Volken et al., 2018) which sought to disseminate information cards to participants to support them in making informed decisions about the future energy system. This event aimed to inform students of the current energy usage in their area, highlighting large sources of energy demand such as private car travel or home heating. It sought to give students the necessary data on electricity, heating and transport to enable them to make informed decisions about the future of the energy system. It captured the opinions and perspectives of young people, helping to develop local energy projects guided by young peoples' visions for a more sustainable future.

The two-hour workshop with fourth and fifth-year students took place in the three secondary schools based on the peninsula. Following introductions from MaREI on the *Dingle Peninsula 2030* project and the energy balance ascertained from the EMG (see: 5.3.1), the students were tasked with choosing a challenge (heating, transport or electricity) and preparing a proposal to help achieve decarbonisation within that sector using support from the information sheet to analyse CO_2 savings, cost estimate, potential barriers and the benefits of their proposal. A fellow PhD researcher and myself supported them through this process. Following the completion of their proposal, each group was asked to present their idea to the group. A selected group from each of the schools presented their proposals as part of the *Dingle Peninsula 2030* event on Feb 13th 2020, with an attendance of roughly 300 people. Alongside this, a group of students from Meanscoil Nua an Leith-Triúigh, Castlegregory applied to a Friends of the Earth Solar PV competition in light of the Climate Hack. Through the Climate Hack initiative, the diffusion of sustainability can be seen from the *Dingle Peninsula 2030* project into the local education system. Integrating the Climate Hack as an exercise into the classroom environment locally presents an opportunity to engage young people in local sustainability conversations and give them a voice in the wider discussions regarding the future of the peninsula with relation to the vision set out through *Dingle Peninsula 2030.* A number of initial goals outlined through the network mapping are supported by this development into school climate

action such as; Goal 4, community energy workshops on climate change; and Goal 19, awards for youth projects.

Following on from the climate hack with local secondary schools on the peninsula, a Junior Cert Maths student, based in Dublin, used the template to develop an energy overview for their county as part of their curriculum-based assessment. This represented a move towards national diffusion with relation to the developed exercise, as a means through which to engage young people in conversations and discussions with relation to climate change, sustainability and the decarbonisation of energy. Work is ongoing within MaREI to further develop and refine the event material to create a template that can be implemented within the curriculum nationally. Merging the exercise into existing coursework at a national level can facilitate the diffusion of sustainability from *Dingle Peninsula 2030* to a national level.

5.3.6 Community Energy Mentor Course

At the outset of the emergence of the Dingle Hub (Mol Téic), before the establishment of the *Dingle Peninsula 2030* project, a key goal of the not-for-profit was established whereby over 200 sustainable jobs would be created on the peninsula. With this in mind, and in light of developments made through *Dingle Peninsula 2030*, in March 2018 a meeting between representatives of the Dingle Hub and Kerry Education and Training Board (KETB) was convened to discuss the various aspects of *Dingle Peninsula 2030* and potential synergies in how KETB could partner to help support the project. The KETB, established in 2013, acts to create and promote the development of lifelong learning in Kerry, acting as part of a wider national Education and Training Board (ETB) network. Following a number of subsequent meetings and discussions, a range of different areas of partnership was identified. The linkages between KETB and Mol Téic identified through the initial stakeholder mapping were built upon with this local training initiative. The importance of training local 'energy coaches' to assist people in the process of transitioning to low-carbon technologies with relation to household and transport energy use was identified and discussed at a *Dingle Peninsula 2030* collaborative committee meeting. Through further discussions, this resulted in the development of the first partnership with KETB, a community energy mentor course.

The community energy mentor course was established as a 12-week part-time programme. This course was run by the Dingle Creativity and Innovation Hub with assistance from SEAI. The course was funded by KETB. The objectives of the course were as follows; to train community energy mentors to enable and support people to adapt their current energy lifestyles in a factual, non-

judgemental and impartial manner, to introduce participants to the concept of energy sustainability and energy technologies more specifically, to equip participants with necessary skills to benefit from future employment opportunities that will come from the energy transition, to connect mentors to the local community, and to build greater competence and capability across the community to enable the transition, supporting job opportunities within this.

The course was launched on 13th November 2019, with 10 participants. SEAI led the launch with an introductory talk and provided experts to deliver classes on community energy planning, sustainable energy practice and measures, sustainable communities, sustainable finance, sustainable energy systems, sustainable transport and hydro systems. Other sessions focused on climate change, the LED bulb swap event, Dingle Peninsula energy usage, building a successful SEC, smart energy, and the ESB Networks *Dingle Project*. Several site visits were interspersed between classes to show the retrofitting and renewable energy installations in ESB Networks Ambassador buildings, heat pump and geothermal systems, external insulation, a hydro installation, a BER assessment, an anaerobic digester and a community-owned wind farm. The participants also did a 2-day First Aid Responder Certificate Course.

Whilst not providing a basis of technical expertise, the course enabled participants to assume the role of local, impartial mentors- knowledgeable in the area of low-carbon transitions. The initiative was the first of its kind nationally within the ETB network and represented an innovative approach to addressing the training needs of local communities and learners seeking to prosper in the low-carbon transition. From the initial goals mapped out by the grassroots organisations, Goal 11, increase awareness of climate change; and Goal 4 community education workshops on climate change (amongst others) can be supported from the emergence of the course. As a diffusion of sustainability from the *Dingle Peninsula 2030* project, the initiative represented a move towards training and education, with local energy mentors now established on the peninsula, and many now involved in different energy-related sustainability projects. The course structure also has the potential for nationwide implementation through the ETB network moving forward. Alongside this, in 2021 KETB launched their inaugural sustainability strategy which gave reference to the Community Energy Mentor course. The strategy outlined a number of sustainability objectives for the organisation (Kerry ETB, 2020).

5.3.7 Sustainable Transport Pilot Project

The Dingle Peninsula, due to its rural geographical location in an Irish context, is under-serviced in relation to public transport infrastructure. Due to this the area is heavily dependent on private transport for mobility. As noted previously (4.2.2), there are 702 cars per 1,000 of the adult population on the peninsula, which exceeds both the national (558 per 1,000) and county (622 per 1,000) figures. In 2018, transport was responsible for 40% of Ireland's CO_2 emissions, with transport, therefore, playing a considerable role in relation to the emissions profile of the Dingle Peninsula. Coupled with this the peninsula is heavily dependent on tourism with over 1 million visitors annually. The limited public transport infrastructure caters to seasonal tourist led demand as opposed to indigenous needs. The private sector also provides transport options for the tourist sector. National plans to roll out EV's face challenges in the local context due to parking and charging infrastructure and facilities and the time frame set out in governmental policy (DCCAE, 2019).

With these considerations in mind, and with transport acting as a strategic sector for investigation in *Dingle Peninsula 2030,* several meetings were convened to discuss potential transport-related initiatives for the region. The Dingle Hub and NEWKD, as two members of the *Dingle Peninsula 2030* collaborative committee, worked alongside Local Link Kerry (local bus service) to engage with the local community to ensure any potential developments with relation to transport were informed by local needs. The participatory nature of inclusion with regards to local community needs has been embedded within the development of local low-carbon transport ideas. Through this process, and conversations and meetings held with relevant national agencies, a number of initiatives were suggested as means through which to address the difficulties faced on the Peninsula with relation to sustainable transport. These included; new bus services on the Dingle Peninsula, transitioning to low-carbon emission buses, integrated online booking system and real-time passenger information systems for public transport, commuter buses from Dingle to and from Tralee (the largest town in the County), and the construction of an EV parking and charging scheme. Due to the wide range of initiatives suggested it was decided that a steering group for the sustainable transport pilot would prove advantageous. In September 2020, an online meeting was convened with representatives of the National Transport Authority; Department of Transportation, Tourism & Sport; Local Link Kerry; Bus Eireann; SEAI; Dingle Hub; and MaREI (with apologies from NEWKD), to progress this further.

Despite the emergent nature of the range of initiatives, a strong foundation has been established for their delivery with collaboration from the *Dingle Peninsula 2030* collaborative committee, local community members and organisations, and relevant national bodies. The objectives of the overall transport pilot are to start local conversations on how to address transport emissions, to engage

with and involve members of the local community, to secure the involvement and support of the key agencies involved in transport both locally and nationally, and to develop a sustainable transport pilot project on the Dingle Peninsula. In this regard, the first three objectives have been met, and the process is moving towards the final objective. Again, due to the active nature of this research project, no clear findings can be given on the outcome of the project. However, the establishment of the pilot project represents a diffusion of sustainability with relation to transport, opening up the local transport sector to conversations and possibilities about decarbonising the local network. The level of private transport reliance means emissions reductions in this sector borne out of public transport and EV projects has great potential to assist the Peninsula in lessening its reliance on fossil fuels moving forward. No goals directly related to transport were highlighted through the initial mapping (Fig.15), however, it can assist with some broad goals such as; Goal 7, Dingle as a best practice example for the energy transition; and Goal 9, improve energy efficiency by 10%.

Following on from the outline of results related specifically to the research conducted with Dingle Peninsula 2030, we move now to the national context to outline findings related both to community engagement within public bodies and transdisciplinary approaches to research engaging with community and civil society stakeholders.

Chapter 6: Community Engagement and Transdisciplinary Research.

Introduction

In the second results chapter, the findings are drawn out as they relate to the final two aspects of the investigation. The two here move beyond the region-specific nature of the results contained within the previous chapter and outline the findings as they relate to the investigation of community engagement within public bodies nationally (6.1) and the investigation on transdisciplinary approaches to research engaging with community and civil society stakeholders and the challenges and motivation of practitioners of these approaches (6.2). Through taking a wider viewpoint, moving beyond the regional, the findings from *Dingle Peninsula 2030* are situated in the national context as it relates to community engagement as an organisational practice, and research practices working with community and civil society stakeholders.

The results contained here relate to the first and third research questions guiding this investigation, i.e. (1) How can a mixed-method approach support an action research investigation of sustainability transitions?, and (3) How can community engagement and transdisciplinary research assist in merging top-down and bottom-up approaches to transitions? In concluding this chapter the findings of both Chapter 5 and Chapter 6 will be visually represented using the heuristic tool of the multi-level perspective (MLP).

6.1 Current community engagement practices within public bodies and future developments

This section outlines the results of both the semi-structured interviews with community engagement practitioners within eight national public bodies (See: 3.9.1) and the online participatory workshop related to community engagement within public bodies with the same organisations. The findings from the semi-structured interviews are highlighted in a graph across the themes of; defining community engagement, factors for successful community engagement, barriers to community engagement, why undertake community engagement, institutional strengths and institutional weaknesses. These six themes are structured using direct quotations (outlined in 6.1.1) and graphed in a networked illustration. Results from the online participatory workshops are highlighted through the presentation of a reformatted form of Mural (note-taking app), drawing out 3 core topics, i.e. good practice, challenges, and new ideas.

6.1.1 Data from Interviews

The raw data from interviews have been compiled into direct quotations as they relate to different questions posed during the process. Table 18-23 have been used to structure the network illustration contained below (Fig. 23). Alongside this, an outline of the content contained in the quotations has been structured for each of the six sections.

1. Defining community engagement

Community engagement is defined as a full-time job and a two-way discussion within which one must seek to work directly with the community to understand their needs and to arrive at a solution that works for them. The importance of listening, in an active way, was highlighted and the need to provide support to organisations involved in community engagement was suggested as important. On from this the need to create a space in which communities come together to discuss a project or policy was viewed favourably. Community engagement is more than the provision of information and must follow a sequence of listening, inputting information, consulting, involving people in key decisions, empowering people, and collaborating with people. The need to genuinely understand any concerns which may exist can support effective community engagement, and practitioners must get to the heart of the community or common interest group.

Defining Community engagement
• It is a full time job (Respondent (d) member of EirGrid. Female, 45-55)
• Creating fora for communities to come to discussion and to try and come to some form of consensus on how to move forward on a project or a policy or that kind of thing (Respondent (g) member of CIE. Male, 60+)
• A listening experience, actively listening in conversation to what people's experiences are as a community (Respondent (h) member of Mayo Co.Co./ CARO. Female 50-60)
• A two way discussion, it is to work directly with the community to understand their needs and for them to understand where we are coming from and to come up with the solution that works for both (Respondent (f) member of Mayo Co.Co/ CARO. Male 50-60)
• Reaching out to the various community engagement organisations to see how we can support their activities and their ambitions. (Respondent (e) member of SEAI. Female 40-50)
• More than just providing information, the idea is engagement is a whole process and it goes through a sequence of listening, inputting information, consulting, involving people in key decisions, empowering people, collaborating with people. (Respondent (a) member of Coilite. Male 35-45)

• Making the issue fully available and transparent and understood by the community and establishing a two way conversation with the community and allowing the community the ability to be able to influence the development of the issue that you are discussing (Respondent (d), member of EirGrid. Female, 45-55)
• Meeting and communicating with people in an area or people who have a common interest so that you can get their input so that when you are delivering something that it hits the mark and you are doing it in a respectable way (Respondent (b) member of ESB Networks. Female, 40-50)
• Community engagement is all about getting into the heart of the community or a group of people who have a common interest (Respondent (b) member of ESB Networks. Female, 40-50)
• Getting out there, listening to what is going on and genuinely trying to understand any concerns so that if there is any problems or if there is anything we can do facilitate anything that we can do that. (Respondent (b) member of ESB Networks. Female, 40-50)

Table 18: Direct quotations from interviews with community engagement practitioners within eight national public bodies defining community engagement

2. Factors for successful community engagement

A number of traits were listed as of central importance with relation to success; clear communication, transparency, respect, trust-building, expectation management, being available, open and honest, listening, being resourced properly, flexibility, and managing outrage. Finding the right champion locally was noted as important, aligning with the emergence of champions as seen in *Dingle Peninsula 2030* (see: 5.3.3). Internally there is a need for strong management with the inclusion of different internal departments in the engagement process. Internally there must be a clear understanding and organisational culture around community engagement. The need to start early and on a broad basis with engagement. Clear messaging was referenced, with regards to knowing both your message and your audience. The diversity of engagement scenarios was noted, with there being no one silver bullet for successful community engagement.

Factors for successful community engagement …
• Not one silver bullet for successful community engagement. (Respondent (g) member of CIE. Male, 60+)
• You cannot start early enough and you cannot start on a broad enough basis (Respondent (d) member of EirGrid. Female, 45-55)
• Be direct, honest and available, Be open and transparent. (Respondent (d) member of EirGrid. Female, 45-55) and (Respondent (a) member of Coilite. Male 35-45)
• Know exactly what your message is, who your audience is, and your locality (Respondent (e) member of SEAI. Female 40-50)

• Clear communications. Respect. Build Trust. Manage Expectations. Listen. Go to where people are. (Combined respondents (a) – (h))
• There are things which you can move on and there is things which you cannot move on and you have to be open and honest with that (Respondent (c) member of Ervia. Female 35-45)
• Have something in your pocket for a quick win (Respondent (f) member of Mayo Co.Co/ CARO. Male 50-60)
• Being there and being available and being honest in every interaction that we have. Identifying key people that you work with. (Respondent (c) member of Ervia. Female 35-45) and (Respondent (e) member of SEAI. Female 40-50)
• Finding that right champion to bring people along with them is key (Respondent (e) member of SEAI. Female 40-50)
• Strong management internally (Respondent (a) member of Coilite. Male 35-45)
• Being resourced properly (Respondent (a) member of Coilite. Male 35-45)
• Inclusion of different departments internally (Respondent (e) member of SEAI. Female 40-50)
• Managing outrage (Respondent (a) member of Coilite. Male 35-45)
• Flexibility; being able to understand and listen properly and being able to manage relationships both internally and externally to be able to negotiate continually a better outcome. (Respondent (d) member of EirGrid. Female, 45-55)
• Acknowledging peoples participation (Respondent (d) member of EirGrid. Female, 45-55)
• Communicate, communicate, communicate all the time and get out there all the time (Respondent (d) member of EirGrid. Female, 45-55)
• You don't have to be embedded 24/7 in the community but it is important to have a base in the community. (Respondent (b) member of ESB Networks. Female, 40-50)

Table 19: Direction quotations from interviews with community engagement practitioners within eight national public bodies on factors for successful community engagement

3. Barriers to community engagement

Having inadequate resources for effective community engagement is a key barrier. On from this being an outsider to a community can be a block. Local representation is a challenge, and managing personal agendas within a community is a crucial skill. A distrust towards institutions is noted and from this the language and culture both internally and in a community can be a barrier if not aligned in some way. With climate change-related engagements it was noted that there is an expectation to live by what you are engaging for (i.e. low-carbon society). A challenge can also emerge if people see

the organisation as a one-stop-shop for a range of issues beyond their institutional remit. How to engage with the minority of people (5-10%) who do not wish to be engaged with also emerged as an issue that needs consideration within the development of engagement strategies.

Barriers to Community Engagement
• Language and Culture, both internally within an organisation and externally within a community. (Respondent (b) member of ESB Networks. Female, 40-50)
• Resources (Combined respondents (a) – (h))
• With Climate Change if you are engaging on it you have to live by it. There is an expectation there. (Respondent (b) member of ESB Networks. Female, 40-50)
• Having an outsider coming into a community (geographically or interest based community). (Respondent (c) member of Ervia. Female 35-45).
• Lying to communities. (Respondent (c) member of Ervia. Female 35-45)
• Local representation is a challenge. Who is representing who exactly? Managing personal agendas within a community. (Respondent (d) member of EirGrid. Female, 45-55)
• A disbelief and cynicism towards whether you are actually engaging. An institutional distrust. (Respondent (d) member of EirGrid. Female, 45-55).
• How do you engage someone who does not wish to be engaged? The difficulty of the 5-10% who are opposed and can't be engaged with. (Respondent (a) member of Coilite. Male 35-45)
• The lack of consistency in the way communities structure themselves both formally or informally. (Respondent (e) member of SEAI. Female 40-50)
• People seeing you as the one stop shop for everything (Respondent (e) member of SEAI. Female 40-50)
• People not showing up to events/ public consultations (Respondent (f) member of Mayo Co.Co/ CARO. Male 50-60)

Table 20: Direct quotations from interviews with community engagement practitioners within eight national public bodies on barriers to community engagement

4. Why undertake community engagement

Firstly, it is viewed as being helpful in building better relationships within the community. The reputational damage of not engaging was noted. The opportunity to hear from people in a community, building strength within a project through local knowledge was seen as a reason for community engagement, leading to a stronger more rounded project. The disconnect between communities, industry and government may be rectified through effective engagement processes.

The process of engagement ensures you are keeping people informed of what may be happening locally and in return, you become more aware of what may already be going on.

Why undertake community engagement?
• Builds better relationships in the community. (Respondent (d) member of EirGrid. Female, 45-55).
• There is no point in doing a great project if you ruin your company's reputation in that area. (Respondent (c) member of Ervia. Female 35-45)
• By not involving communities you are doing your project a disservice because you are missing out on an opportunity to hear from the key stakeholders. They are not just the receivers of information, you also have the chance to hear information from people in the community to make the project better. (Respondent (c) member of Ervia. Female 35-45)
• there is a big disconnect between people on the ground and industry and CRU and government and that community engagement bit pulls the community together and that engagement piece can feed back up then to the relevant bodies. (Respondent (b) member of ESB Networks. Female, 40-50)
• You are making decisions on actions that will impact on other people. They have a right to be involved in those discussions at least have a very clear understanding of how they will impact them (Respondent (a) member of Coilite. Male 35-45)
• There is the knowledge piece ,there is the connectedness, there is the trust, there is the ability to persuade, there is the linkages of knowing there is five other things happening in an area that could work together to create something better than what was being proposed or know what barriers might come along that you don't even know about. Understanding the different organisations. Community and non-community that need to be engaged to support it, knowing how to spread the word effectively. (Respondent (e) member of SEAI. Female 40-50)
• Making sure initially that you have engaged with them and that they understand the rationale for the project and you understand what the issues are locally to make sure the project itself is delivering what it needs to deliver. Keeping communities informed on what is happening. (Respondent (f) member of Mayo Co.Co/ CARO. Male 50-60).

Table 21: Direct quotations from interviews with community engagement practitioners within eight national public bodies on why to undertake community engagement

5. Institutional strengths

Through operating at a regional/national level it is possible that a unified approach can be achieved, both within and across public bodies. Some respondents noted a track record of engaging with communities as a strength. Dedicated teams and access to finance are positives internally if evident. An institutional strength was also found with several public bodies that are embedded and

established across the country in different communities. An organisational strength can be found if community engagement is included up through the organisation to the level of the CEO. A recognition that community engagement is different from public relations is an important factor. The principles of community engagement must therefore be applied at a deeper level than communication or information dissemination.

Institutional Strengths
• Operating at regional/national level means unified approach can potentially be achieved. (Respondent (h) member of Mayo Co.Co./ CARO. Female 50-60)
• Track record of working with our communities. . (Respondent (e) member of SEAI. Female 40-50)
• Presence across the country at a very local level. (Respondent (a) member of Coilite. Male 35-45)
• Recognition that community engagement is different to PR and it is important. (Respondent (a) member of Coilite. Male 35-45)
• Dedicated teams (Respondent (d) member of EirGrid. Female, 45-55).
• Access to finance. (Respondent (b) member of ESB Networks. Female, 40-50)
• All the way up to the CEO and beyond it is seen as one of the key drivers for the organisation. (Respondent (d) member of EirGrid. Female, 45-55).
• Low turnover of staff helps keep learnings from C.E. in company. (Respondent (c) member of Ervia. Female 35-45)
• Access to all the different skill sets that we need (Respondent (b) member of ESB Networks. Female, 40-50)

Table 22: Direct quotations from interviews with community engagement practitioners within eight national public bodies on institutional strengths for community engagement

6. Institutional weaknesses

Community burnout can occur if institutions continue to go out to the same communities. In some instances, community engagement was still viewed internally as public relations. The need for a coordinated approach was noted as a weakness. The reactive nature of the evolution of community engagement was noted, with current practice sometimes involving going to communities once opposition has mobilised.

Institutional Weaknesses
• Co-ordinated approach needed (Respondent (b) member of ESB Networks. Female, 40-50)
• Going to same communities continually. Burn-out can happen. (Respondent (d) member of EirGrid. Female, 45-55).
• Community engagement in the company is still PR . (Respondent (a) member of Coilite. Male 35-45).
• In some area we are not going to go out and talk to people we are going to wait until people bash us and then we will defend ourselves (Respondent (a) member of Coilite. Male 35-45).
• It is an evolving thing and how it evolves is mainly very reactive. (Respondent (d) member of EirGrid. Female, 45-55).
• The additional cost and the resourcing for it and the integration of resourcing and costing for that when you go through planning. (Respondent (c) member of Ervia. Female 35-45).

Table 23: Direct quotations from interviews with community engagement practitioners within eight national public bodies on institutional weaknesses impacting community engagement

Six Themes from Semi-Structured Interviews

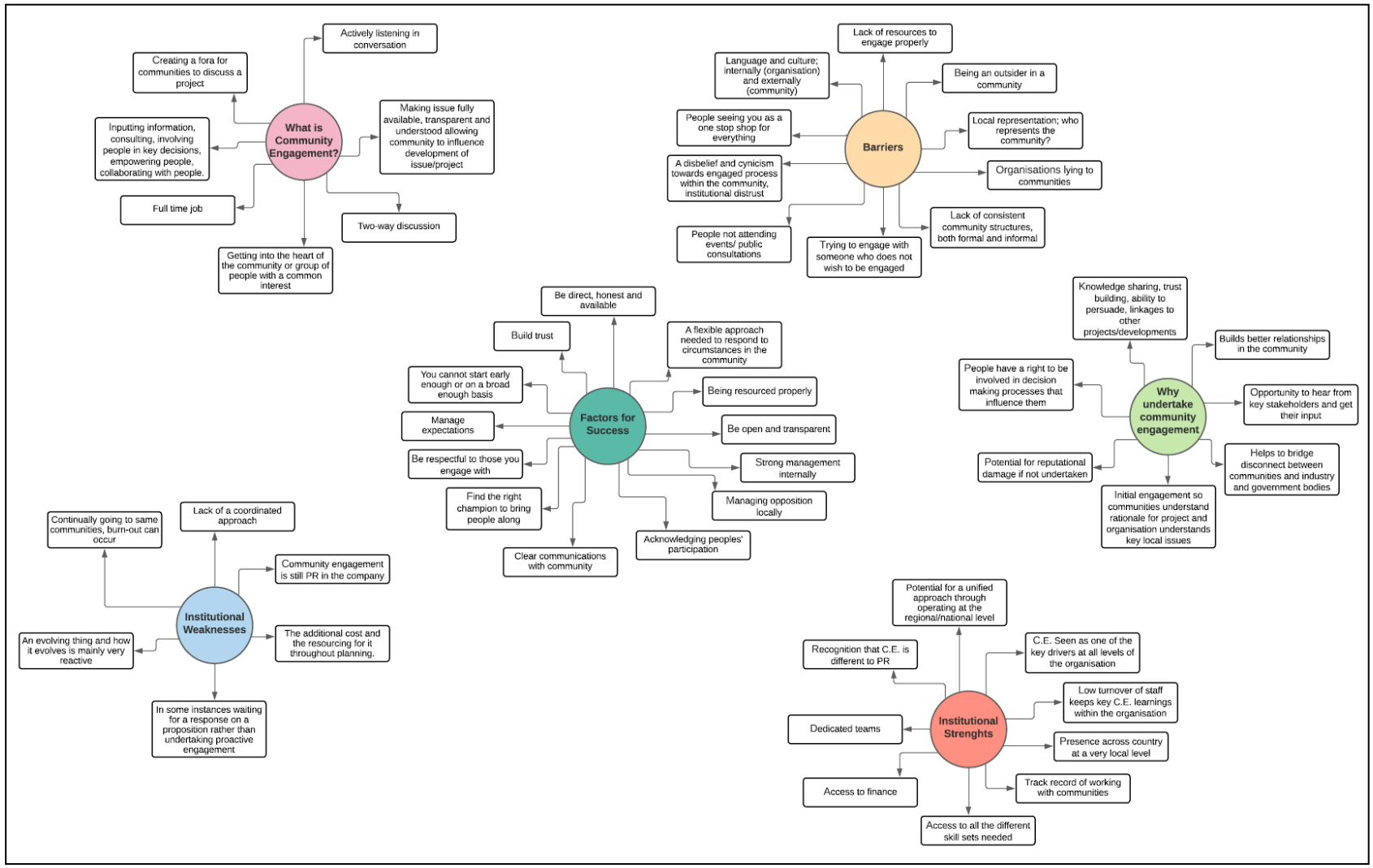

Fig.23: Six themes from interviews with community engagement practitioners within eight national public bodies on community engagement practices.

6.1.2 Online Participatory Workshop

Through thematic analysis using the constant comparative method across the two breakout rooms within the online workshops, three core themes are outlined; Good Practice, Challenges, and New Ideas. The results across the three themes are outlined from both workshops and categories as they relate to each. The focus of the first breakout room was on engaging with a disinterested or disengaged community, while the second focused on engaging with a mobilised community that is actively opposed to your agenda. Good practice, challenges and new ideas were outlined across the five steps referenced in the method section. The five steps were 1) research and mapping of who to contact, 2) outreach at the start of a project, 3) continued engagement, 4) gaining feedback on the process, and 5) evaluation and outcome (Step 1 = (S1) etc.). The results contained here move beyond the broad outline of different aspects related to community engagement, moving towards the application of engagement practices as they can be related to hypothetical scenarios.

6.1.2.1 Good Practice

Breakout Room 1	Breakout Room 2
Carry out detailed contextual analysis. (S1)	Stakeholder forum with key bodies, groups. (S1)
Not trying to deliver our agenda- but support the right fit with sustainability. (S1)	Visit the area understand the reality, read local paper etc. (S1)
Engage with lots of people initially. (S1)	How do we identify the communities that are involved? (S1)
Parameters should be made clear at the outset. (S1)	Review what other companies have done. (S1)
Work with the core community and train ambassadors. (S1)	Monitor media, twitter to see relevant convos not covered in current policy. (S1)
Build a profile as a first step, this takes time (S1).	Review other projects- map out the area and identify any groups previously engaged with (S1)
Understand your stakeholders. (S1)	Ensure policy doesn't go ahead of action-engage early in policy formation. (S1)
Listening to find out needs of group. (S1)	Local engagement with communities (S1)
Make it clear what invitees can do, what to expect next and what they will get out of it. (S2)	Counteract problems on human level. (S1)

Make engagement topics relevant to the time and needs of the community. (S3)	Understand area early. (S2)
Continue to listen and adapt to their needs and help them in what they're trying to do. (S3)	Identifying the most used channels for communication in community (S2)
Dig into where opposition is coming from. (S3)	Tailor message for different audiences. (S3)
Informal 1-1 feedback throughout process. (S5)	Have we missed anybody. What could have been done better? (S4)
	Focus on traditionally excluded stakeholders. (S4)
	Consultation reports showing where feedback has been used (S5)
	Transparency throughout process is key. (S5)

Table 24: Good practice for community engagement from online workshop

6.1.2.2 Challenges

Breakout Room 1	Breakout Room 2
Disinterest in issue at hand. (S1)	Balance between local trust and an independent person with external viewpoint. (S1)
Respond to the current challenges. (S1)	Strong opposition group- use local contacts to get an in and try to find a neutral way to engage. (S1)
Enabling communities to learn the skills and tools they need. (S1)	Not going out early enough. (S3)
How to tap into other interests in a community. How to enhance local community with a project. (S1)	
How to reach new audiences. (S1)	
Destructive people in groups, managing this. (S1)	
Professional view versus layman's view. (S1)	
Lack of interest in climate awareness/ action (or not a priority. (S2)	
Particular personalities with agenda to prevent projects. (S2)	
Focus groups with disinterested participants. (S3)	

Understanding motivations of communities. (S3)	
Managing power dynamics. (S3)	

Table 25: Challenges of engaging hypothetical community scenarios from online workshop

6.1.2.3 New Ideas

Breakout Room 1	Breakout Room 2
One to one discussions with difficult personalities. (S1)	Creating new opportunities to engage, hear what people have to say- problem might not be your project specifically (S1)
Increased accessibility to reach out to people more regularly with webinars. (S1)	Need to understand deeply why there is such strong feelings. (S1)
Physically getting out into the community to tell people about project. (S1)	Must tie any steps into the national roadmap and ensure compliance. (S1)
Allow people to speak which means learning for the organisation. (S1)	Terms of reference and MOU for stakeholder groups and consultation processes. (S1)
'Responsiblisation'-putting responsibility on people for change. (S1)	All teams need to be informed on what others are doing. (S4)
Doing very targeted workshop. (S1)	
Doing focus groups ahead of time. (S1)	
Understanding of moving from one step to another you have to have a consultative process. (S1)	
Impact case studies. (S1)	

Table 26: New ideas for community engagement within public bodies from the online workshop

6.1.3 Evaluating an online workshop in light of Covid-19

At the close of the workshop, a feedback survey was submitted to the group. 6 of the 9 participants responded to the survey (see: Appendix 5). All respondents to the survey found the workshop to be an enjoyable and useful exercise. The participant group is particularly interested in online interventions, with their professional roles involving community engagement being disrupted by the Covid-19 pandemic. Despite the limited sample size, the overall feedback on the process was positive. The well-established nature of this group and the awareness of the unprecedented circumstances which led to the facilitation of this research intervention online may have implications

for a positivity bias. Despite this, a number of concerns were raised. Firstly, despite the short timeframe of the workshop (1 hour 40 minutes), a suggestion was raised on the need for a short break. This fits within the emergent literature on what has been deemed 'Zoom Fatigue' (Tufvesson, 2020; Fosslien & Duffy, 2020). Several considerations for combatting this problem have been proposed such as the implementation of regular comfort breaks, limiting the use of video to speakers, using effective lighting, and correctly positioning and speaking to the camera (Wiederholder, 2020). The need for more regular comfort breaks has implications for data gathering and must be considered within the research design. Other measures should be made commonplace both with research practice and made known to participants in the research intervention.

The use of Mural for 'sticky note' compilation was also noted as an issue by one participant and by the facilitation team. Another respondent viewed the use of Mural favourably, potentially highlighting the different subjective interpretations, digital literacies, and technical hardware configurations at play. Any use of a secondary platform within the online workshop setting places those using only one monitor at a disadvantage due to legibility issues. Before the research intervention, participants could be asked about their technical setup for undertaking the workshop. With this, adjustments could be made to facilitate different arrangements. In some cases, such as the one discussed here, the potential of data gathering is greatly dependent on the hardware used by participants, from dual screen home offices to smartphones. The digital divide is a well-established equity issue concerning education (Hamburg & Lütgen, 2019). The need to embed issues surrounding digital literacy within social science ethics training would be a warranted development for qualitative research due to recent developments.

The use of break out rooms on zoom was highlighted as a positive aspect of the online workshop and has precedent within the literature as an effective means through which to manage group sizes and topics covered (Presicce et al., 2020; Vuuren & Freisleben, 2020; Nunes et al., 2020). The groups were highlighted in the feedback as being of a suitable size. This, however, fails to cover an aspect of the process which emerged in the lead up to the online workshop. Two days prior to the workshop 12 people were signed up as participants. Two dropped out on the day before the workshop and one on the day of the workshop. While legitimate reasons were given, a physical workshop in which the time and date are scheduled into calendars perhaps is more likely to prevent numbers from dropping so close to the event. New personal and family pressures, alongside 'Zoom Fatigue', brought forward by the pandemic must be accounted for in the research design and flexibility must be incorporated.

6.2 Themes on Transdisciplinary research

This section moves from community engagement within national public bodies to look towards transdisciplinary research approaches engaging with community and civil society stakeholders. Semi-structured interviews with researchers practising such approaches have been undertaken. During the semi-structured interviews, the question was asked; *"how do you define the research approach you take?"* In response, fourteen terms were referenced by the researchers, which have been outlined here along with definitions from the literature. Following on from this, the key themes emerging from the interviews are outlined across four categories; challenges associated with involving community and civil society stakeholders in research challenges emanating from new research practices, benefits and motivations, and the need for topic-focused institutes for transdisciplinary research.

6.2.1 Research approaches highlighted during the interviews

Within the interviews, participants were asked to name the research approach they take. Fourteen variations, potentially associated with different disciplinary backgrounds, emerged when participants were asked to define their practice when working with community and civil society stakeholders. Table 27 provides an overview of the terms, regarding their definitions in the literature. Some of the terms, having been used interchangeably by the participants, were considered to have very closely aligned definitions and thus have been grouped. Transdisciplinarity, despite its centrality within the investigation, has been included here along with multi- and inter-disciplinarily as it appeared with the interviews.

Research Approach / Method	**Overview**
Deliberative processes	Provides guidance based on relevant scientific evidence, interpreted wherever possible with context-sensitive scientific evidence and, where not, by the best available local evidence (Culyer & Lomas, 2006). Deliberative processes can provide "decision supports" in local contexts (Pope et al. 2005)
Civic / community engagement	Relates to the civic sphere and citizenship and the ways in which actors participate in community life to improve conditions for others, or to help shape the community's future (Brabant & Braid, 2006; Adler & Goggin, 2005)
Co-design / production / creation	A cluster of participatory and transdisciplinary research approaches that are context-based, address meaningful goals by bringing together diverse forms of knowledge, and do so in an interactive engagement process (Norström et al., 2020). Co-design emerges through the field of 'design thinking', co-production initially comes through in the public administration literature, while co-creation comes from the management literature.

Co-learning	Researchers and practitioners acting as participants in processes of education, through engagement in action and reflection (Wagner, 1997)
Engaged research	Researchers deliberately working jointly alongside community and civil society practitioners, policy-makers, or community members with different types of knowledge on a shared problem (Brandt et al. 2013; Graybill et al. 2006)
Multi-actor / stakeholder approach	A form of stakeholder governance that uses democratic practices to develop regulatory mechanisms, such as metrics and standards, usually involving a public / private sector partnership (Konefal, 2015, Bäckstrand, 2006)
Collaborative	Working alongside other stakeholders to produce new knowledge, including assistance in the overall research design, collecting and analyzing data, or writing publications (Aboelela et al. 2007; Tress et al. 2005)
Action orientated	Researchers working alongside practitioners and community partners to inform practice, programmes, community development, and policy whilst adding to the scientific knowledge base (Small & Uttal, 2005), connecting social science knowledge with public issues
Multidisciplinary	"features several academic disciplines in a thematically based investigation with multiple goals… aiming to share knowledge and compare results from the studies there is no attempt to cross boundaries or generate new integrative knowledge" (Stock & Burton, 2011, P.1095)
Interdisciplinary	"focus on addressing specific 'real world' system problems and, as a result, the research process forces participants (from a variety of unrelated disciplines) to cross boundaries to create new knowledge" (Stock & Burton, 2011, P.1096) which aims to bridge disciplinary viewpoints
Transdisciplinary	"involving not only multiple disciplines, but also multiple non-academic participants (e.g., land managers, user groups, the general public) in a manner that combines interdisciplinarity with participatory approaches" (Stock & Burton, 2011, P.1098) a process through which the production of knowledge is opened up to a wide variety of perspectives and viewpoints (Darian-Smith & McCarthy, 2016)

Table 27 - Research approaches highlighted in interviews with an overview of the literature.

6.2.2 Themes emerging from the Interview process

Here, themes emerging through the interview process are outlined. These themes have been group around four classifications; challenges emanating from new research practices, challenges associated with involving community and civil society stakeholders in research, benefits and motivations, and the path forward. Throughout the section, the relevant quotes from interview participants (IP) are provided in text boxes, with the ten participants referred to simply as IP1 to IP10.

6.2.2.1 Challenges inherent to higher education institutes emanating from new research practices

Firstly, the issue of communication between actors is of importance. Coming from different disciplinary backgrounds for academics, or professional settings for civic and community-based stakeholders results in many linguistic styles of specialisation (Jahn et al., 2012). This can be difficult to overcome to provide insightful and rigorous findings whilst simultaneously being restricted through the use of the lowest form of language shared expression (Tress et al., 2005). The tension between different knowledge types, technical expertise, organization structures (Jahn, 2008) and within this language (Kantamneni et al., 2019; Jahn et al., 2012) represents one of the core challenges for research moving from disciplinary to transdisciplinary.

Another consideration is that; “Research design is very important. Often it’s the bit left to the last minute and sometimes it's retrospective, on larger studies, it’s very rushed. A lot of time is spent doing the research but not enough planning it and conceptualizing what it is you ought to do. There is a saying, measure it twice and cut once, get it right” (IP3). In the words of Saviano et al. (2019), despite the growing importance being placed on transdisciplinarity, “science has continued to follow a vertical pathway through the development of increasingly specialized knowledge, thus generating fragmentation and divides that make dialogue among disciplines difficult”. Alongside this, often the proxy variables used in the evaluation of research practices (Mårtensson et al., 2016) do not include elements related to transdisciplinary approaches. The time required to coordinate meaningful stakeholder engagement is severely underappreciated. On from this, it was suggested in several interviews that “Working across disciplines, there is a hierarchy of egos. You can talk about interdisciplinary but with the social side of things, that is usually just tacked onto the end of the project. There is that view that it is not a core part, it’s not given the same value.” (IP5). There was a perception among participants that “what happens often is that the social science component is bolted on” (IP10).

Beyond how knowledge is integrated, and with relation to the definition of roles, time (Polk, 2015) and levels of commitment (Boon et al., 2014) become important considerations. As noted; “one of the things is that people don't understand the time it takes to do this work and the fact you have to develop relationships with people and you have to understand what they want” (IP6). Researchers must balance the tension between levels of commitment from societal actors, the necessity of producing findings that are practical to these actors and the need for research outputs. On from this, and with specific relation to said findings, it becomes difficult to both present findings that are relevant to a specific context, whilst still offering insight at a more general level (Wiek et al., 2012), with language becoming an important issue with relation to communication; “staying within academia is easiest, not necessarily talking the same language but the goal is the same, the end goal of publishing papers and solving problems. Whereas reaching out to communities is very different (IP5). Due to this strain between context-specific and general insights, often transdisciplinary research can have difficulty in gaining influence at the level of policy (Stauffacher, 2010). More than this it has been suggested that there may be a problem of transferring knowledge from science to society that is not just about translation due to incommensurability (Grundmann, 2017).

Working in a team that includes a range of different actors, coming from different institutions/ organisations, may prove a challenge due to the differing performance expectations within said institutions/organisations placed upon the different individual actors (Boon et al., 2014). The transdisciplinary team becomes its own entity, but one in which different actors must meet different performance indicators. Within an academic setting, the importance recently placed upon transdisciplinary approaches to managing complex issues is still at odds with the structural expectations created within academia; “when it comes to your own personal career it doesn’t really provide … academic outputs will suffer if you are doing this kind of engaged research properly, so I think that has to be reflected. In some respects, people look down... I am not saying that happens across the board... but it is considered lesser possibly than academic research which I would very much argue against” (IP6) Importantly, as Lauto & Sengoku (2015) note with relation to barriers to transdisciplinary research (TdR) within Universities, career advancement opportunities remain more fixed towards singular disciplinary approaches due to the historical development of disciplinary traditions throughout the 20th century. As noted within an interview; “essentially the currency is journal publications… yes, there are lots of scholars that do this kind of work and are held in high esteem but you need to be publishing journal papers” (IP10).

This lack of recognition for TdR in career progression was reflected in the ease with which participants could pursue this approach. There was a clear distinction between permanent teaching

posts with the freedom to explore their personal interests, in comparison to earlier stage researchers lacking this certainty and security. As noted by a permanent senior staff member; “I just did my own thing. There was never any issue. The fact of the matter is given my seniority, you kind of work your way into a position of privilege” (IP7). Linked to this issue of funding is the challenge of maintaining capacity within a research group; “you need to have continuity, but our structures don’t allow for that. When I say our, I mean academia more widely. You can recruit as many students as you want, you get in post-docs, and they are there for a period then move on. The knowledge is lost, it’s hard to retain capacity in research groups. There are very few if any, (permanent) places within the research side of it” (IP3). This is of particular importance when it comes to having people with a somewhat unique skillset; as both experts in sustainability challenges and stakeholder engagement.

Despite its current difficulties, several of the interviews highlighted the significance of senior university management and policy now calling for TdR; “I think the current senior management in the University value it a bit more than previous ones. So it is a bit easier to do when you are getting kudos for it from senior university people” (IP8). For some participants, this is in stark contrast to how they had previously been ‘looked down’ upon. However, it does not come without concerns, there are questions over the motives of this new agenda and if it was truly in the spirit of seeking to establish new relationships and knowledge; “then the other part I suppose is that generally the *host research institute* does recognise this work but it tends to be for social media and that stuff” (IP6).

6.2.2.2 Challenges associated with involving civic and community-based stakeholders in research

A significant push for civic and community-based stakeholders to be involved in research with relation to sustainability and climate change has been seen in recent times, however, this is not a new concept (Odum & Barrett, 1971); “although it’s not as new as you might think, this has been around for decades, but what is new is the current drive to have elements of Interdisciplinary or Transdisciplinary across most of the research (IP3). Well established interactive research practises with long traditions of methods, practices and empirical research are often crowded out by “the jargon of co-production” (Mach et al., 2020, P.31).

It is not to say that these approaches are new, but rather that there is a new emphasis placed upon their incorporation into current practices. This creates an issue whereby researchers with no previous experience of these practises or traditions are expected to undertake roles that are new to them; “you want to bring in other disciplines but then I suppose you want there to be enough people within a project who understand how this knowledge making works or else you have people

reinventing the wheel and suggesting the collaborative community engagement work is some brand new radical type thing which it isn't it has been around a long time" (IP10). Moreover, it must be recognised that some people will be more naturally suited to the role than others will; "we are being asked to be the scientist, to be the communicator, be the engaged research person, be everything" (IP6).

It has been claimed that through working with researchers, civic and community-based stakeholders are "rewarded with new knowledge, capacities, and 'voice' by taking part in research networks" (Klenk & Meehan, 2015, P.743). There is a danger here, however, in starting from an assumed position that beneficial outcomes will be achieved simply through the process of working with civic and community-based stakeholders. This evidence may be influenced by the form of practice being implemented on the ground, whereby a box-tick logic is applied to stakeholder engagement. Several participants noted that often within projects working across a number of disciplines the social science elements (or engagement of civic and community-based stakeholders) are added on to the physical sciences or engineering rather than being itself embedded within the core of the research process.

There is a danger then that under pressure to work with civic and community-based stakeholders, these tokenistic inclusions may take place; "a project I was involved in previously which had stakeholder engagement aspects… it was lip service… it was just that we have a report on social acceptance here it is, grand, that is that box ticked" (IP2). Clarity on the purpose of working with civic and community-based stakeholders must be clear for all parties involved. It was noted that there is a requirement for funding to enable stakeholders and researchers time to build trust and solidarity (Lemos et al., 2018); "you really try and establish that you are not there with a big agenda to extract information. You are there to show a sense of solidarity as much as anything else and then bit by bit you entrust" (IP7). This, however, is something currently not facilitated through typical 2-3 year project timeframes.

6.2.2.3 Benefits and Motivations

Counterbalancing the challenges represented through the interview process, there were also some clear motivations expressed around engaging in work with civic and community-based stakeholders; "these issues are wicked problems that mean you have to work across the boundaries" (IP5). External factors create the conditions to enable researchers to act upon intrinsic motivations, with the drive towards such research approaches not led by an emphasis on funding but rather facilitated

by an emphasis to act upon personal feelings towards what research should seek to achieve in this space. As noted by one participant; “at the end of the day that is what we are trying to do, make something useful, make a contribution. We are dealing with real-life issues that require an immediate response” (IP4).

Within the established literature intrinsic motivations outlined include; an urge to work towards the improvement of society through contributing to the advancement of the common good, a desire to engage with issues/problems that transcend disciplinary/academic boundaries, and a sense of fulfilment based on having an impact in the lives of both the researcher and participants (Guimarães et al., 2019). The external factors enable the researcher to act upon intrinsic motivations.

The potential impact of research within society is an important consideration; “you want your research to be used… It is also you want to make some kind of good happen in the world in a way as well. There is those motivation as well. There is very little research done that is not useful. But to make it usable you have to cross the divide into practise and seeing well how do we take this useful information and make it useable” (IP6). The importance placed upon a move to usable knowledge is of central importance with regards to sustainability science, climate action, and engaged research, and aligns with the action research approach used within this thesis.

6.2.2.4 The path forward

The benefits of working in topic-focused, transdisciplinary orientated research institutes, which can facilitate the bringing together and merging of expertise was noted in several different interviews; “we have had sociologists, architects, geographers, ecologists so it is very mixed TdR membership. That is something that is quite typical in research institutes or environmental institutes. I think that's a strength in terms of promoting TdR” (IP4). They offer useful space for the building of relationships, sharing of experiences and collaborative learning; “I think the structure of having research centres on thematic areas rather than disciplines, like host research institute… That is a good way forward” (IP5).

However, one participant highlighted a key challenge in the development of these transdisciplinary orientated research institutes is that they cannot be built on the same foundations as previous research institutes, which focus on disciplinary demarcation and stay within the ivory tower of academia in undertaking their research. New (fit for purpose) institutes would require a restructuring of Universities to support new ways of coordinating and administrating research; “all of our research centres have to belong to a college. You are in the *host research institute*, it’s one

of our flagship institutes it has PIs from across the university but yet it must belong to one college. So it is under the College of Science Engineering and Food Science (SEFS), that's for resource and reporting structure… This then means that academics from outside SEFS are less encouraged to engage with it and contribute because the benefits don't go to their schools or college" (IP3). These new research institutes could help to overcome the structures within academia that hinder progress in the development of transdisciplinary research outlined above; funding procedures, career advancement opportunities, evaluation criteria etc. (Bolger, 2021).

Such a radical re-imaging of university structures will require time. Moreover, some participants suggested that perhaps this was misguided and that the best place for these collaborative ventures to take place was outside of formal structures; "the nature of academic work now means sometimes it is hard to find a little bit of time for blue-sky thinking and thinking the thoughts that lead to a research question that leads to some output" (IP1). Ultimately, what is needed for these new, creative ideas to emerge is the space for meaningful discussions to take place and an understanding/relationship to be built. These are far better facilitated through less formal interactions, coming from a place of humility and respect to discuss each other's interests; "you start talking to all sorts of people across the university and you start conversations with people. Building trust with people that they feel comfortable in a space. These things can't be rushed and they certainly can't be institutionalized" (IP7). While challenges exist for these forms of research practice, both at the level of the institutional and in practice, there are clear intrinsic motivations for researchers committed to TdR which can be enabled through external factors and supports.

Graphical Outline of Findings from Chapter 4 & 5

The suitability of the analytical tool of the multi-level perspective (MLP) to understand a multi-stakeholder approach to transitions has been leveraged to design a graphical aid that can draw together the findings from chapters 4 and 5. The MLP has been expanded to include the niche-regime classification introduced by Haxeltine et al. (2008), allowing for the increased importance of collaboration and participation between different actor types, and the dynamic flexibility of those roles, as outlined through the MaP. The initial mapping, focusing on grassroots organisations at an early stage has been situated within the niche classification. The impact of the wider network, be they established or potential links, can draw in local community groups and regime actors. Solid and dotted lines have been used to diversity between established and potential links.

The collaborative committee, with a multi-stakeholder governance approach, has been classified within the niche-regime level of the MLP. The diffusions of sustainability flow out from this

collaborative committee and operate within, and have an impact across, different scales of the structure of the MLP. Within the regime, the public bodies are situated, with the community engagement principles having influence within the regime, the niche-regime, and the niche levels. The research approach operates across all aspects of the analytical tool and the landscape has been referenced through theaccount of environmental narratives in Ireland contained within Chapter 1. This has not been done to add theoretical depth to the MLP, but rather used as a heuristic device to visualise the interconnected nature of the results, in light of the merging of top-down and bottom-up approaches found within *Dingle Peninsula 2030* (Fig.24).

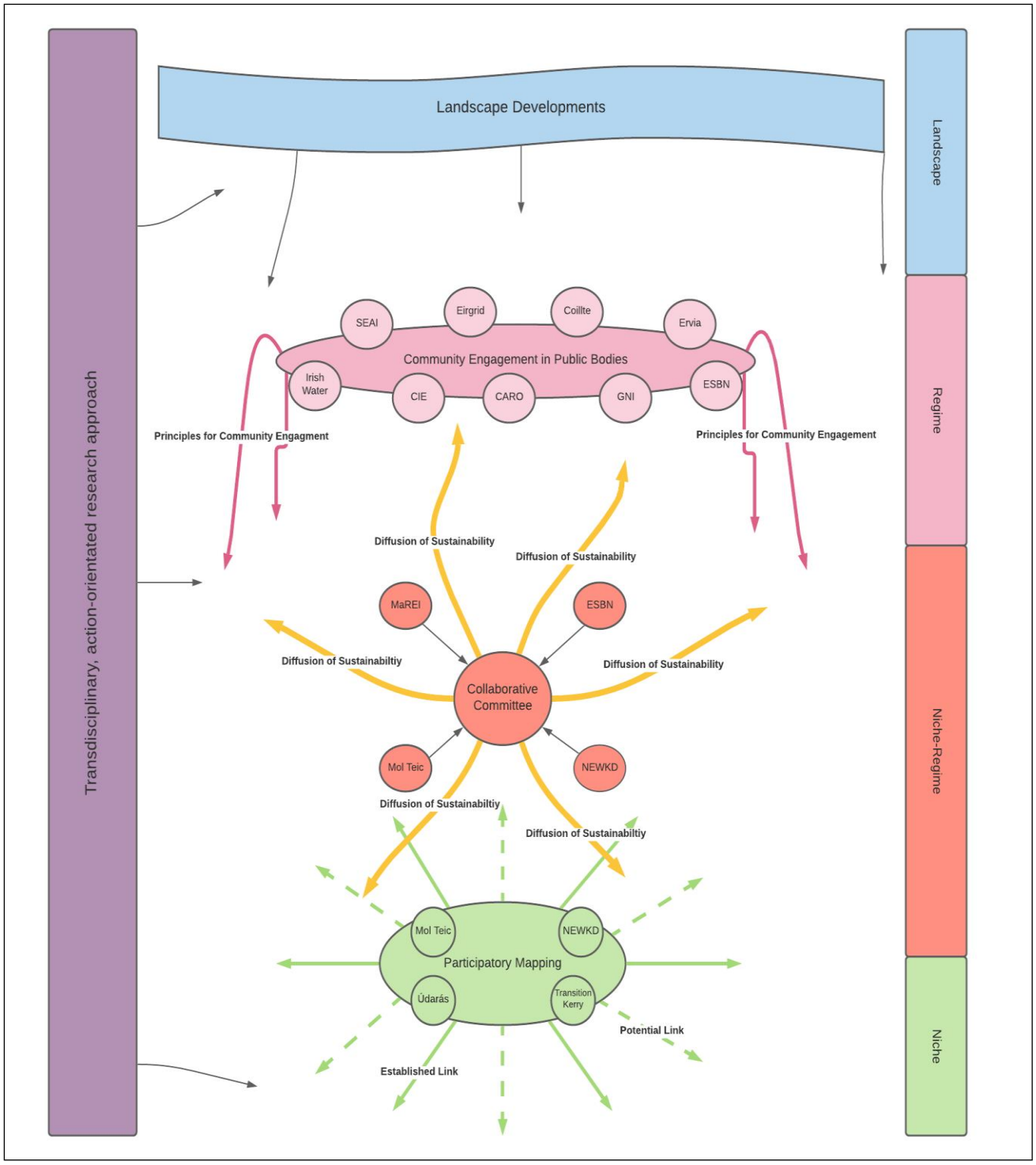

Fig. 24: Graphical outline of Results Chapter 5 & 6 using the MLP

Chapter 7: Discussion

Introduction

The results contained within the previous two chapters are discussed here in relation to the concepts and literature outlined in Chapter 2 and framed concerning the three core research questions guiding the investigation. Drawing out the main findings further, they are situated within a broader discussion on theory, methods and empirical data, with reflections provided on my own role managing the tension of being both an insider and outsider through the action-research approach taken.

7.1 Question 1: How can a mixed-method approach support an action research investigation of sustainability transitions?

In responding to the first question posed within this research project here some findings are discussed in relation to a mixed-methods approach to support the action research process taken. The focus here is given predominantly to participatory mapping and reflective practice, with reference made to the methods used in the investigation of diffusion, of community engagement within public bodies, and of transdisciplinary research.

7.1.1 Social Learning through action research

Action research is suggested as a means through which to facilitate social learning (von Below et al., 2021). Social Learning theory states that learning occurs through the interaction between different actors. New knowledge, practises and perspectives are established through dialogue between actors with different viewpoints, coming together around a common problem (Bandura & Walters, 1963). In a multi-stakeholder process, the potential for social learning increases greatly by having a range of different actors with different expertise and objectives working together on a shared goal (perhaps with diffing specific aims). Social learning has been shown previously to help facilitate innovation (Tukker & Butter, 2007), which in turn can be a positive force with regards to the socio-technical transition to a low-carbon society. Social learning can be defined as “an interactive and dynamic process in a multi-actor setting where knowledge is exchanged and where actors learn by interaction and co-create new knowledge in ongoing interaction” (Sol et al., 2013, P.37). Across the methodological contributions of this research project, social learning has occurred through the application of an action research approach. This can be seen concerning the stakeholder participatory mapping, reflecting on collaborative governance and the investigation of community engagement within public bodies. A mixed-method approach to action research is a means through which to facilitate social learning.

Within the participatory mapping, the process is useful in fostering a greater level of understanding towards governance structures and situations with the ability to identify stakeholders, their inter-relations, their goals and their influence. Participatory network mapping enables stakeholders to visualise the social networks in which they are entwined and from this, a means to plan and navigate this web becomes clear (Hauck et al., 2015, P.401). Social learning is facilitated through the mapping process as both stakeholders and researchers work together. The diversity of stakeholder perspectives, combined with the researchers own perspectives, can lead to a rich depth of social learning, "the co-production of network maps plays a major role in this learning process, as it allows participants to reflect on their understanding of the network in the context of how others see it" (Hauck et al., 2015, P.409). The mapping of goals in a co-produced manner, and the exclusions and partialities which they may entail, could offer a more reflexive and responsible starting point for future planning within socio-technical transitions (Longhurst & Chilvers, 2019), with particular relevance given here to responding to climate change.

> "there were a lot of interconnections and I suppose my expectation would be that in mapping them out that we would gain an amount of clarity as to where all those interconnections are going and which ones were overlapping and which ones could support each other. So it would be to bring clarity to the interconnections… this coupled with other work we have done over the summer months is bringing about that level of clarity which is important" (Participation reflection on participatory mapping).

The reflection process on collaborative governance (5.2) enabled social learning to occur with regard to networks and capacities. By taking an action research approach, the researcher becomes embedded within this process of social learning, operating not just at the level of the objective researcher but on a more embedded nature within the central governance structure of the project. Similarly, with regards to the investigation of community engagement within public bodies, the research was conducted using an action research approach whereby at each stage of the research participants were collaboratively involved in designing the next phase of the approach taken. This collaborative multi-stakeholder approach aligns with the interactive and dynamic nature of social learning as defined by Sol et al. (2013). Social learning has been noted previously as playing a key role in building capacity to help enable collaborative work on complex environmental issues (Kilvington, 2007), and on from this the broad challenges set by climate change. Social learning and capacity building can be supported through group participation and interaction and is supported in this context through a mixed-method approach to action research.

7.1.2 Facilitating participation through a mixed-method approach

The conceptual focus of participation which runs throughout this research project is central to our understanding of bottom-up and top-down approaches to sustainability transitions and their synthesis within this. One critique with regards to a multi-stakeholder approach is the potential for any power-sharing to involve the usual suspects (Stringer et al., 2006), failing to include specific forms of local knowledge which may prove essential to the successful operation and outcome of a project. A failure to move beyond the traditional networks is an issue that needs to be carefully considered to achieve a deep form of social learning, whilst also keeping the focus of the overall project concentrated. There is a need for "better critical contextual analysis to elucidate power inequalities inside and outside the participatory space, and making these inequalities open to questioning, dialogue and negotiation between stakeholders" (Kapoor, 2001, P.274).

A sensitivity to informational exclusion is essential to achieve a reflective multi-stakeholder network but must be balanced. The ultimate goal should not be to fully include every potential stakeholder within the process irrespective of the aims of a project. There is a need for further research to address issues around how or who is involved and what is achieved (Tritter & McCallum, 2006), alongside how information is disseminated. Returning to the question of who participates and for what reason or end (Cohen & Uphoff, 1980), we can transcend Arnsteins' ladder (1969) of participation towards 'optimum participation' which is context-specific and does not work in a vertical scaled manner. The key to participation is the use of appropriate mechanisms borne out of an understanding of clear objectives. As Reed notes; "different levels of engagement are likely to be appropriate in different contexts, depending on the objectives of the work and the capacity of stakeholders to influence outcomes" (2008, P.2419). A mixed-method approach to action research enables a wide range of participants to engage in the research design. This is crucial for opening up space to participate but must also align with the considerations of Reed (2008) noted above and Davidsons' Wheel of Participation.

When looking at who participates in processes one must also reflect on the role of the researcher, moving beyond the 'expert role' to a role as facilitator/collaborator. Reflecting on this, the researcher was aware of the limitations of the research process and the need for further actions to add value for the other participants, despite meeting preconceived research objectives. Reflecting as a researcher on your place in the process enables mobilisation towards more useful contributions. For example in the case of the participatory mapping exercise, following the de-brief post-workshop, further reflections from the participants on potentially useful outputs were gathered (see: 5.1.5). We encounter an important aspect of the social

change agenda in which researchers move from a singular 'expert role' to becoming collaborators in knowledge creation. An undertheorized aspect of this role change, borrowing from legal terminology, is quid pro quo. Therefore, of central importance to the relationship between the research and wider participants is reciprocity. In most cases, despite moving to a collaborative role, researchers have predefined research/institutional objectives. While this will be influenced through collaboration it is also important to ensure the needs of participants are considered. The importance of impact orientated collaborations is acknowledged as warranted with relation to sustainability transformations, moving beyond previously defined research roles. Though active involvement in the group/project in question, on a personal level a greater level of responsibility has been felt with regards to making a positive contribution when compared with previous less-collaborative research projects.

Within the investigation of community engagement within public bodies, some considerations emerged from a research perspective that has not been highlighted through participant reflections (see: 6.1.3). These relate both to the positives and negatives of conducting workshops online. The first point to note is the ability of online interventions to bring together participants from a range of geographical locations. While some issues existed with participant numbers in the lead up to the workshop, as referenced above, the ability of the workshop to bring together a wide range of actors working across national public bodies can be deemed a success. The ability of online qualitative interventions to work across geographical boundaries has previously been noted (Archibald et al., 2019). While cost-effectiveness may be deemed as a potential benefit of using video conferencing software such as Zoom, the need in this instance to upskill for the research intervention, coupled with the sub-contracting of an external facilitation company added considerable cost to the research when compared with the initial pre-Covid research design.

Another associated cost issue related to online workshops, and previously missing from the literature, is the need for a greater number of facilitators when compared with face-to-face research interventions. In the initial research design, the face-to-face iteration of this process was conceived of as needing two facilitators; one to lead the discussion and one to tend to practical concerns. Both would then take charge of a breakout group. In the online version, a minimum of five was needed. With two people leading each breakout group, two designated note-takers filling in the Mural's within each breakout group, and more floating technical support. Four people from the sub-contracted external facilitation company along with six people from the research institute made up the facilitation group, some at the front end and some at the back end. The high number within the research institute can be attributed to two taking part for training purposes. Despite this, the

organising group were aware of how the facilitation of two break rooms could not be completed without at least five people. This could be brought down to three with the exclusion of Mural, but this may have an impact on the process and data collection procedure.

The online format made it easy to manage different voices within the breakout rooms with all parties feeding into the conversation, directed by the facilitator. The use of a visual aid, such as Mural, to capture discussion points raised is useful in helping participants find gaps in the discussion and avoid repetition. The visual aid also proved useful for the researchers to draw out post-workshop data. Alongside this, by sharing the Murals, post-workshop, participants had the opportunity to provide further input. This is something that is harder to orchestrate when moving from a face-to-face workshop to an online post-workshop activity. Post-workshop activities in relation to conducting qualitative research online are worth further exploration. As previously mentioned with relation to fatigue, an emphasis should be placed on "keeping the programme short and dynamic" (Nunes et al., 2020, P.6). Whilst the workshop schedule was designed with this in mind there was perhaps a need for a break and further diversity, with the inclusion of other media (e.g. pre-recorded video, voting etc.) and further post-workshop activities having potential benefit if integrated into the process. Careful consideration must be given to the facilitation of participation within online spaces.

Through regular interaction with the community in question over 33 months, some reflections can be referenced from a researcher perspective. Despite continued involvement in the project, this will not continue out until the 2030 deadline. The mapping exercise assists with legacy planning whereby the capacity potential is outlined, drawing out linkages that can be built upon between bottom-up and top-down organisations and also across the community. Reflecting on stakeholder collaboration has assisted in bringing about a practice of reflection within the group, one that is now embedded through the regular development of learning briefs related to different aspects of the Dingle Peninsula 2030 project (McGookin et al., 2020a; McGooking et al., 2020b). The collaborative governance approach, which facilitates the inclusion of numerous skillsets orientate a locally embedded project beyond the grassroots movements classification which generally engages in informal learning, mainly due to a lack of intermediary actors, not documenting their tacit knowledge, such as the institutional learning, skills, and training (Geels, 2019, P. 193). Funding to enable interaction between stakeholders and researchers time to build trust and solidarity (Lemos et al., 2018) over a longer timeframe than more traditional funded research structures may offer a way forward with relation to collaborative research practises for sustainable transition projects, as noted within the findings on transdisciplinary research (6.2).

The mixed-method approach to action research deployed within this research project has successfully enabled the facilitation of participation across different segments of the wheel of participation. This is in contrast to a hierarchical interpretation of participation which Arnstein' suggests, and that may be enforced through a single method approach.

7.1.3 Visualizing complexity within participatory mapping

While participatory network mapping of this nature is not sufficient to all contexts, starting from the basis of action research it is an apt approach. The messiness of social networks (Lievrouw et al.,1987) is relevant to the 'messes' of action research (Ackoff, 1999). The difficulties with relation to outlining social networks previously alluded to (see: 3.6.3) can be related to the issue of representing complexity in a visual and engaging manner. The difficulty in visually representing the complexity of the network was noted by some participants:

> "Now the thing is I have stopped and reflected but I am looking at it here now months later and I am going 'Oh My God', I can't even read it after creating it and how it all works together" (Participation reflection on participatory mapping).

> "It is a very crowded map… I am just wondering how we might some way do it differently because you lose track of the lines" (Participation reflection on participatory mapping).

Participants contributed ideas towards how the visual aid may become more useful, with one suggesting the need to isolate individuals goals (see: 5.1.5), another suggesting a focus on key organisations, looking at types of links that exist within organisations and different levels of relationships, and finally, a third proposing doing the task around pre-set goals rather than organisational perspectives. Alongside these ideas, further work is needed towards the optimal way to represent outputs from participatory network mapping exercises in order for them to be useful on the ground.

7.1.4 Network for action in multi-stakeholder collaborations

Practitioners of action research are "concerned not only with the generation of scientific knowledge but also with its usefulness in solving practical problems, worked to bridge the gap between theory and practice" (Selener, 1997, P.58). The importance of reflection within the research design of this project aligns with this insight. Through reflecting on the different networks within which the individual members of the stakeholder committee are attached, the diverse range and strength of

the wider network become apparent (Fig. 21). From pre-established local community networks up to national level policy circles and international research networks, the group is well networked for achieving different goals which are developed. The importance of a robust network of actors and institutions supporting sustainability projects has previously been referenced within other sectors (see: Smith et al., 2005 on organic agriculture).

Often niche projects are embedded in networks that are less stable than established projects or systems. Often the context of niche projects means that networks are local, but this need not always be the case (Berkhout et al., 2011). Within the context of *Dingle Peninsula 2030*, the diverse range of networks spanning from local to international creates a favourable context for the scaling up of project goals, and the ability to influence change within the established order. Often emergent projects "are characterised by networks of actors with low levels of relative proximity in emerging socio-technical systems. Their short histories have not yet led to dense networks with strong social, institutional, organisational and cognitive relationships among its nodes" (Raven et al., 2012, P.14). While it is relatively early within this project, the potential of the current network to be strengthened further and expanded wider is of note. Through an action research approach, within which reflection plays a central role, the expansion of the network moving forward can be achieved

7.1.5 Individual and Organisational capacities for regional socio-technical transitions

Collaboration involves jointly developing and agreeing on a set of common goals, sharing responsibility for attaining these goals and working together to achieve them using the expertise of each participant group (Bruner, 1991). To engage in collective ownership of goals, each partner must take responsibility for their part in any successes or failures and the need to facilitate and support constructive disagreement and deliberation (Bronstein, 2003). The diverse range of expertise has been drawn out (Table 15 & 16) alongside the acknowledgement of this expertise and the ability of joint decision making across the different organisational bases (Table 17). The central importance of leadership is evident and has been referenced previously as crucial (Savage et al., 2010).

Members of collaborative structures need to establish personal connections, regular interactions and develop a cohesive working group. They need to set up an effective system of communication at the beginning of a collaborative initiative, to facilitate widespread and shared access to information (Arnaboldi & Spiller, 2011). From an organisational perspective, at the local community level, the ability to attract diverse skillsets is important, alongside an established track record of bringing investment into the community and working in partnership with the community. The research body

and the national operators of the electricity distribution system, at an organisational level, bring funding for engagement activities, expertise in climate mitigation and energy research and finance, technical expertise, influence, and public relations capacity. As previously noted, “by pooling resources and by fostering learning processes among participants, collaborative forms of governance can address social and environmental problems” (Rasche, 2010, P.4). This can only be achieved through a mixed-method approach to action research, moving the researcher beyond the objective observer, to being a member of the collaborative governance team, through which different research interventions emerge. There is, however, no evidence of collaborative governance being necessarily more effective in and of itself, with the success of the approach dependent on “the nature of the stakeholders and the quality of their interactions” (Rasche, 2010, P.5). Within this context assumptions must not be made that similar configurations would operate in the same manner as the one presented here.

7.1.6 Challenges in a collaborative governance structure

The central facet of the research design, through which all methodological interventions flow, is membership within the collaborative committee. Collaborative governance has become an emergent approach when seeking to address sustainability and environmental challenges. There is, however, a lack of research focus on the challenges of collaborative governance in practice (Margerum et al., 2016). Despite the networked nature of the group (Fig. 21) the challenge of accessing funding is apparent. In the context of a regional community based socio-technical transition project, this illustrates a clear need for the creation of new funding mechanisms. If such a well-networked group has difficulty in accessing funding, the prospect of less-networked groups following on from this project is bleak without structural changes to how funding is provided and administered. The collaborative group needs to have an adequate and reliable financial base to support its operations. Securing the financial means for existence must be a priority in forming a collaborative group, and as work may be expensive in the early stages money should be available from the outset (Mattessich & Monsey, 1992).

While the importance of trust-building (Ansell & Gash, 2008) has been referenced (Table 17), it is important to highlight the time requirements which this takes (Johnston et al., 2010; Mattessich & Monsey, 1992). Internal organisational structures are often poorly equipped to manage this need for time or trust-building. While the establishment and achievement of individual goals can be realised, the ability of a range of stakeholders to identify a shared vision can be a challenge, whilst also being a key consideration within the literature (Mattessich & Monsey, 1992). Trust building has been

linked previously to power-sharing (Ran & Qi, 2019), to help manage power asymmetries within collaborative relationships (Purdy, 2012; Ran & Qi, 2016). The need to create space, through freeing up time, to enable trust-building is of central importance to collaborative governance processes. As an early career researcher, undertaking a transdisciplinary approach, there are some dangers to the disciplinary base as previously referenced (Puddephatt & McLaughlin, 2015). This emphasis on trust-building is a challenge as a researcher as it requires a large amount of time and is aligned with the sense of uncertainty that such action-research approaches contain (Ackoff, 1999). There are no guarantees that an adequate trust-building process will take place and although good practice guidelines can be followed, there is still a large degree of external factors outside of the researcher's control.

7.1.7 Organisational differences; positives negatives and ways forward

Power imbalances have previously been reported as common within collaborative governance (Purdy, 2012; Ran & Qi, 2016; Tett et al., 2003; Warner, 2006). On from this the difficulties in establishing structures to work collaboratively between public bodies and community groups has been referenced. Within the public body, internal clearance has been referenced as a challenge, due to it being a large incumbent organisation with inherent inertia. The difficulties for the research body in formalizing the partnership with the public body have been noted, highlighting difficulties associated with collaborative research beyond consultancy (Loan-Clarke & Preston, 2002).

Also, the desired outcomes or goals being pursued by each individual organisation can limit the scope of collaboration. There are a number of key differences among the *Dingle Peninsula 2030* partners. ESB Networks, the electricity distribution system operator, are solely focused on electricity. However, the research of MaREI and initiatives emerging from Mol Téic seeks to address the whole energy system, including alternative technologies in heating and transport. The local organisations (NEWKD / Mol Téic) have a long-term vision and commitment to the area, whereas public bodies and research institutes (MaREI / ESB Networks) involvement will be much shorter, perhaps only lasting the duration of the project.

A change is needed concerning how institutions interact with community groups and citizens to effectively go about implementing the measures needed to expedite the transition to a low-carbon energy system. The key role that institutions have within sustainable transitions give credence to the call for institutional change (Jolly & Raven, 2015; Wirth et al., 2013; Geels 2004). Sachs and Kandu (2015), outline five mindset shifts for organizational transformation which are here applied to sustainability transitions.

These are a shift from profit to purpose, hierarchies to networks, from controlling to empowering, planning to experimentation, and from privacy to transparency. While these five shifts are illustrative of the need for a more open and reflexive approach to organisational management, they are perhaps better referenced as tensions, even opposites, which must be addressed. The polarities of profit and purpose or planning and experimentation must be held together, removed from a black and white interpretation of one or the other (Barrington, 2019). Through reflection, the importance of collaboration can be championed internally and a broadening of perspectives can be achieved.

Through investigating a mixed-method approach to action research through the experience of undertaking a broad methodological research design, a range of different factors have emerged which are important for research in this manner with relation to sustainability transitions. The central importance of participation can be facilitated through the application of different research interventions. On from this, reflection as a process within action research must be embedded within the different aspects of the research. Finally, the collaborative governance structure is the central component through which different research interventions emerge, enabling a mixed-methodological research design to be implemented. The need for researchers to be flexible with regards to the different research approaches which are undertaken is a necessity as they work collaboratively with project partners in response to emergent needs or challenges.

7.1.8 Reflexivity on my positionality in a collaborative partnership

Returning to the earlier outlined provided by Herr & Anderson (2014) with regards to balancing the tension between an insider and outsider role (See: 3.1), here I will discuss my own experience with this tension and the relationship of this to my positionality as initially outlined (3.3). In order to participate within this collaborative group, I moved at times towards a position more akin to project support or consultation when compared with previous experiences of strictly academic research. My positionality, in the sense of previous research experience, at the beginning of this project was informed by research projects which were more akin to traditional approaches. Here, however, I have moved into a new space of action-orientated research. While on the whole, I feel this has positively impacted my development within academia, there are a number of challenges that I have faced that must be acknowledged. Through doing work in this way, with the feeling of being a project support or undertaking a consultation role, at times the emphasis towards research, away from the collaborative group day-to-day operations of the group, was lacking. Covid-19, coming at the beginning of the third year, presented me with an opportunity to detach myself in some way from this embedded relationship that I had developed. Without the unforeseen pandemic, it may

have been a more difficult process to create distance between myself and the collaborative partnership.

Managing my participation in this collaboration has been a challenge throughout the process. There was a central importance towards building trust with the group on the crowd, partaking in events, responding to requests, and attending meetings. Many of the on the ground activities involved a four hour round trip by car or a six-hour round trip when taking public transport. These were nearly exclusively undertaken in a day and for the first two years of the process would take place at least once a month and often more regularly. This created a number of challenges for me whereby I was less available to partake in disciplinary-specific events, talks, and training on campus. This was something, rather naively, that I had not really accounted for when setting out on this journey towards embedded research in the community but the regular engagement with the collaborative group was centrally important in the trust-building process.

The collaborative group was made up of a number of different stakeholders coming from different perspectives. In building trust, I had to negotiate different relationships with each. The partner from ESB Networks (Female, 40-50) was newly employed in a community engagement role. Being new to the role she was open to input in how to engage with community contexts. However, there often seemed a lack of understanding within her organisation around the role of research within the partnership. As a technically focussed organisation, there was little experience in working with social scientists. Within this, I was often deemed to be strictly there to investigate behaviour change. In order to build trust both with the individual partner, and the wider organisation, two approaches were useful. Firstly, I was regularly in contact with the partner, explaining the work I was doing at different stages of the process, outlining where my input was both useful and limited. On her part, she made sure to keep me informed of her own approach to her community engagement role when going out into the community and undertaking different tasks. At the level of the organisation, I presented my work on two occasions, outlining the diffusion of sustainability (See: 7.2) as a core finding emanating from the research. From my perspective, it seems some people within the organisation have gained a better grounding in the work I have done, moving their language from “customers” to “citizens” and speaking of the diffusion of sustainability over individual behaviour change. There still remains, however, a sense of this being only the beginning of a process whereby collaborations like this between social science research and more technically focused organisations can be developed.

Within the local development organisation (Mol Téic), the manager (Female 40-50) acted as a leading figure of the group, initiating projects in the local area. Here, building trust was focussed on

being responsive to emergent developments in the area. On my part, I sought to always be responsive to requests when they arrived. This was a challenge as the rate at which the *Dingle Peninsula 2030* developed far exceeded any expectations I had. Alongside this, the diversity and range of new initiatives which emerged were at times overwhelming. The differing timescales at which these pieces emerged was also a challenge. Trust was built in those first two years by being present, on the ground, showing up to meetings and events and trying to keep as informed as possible in all developments. For the first 12 months of the collaboration, I took minutes at the meetings before the responsibility was passed on to my fellow PhD student. Offering small supports such as these was a way to show my commitment to the collaboration with the aim of building a reciprocal relationship.

The community development organisation play a somewhat lesser role in much of the main collaborative undertakings of the group, instead playing a more practical role in the support of interactions with the community. The representative (Male, 50-60) had a well-developed expertise in working with different local groups such as parish organisations and retirement groups. Although good-natured, in the early days of the collaboration I perceived a suspicion towards research with the potential for the helicopter approach to be applied leaving no lasting benefit for groups on the ground. At the beginning of working together we had a number of chats over coffee about the collaborative process ahead. The publication of a co-authored paper (Boyle et al., 2021b) was a process that he seemed to respect and was a new approach to working with researchers than what he had come to expect. Despite this, our relationship did not involve as regular an interaction as the two aforementioned partners. At a broader level of the overall collaboration a central feature, prior to the pandemic, was making space for social events. A couple of times a year we met for a drink of dinner to discuss life away from work. This was central to us all developing good working relationships with each other. Taking an action-orientated approach through embedding myself in the collaborative group required this space to have fun together and build relationships that were both formal and informal. In the online world of Covid-19, we carried this through, starting each meeting with a ten-minute catch up and chat.

In revisiting my positionality as initially outlined (3.3), this process through under taking an action-orientated approach has informed my thinking on my own role as a researcher. Although successful I think it would be extremely difficult to do it all again. While the collaborative partnership successfully developed a trusting, reciprocal relationship across all partners, this cannot be guaranteed or assumed. Potential rifts in working relationships would leave a researcher such as myself in a very difficult situation with regards to the need for research outputs and meeting

academic commitments. As earlier mentioned action research can be associated with the notion of 'messes' (Ackoff, 1999). A number of these emerged through the project and needed careful consideration and delicacy to navigate. I will outline one related to our collaborative group, and one related to the wider community. The formalising of our group was a long process. Each organisation (ESB Networks, MaREI, NEWKD, Mol Téic) had their own pre-established ways of working. As such formalising, our group became a difficult task that took a number of months at the beginning of the process. Questions around how we would work with other organisations, how we would go out to the community, and who would be responsible for different tasks were deliberated on. From my position as a PhD student in the process, I was not leading these discussions. Nothing in my training to date had involved this sort of negotiating. I am, however, more informed by this experience and became aware of the need to manage these contentious issues in a respectful and deliberative manner from the beginning of the process.

With regards to the wider community, in the later stages of the first year of the project an anti-smart meter activist group emerged on the peninsula to raise concerns with regards to both smart meters and 5G technology. An IoT project associated with *Dingle Peninsula 2030* (see: 4.2.5) came into criticism from the group. There was some initial belittlement of this group from some members of the collaborative group. Myself, and others from MaREI, were quick to speak up on the issue outlining that these people had genuine concerns and had a right to voice them through activism and public participation. Our opinions were widely acknowledged and a meeting was organised between representatives of the activist group and *Dingle Peninsula 2030.* At this meeting the IoT project was explained, whereby the sensors installed were operating on 2G capacity and should not be associated with any 5G concerns. This was taken on board by the activists who moved away from grouping *Dingle Peninsula 2030* with their anti-smart meter concerns. This intervention prevented the escalation of the situation. While this situation could have prevented an interesting case for further research, particularly in light of my previous experience of activism and campaigns developed through my Masters dissertation, a decision was made to exclude it from the research for fear of muddying the waters of a situation which had come to a point of resolution. This is a clear example of the balancing act which must be performed when undertaking action research in the manner outlined through this thesis.

7.2 Question 2: How can we understand the diffusion of sustainability in an ongoing regional transition project using the multi-level perspective?

Following on from the outline of the seven key diffusions of sustainability (5.3), a discussion on the wider relevance of the investigation of diffusion takes place. This is related to the challenges and constraints of such an approach with relation to the wider significance of action research to the project, the role of *Dingle Peninsula 2030* as an intermediary for diffusion, and the potential for national and international diffusion of sustainability. The discussion is situated within the multi-level perspective (MLP). Returning to *Dingle Peninsula 2030* as a frame through which to situate community as desire, the emergence of a wide range of different initiatives can be understood as the emergence of a wider desire for community.

7.2.1 Diffusion of sustainability in action; challenges and constraints

Within the investigation of diffusion, the theoretical foundation is grounded firstly in the work of Gabriel Tarde, then through the more recent 20th-century developments with relation to the diffusion of innovations, starting from Rogers in 1962 (see: Rogers, 1995), before outlining our specific interest in the diffusion of sustainability as it relates to environmental concerns. Through this, a case is made for the importance of investigations on the diffusion of sustainability as it relates to regional transition projects. The MLP, when combined with the MaP, has been successful in providing insights into an emergent transition, and actor roles and agency within this. The MLP can assist in charting societal developments "from invention and innovation to diffusion, societal embedding and actual use, including socio-cultural and political struggles in different phases" (Geels, 2019, P.189), with the addition of the MaP enhancing this to the level of actor roles. The importance of community-level actions and initiatives for the delivery of climate action and sustainability more broadly has been acknowledged within policy (DDCAE, 2019). Through the initiation and establishment of a local sustainability project, the potential for diffusion throughout the community, to other communities, and nationally led initiatives can be acknowledged as a mechanism through which to deliver the socio-technical transition to a low-carbon society. Investigating the diffusion of sustainability in this context can assist with this process of acknowledgement. This gives greater validity and support to community-led projects which can increase interactions between niche innovations and regime actors.

There are, however, several limitations that have been encountered that must be acknowledged. Firstly, the issue of attribution must be addressed. Aligning with the multi-level perspective (Geels, 2002) transitions operate across and between three levels; the niche, the regime, and the landscape. Alongside this, understandings of the diffusion of innovations previously outlined can be

incorporated, whereby diffusion can occur from internal, external, or mixed influence. Within the outline of the different initiatives contained within the results (5.3) influence has been attributed to *Dingle Peninsula 2030* (and within this the work of Mol Téic, MaREI, NEWKD, and ESB Networks). Despite this, the concept of mixed influence (Valente, 1993), must be acknowledged. The multi-level perspective is predicated on the interactions between the three levels outlined. External influence on the emergence of new initiatives has an important role to play. While the local project facilitates the spread of information, capacity building, and trust development, the external influence of landscape narratives around sustainability, policy supports for initiatives, and economic drivers on a global scale are also an important part of the mix. The progression of environmental narratives outlined in Chapter 1 must be acknowledged within any study relating to the diffusion of sustainability in relation to regional transition projects. Absolute suggestions of attribution should be treated sceptically.

Another constraint is the relationship between the research approach taken and the established methods for investigating diffusion. When applying an action research methodology, whereby the research is embedded within a 'live' project, seeking both practical problem-solving and the continued development of scientific knowledge, the ability to definitively outline the diffusion of sustainability, and within this the role of Dingle Peninsula 2030, is restricted. This real-time issue is aligned with an important criticism of the MLP, whereby not enough focus is given to impact and outcomes (Gillard et al., 2016). Through outlining the seven diffusions, the foundation for further investigations which can build on what is presented here, analysing the diffusion of sustainability in a retrospective manner, has been set. Alongside the seven diffusions, more initiatives and projects will emerge, with the importance of mixed influence as outlined through the theoretical insights from diffusion of innovation studies relevant. The landscape will change, *Dingle Peninsula 2030* will continue to develop or dissolve over time, and a range of initiatives will emerge and/ or fade away. What I have set out to achieve here is an active understanding of the diffusion of sustainability in real-time, which lays a foundation for continued study in this area both concerning the project in question and other similar initiatives nationally and internationally.

7.2.2 Intermediaries for the diffusion of sustainability

The pitfalls of attribution and the need to incorporate theoretical understandings on the multi-level perspective and mixed influence with regards to the diffusion of innovations are clear. Still, the importance of *Dingle Peninsula 2030* as it relates to the emergence of a range of sustainability initiatives both locally and nationally is self-evident. It was initiated as a collaborative project aiming to transition a geographic region in the South West of Ireland to a low-carbon, sustainable society by

2030. The project has sought to facilitate and support the emergence of different initiatives, and through this took an organic approach, allowing locally-led initiatives to emerge rather than take a prescriptive approach. Several different local initiatives have emerged over the three-year time frame of the project such as the anaerobic digestion project, the community energy mentor course and the West Kerry Dairy Farm SEC. *Dingle Peninsula 2030*, while supporting these different initiatives, also allowed for the emergence of local actors and organisations to involve themselves in different aspects of the initiatives. The diffusion of sustainability as a core idea across the different initiatives was influenced by *Dingle Peninsula 2030*, with sustainability central to its vision. Within policy developments such as the Climate Action Plan (DCCAE, 2019) and the rural regeneration and development fund (DRCD, 2018), importance is placed on supporting the emergence of vibrant communities that can lead the socio-technical transition within their regional context. Projects such as *Dingle Peninsula 2030*, whilst acting within their own agenda and vision, can operate as intermediaries between top-down policy and bottom-up initiative with relation to the diffusion of sustainability.

Despite the embedded nature within the local regional context, the organisational structure of *Dingle Peninsula 2030* which combines local groups (Mol Téic & NEWKD) with a national body and research institute (ESB Networks & MaREI) builds the capacity to play a role between the top-down and bottom-up with relation to sustainable transitions. The diffusion of sustainability locally can be supported by the intermediary role played by regional collaborative projects such as *Dingle Peninsula 2030*. From a bottom-up perspective, intermediaries play a crucial role in stimulating and facilitating the emergence and continuity of grassroots initiatives (Bird & Barnes, 2014). On from this, they operate in a communicative role; “as traditional boundaries between actor groups are being eroded or redefined, intermediaries would appear to play an important role in communicating across cultures of compliance (state), of competition (market) and of collaboration (civil society)” (Moss, 2009, P.1492). In relation to *Dingle Peninsula 2030*, the intermediate role is not the primary function, but the capacities of the collaborative grouping (see: 5.2.2 & 5.2.3) enable it to be performed. This fits within the literature on intermediation whereby the intermediate role is played in balance with other roles and interests (Kanda et al., 2020).

The overarching vision of *Dingle Peninsula 2030*, driven by the desire for a more environmentally and economically sustainable future on the Dingle Peninsula means intermediate functions which facilitate initiatives aligned with this vision are mutually beneficial. By way of example, Mol Téic’s support of the West Kerry Dairy Farm SEC in developing their application to SEAI or MaREI’s support with relation to the initiation of the anaerobic digester feasibility study represents two amongst

many when it comes to the provision of intermediary supports for emergent initiatives. The diffusion of sustainability is predicated on this intermediary role, aligning with the discussion on the interceder role outlined below. Some of the goals outlined through the initial stakeholder mapping, and some national policy objectives, can be supported through the diffusions of sustainability emerging from the collaborative governance approach to *Dingle Peninsula 2030,* through both primary and secondary influence.

7.2.3 Interceder Role

The role of *Dingle Peninsula 2030* as providing an intermediate function can begin to be discussed and the influence of individual roles through the use of the multi-actor perspective with relation to sustainability transitions can be developed. First, the role of individual influence within the cultural context of Ireland must be outlined. Much like many other nations around the world (Schmidt et al., 1977) a clientelist system of pressures and practices has been prevalent in the Irish political system since the establishment of the Irish state in 1922 (Marangudakis, 2019). An understanding and appreciation of clientelism in action can illuminate how resources are distributed within the broader parameters of the macro-political system. At the micro-level, an appreciation of clientelist models of politics can assist in understanding resource allocation, influence, decision making, and power dynamics (Collins & O'Shea, 2003, P.88).

Throughout the 1970s and '80s, there was much academic debate about both the prevalence and relevance of clientelism within Irish politics (Gibbon & Higgins, 1974; Higgins, 1982). As Komito (1984) noted, the importance of political brokerage within a clientelist political system may be overstated within the Irish context. It instead may simply be an obvious and visible instance of the inherent and human impulse to prioritise relationships with friends, and feel an obligation to both support and help friends where possible. It is noted that this logic on friendship applies beyond a politician-client dyadic, with personal contacts an important part of social and economic life in Ireland. The small population size lends itself to the emergence of these relationships. What Komito (1984), does however note as important, is the unequal distribution of these contacts throughout Irish society due to social and economic inequalities. An assumption of the 1970s that the speed of modernisation experienced in Ireland would correlate to the disappearance of clientelist politics (Chubb, 1970), has been found wanting. Clientelist behaviour has been characterised as a type of behaviour that can become rational within a particular culture whereby certain external conditions are in place to make such behaviour advantageous (Clapham, 1982). While clientelism can slip too far towards corrupt practices, the role of brokers can act as a "gap between local and national systems, with locals needing assistance in dealing with the broader system. Some individuals, due to

their social, economic, or political position, are able to bridge this gap" (quotation adopted from Komito, 1984).

The four sectors related to the Multi-Actor Perspective, as defined previously (see: 2.1), are; the state- a formal public entity that is not for profit, the market- a formal private entity that is for profit. The community- private, informal and non-profit, and finally, the third sector- conceptualised as an intermediary space. Interacting with the state, the market and the community, third sector entities, crosses boundaries between (1) informal-formal, (2) profit-non-profit, and (3) public-private. The interrelations between the four elements outlined can involve both struggle and cooperation. Individual actors within the MaP framework cannot be classified as strictly aligning to any one space. As referenced earlier as an example, a CEO of a company may also be a volunteer with a third sector organisation, just as a policy maker is also a neighbour within a community. It is evident that boundaries are crossed and a mix of sectors can define the social roles of any individual. The role of brokers, as defined above in relation to clientelism, is an important aspect of the diffusion process.

Fig. 25: The multi-actor perspective at an individual level

The broker role, moving beyond a purely political definition, can be seen as one in which an individual can transcend several different sectors of the MaP simultaneously. The MLP fails to adequately interpret the movement of individuals across different sectors (Shove et al., 2007). The supplementation of the MLP with the MaP facilitates the analysis of the intermediary actor or individual; a central dynamic with relation to the transition project under investigation. The go-between, or intermediary actor, must be able to operate within different spaces in parallel in order to be effective, be they formal/ informal, for-profit/ non-profit, or public/private. This has been shown above (Fig.25) and builds further on the earlier representation of the multi-actor perspective from an organisational perspective (see: Fig. 5).

When thinking about sustainability and sustainable transitions, often the idea of champion or initiator is used as a means to understand key actors within projects, particularly at the community level. This has been classified through several terms throughout the literature, such as local level actors (Nygren et al., 2015), local champions (Ruggiero et al., 2014), and opinion leaders (Rogers, 2003). The West Kerry Dairy Farm SEC (5.3.3), for example, has been led by an individual fitting this local champion classification. While the concept of local champions is warranted with relation to sustainability projects at the local level, this can be expanded upon further to look at individuals providing an intermediary function between local action and national policy. A broadened understanding of this "middle-man" role can lead to a more comprehensive understanding of the success, or success potential, of sustainability projects. While local champions often play a key function, an ability to interact effectively with top-down actors and agencies is often outside the remit of the champion as outlined within the literature.

Within the context of the *Dingle Peninsula 2030* project, a key individual has emerged in a role beyond that of the champion. Acting as an initiator of the hub, the person now plays a key role as a board member, bringing together different actors from across the four sectors of society in the Irish context as per the MaP (i.e. State, Market, Community & Civil Society). In this role, the intermediary actor facilitates the interaction of different agencies around key projects, whilst simultaneously seeking out new opportunities to further widen the scope and potential of a sustainability transition within the area as part of *Dingle Peninsula 2030.* The individual also acts as Chair of the Board for EirGird (a public body contained within the investigation of community engagement practices) and as chairperson of the Governance committee within MaREI. While acting from many positions of influence across the sectors of the MaP, the intermediary actor brings a multi-faceted networking expertise to *Dingle Peninsula 2030*. This capacity, however, is not uniformly available to transition projects and therefore any potential successes in the future, for *Dingle Peninsula 2030,* must be caveated with the acceptance that an interceder role had beneficial influence in opening doors not possible in other bottom-up or community contexts. The term interceder has been taken from the Latin *intercedere* 'intervene', from *inter-* 'between' and *cedere* 'go'. The interceder acts to draw together different segments of the multi-actor perspective, with the ability to straddle levels within the multi-level perspective.

Quotes from others outlining Interceder role in *Dingle Peninsula 2030*
"then, of course, the things were happening with interceder name… we were brainstorming all these different ideas on how you could start up the industry in the west of Ireland and on the edge or whatever because it is time to get things going here because we were watching the pupils dissipating out of the schools and disappearing and the families drifting back to wherever. So then we suggested (splitting) the office in half and leasing half of it to the town, the people

who had been here forever… but it was on the condition that it would be for technology and innovation... So we came up with this concept around the indigenous raw material around here is creativity and art and whatever so we said if you can get technology networks set up and wireless networks set up here… you could create something and launch it and work with the tourism"
"So bringing people like interceder name on who would have been much more aware then we were of the whole sustainability piece was important and bringing people in from the outside to say 'as a community this is something you have to look at' so I think that was important and then I think the ESB coming in was equality important"
"interceder name pointing out look young people from the area are going away to UCC, UL or NUIG and they are excelling and he said that there is a batch of students from the Pobal Scoil here in Dingle went out to Universities and got on very well"
"And he is now talking about Universities, not just UCC, and other Universities from the States coming in and maybe leave some students here during the winter time. He is looking at more investment in the Peninsula from other colleges and then those people need to stay, they need housing they need accommodation, they need food and all the rest, all that will create jobs and employment and I suppose UCC is really well placed through the connection with interceder name to take advantage to all of this in ways that I can't even think about over a cup of coffee"
"I think interceder name is incredible for the engagement meetings and I suppose it would have been very clear now in the last meeting with Teagasc that it was under the Transition project. That that was the purpose of that meeting it was not an ESB Networks meeting so the two things were very distinct in that and we can continue those engagement meetings and keep going with Failte Ireland and the NTA and Kerry Co. Co. and keep pushing that. So from an agency point of view I think we will do fine."
"They have an incredible amount of experience under their belt. Interceder name, I mean... what can I say? It is just the doors he opens, his vision for the future. That itself is a huge strength. Plus the backup of the other members of the group and their experience and their ability to push projects forward and drive them and what they bring to the table. It would be hard to replicate a group like that everywhere"

Table. 28: Quotes taken from the exploratory interviews on the role of the interceder in Dingle Peninsula 2030

Quotes from Interceder outlining role in *Dingle Peninsula 2030*
"So basically a lot of people who are involved here are networkers and that is really important because they all bring their own... they bring two maybe three things. They bring their own network. They bring their own credibility and experience whatever that is. And then collectively they bring something when people are asking can we trust these guys and can they deliver. Really important on both, that you deliver and that you maintain trust. So we concentrated on doing things and making things happen"
"I wrote a paper on pertaining what a hub would look like and then Eir bought into that and then we got the County Council and Údarás to buy into it and they put in €20,000 each and Eir gave us free broadband for 5 years so we set up the hub"
Interviewer: And who initiated that between the ESB and the Hub? Interceder name: Probably myself.
"There is no question. I can get meetings. Like with NTA I didn't get a response so I went to the chairman and said I am not getting a response from the CEO and I got a response from the CEO. I was looking for a meeting with Teagasc and I sent an email saying I would be coming down next monday and i could drop in to you and i didn't get a response. I CC'd

high ranking University Official and had a response immediately. In a sense I have no shame in using my contacts to move things for the community and that... but you shouldn't have to do that"

Table 29: Quote taken from three exploratory interviews with the interceder on their role within Dingle Peninsula 2030.

Continuing from previous research which investigated the role of intermediaries in community contexts with relation to the Irish energy transition (Boyle et al., 2021), here the addition of the Interceder role is suggested, moving beyond the bottom-up classification of the local champion to look towards individuals playing an intermediate role between policy, public bodies and local community contexts. Diffusion is predicated on interactions between scales within the MLP and the interceder role can function to support this, aligning with the MaP.

7.2.4 Diffusion beyond the regional context

The national diffusion of sustainability has been referenced within the results (5.3.5) with relation to the education initiatives and their emergent influence within the national system. Alongside this, there have been a number of outreach activities and events which seek to disseminate the story of *Dingle Peninsula 2030* both nationally and internationally. Within an action research approach, the drive for societally relevant and impactful research interventions must not be restricted to the local context. With this in mind, MaREI has played a key role in the dissemination of findings and also in relation to network building events beyond the regional context. Mol Téic and ESB Networks have also led several events and meetings which align with these goals. Some of these are outlined as they relate to the diffusion of sustainability beyond the regional context.

Firstly, in August 2020 the Science Foundation Ireland (SFI) Annual Report for 2019 (SFI, 2020) outlined the collaborative approach to *Dingle Peninsula 2030* from a research perspective. SFI, funded through the Government of Ireland, acts as the primary statutory body for funding basic and applied research within STEM subjects. The representation of *Dingle Peninsula 2030* within their annual report represents recognition for the transdisciplinary, action-orientated approach taken. Highlighting collaboration can play a role in inspiring the emergence of similar initiatives nationally. On from this, and also in August 2020, a dialogue session was held at International Sustainable Transitions (IST) annual conference in Vienna, held digitally due to Covid-19. The title of the session was 'Facilitating sustainable transitions through innovative governance', and convened a number of panellists to share experiences from different viewpoints. These included; the manager of the Dingle Hub (Mol Téic), an Expert in Social Innovations, and a representative from the UN. The work in Dingle was highlighted to an international research audience. Following this event, the *Dingle Peninsula 2030* project was outlined by the UN regional information centre for Western Europe

(UNRIC) as an exemplar project on their website. A group from Dingle Peninsula 2030, myself included, partook in a side event as part of COP-26 to highlight the community-based transition project to feed into the multi-lateral deliberation. This included a meeting with the Taoiseach to outline the work which has taken place. The representation of the project moves beyond research to a broader international audience, highlighting the collaborative approach taken as a means to facilitate the diffusion of sustainability and the flourishing of communities in parallel to the low-carbon transition.

Returning to the national context, and as part of *Dingle Peninsula 2030*'s status as an SEC, an armchair chat was organised by MaREI and SEAI with members of the *Dingle Peninsula 2030* group to discuss their experiences with the project to date. The event was held in November 2020 and was attended by over 200 people, many from within the national SEC network. Also in November 2020, two events were organised with assistance from MaREI between Loop Head Peninsula and *Dingle Peninsula 2030*. Loop Head Peninsula is a similar community-led sustainability initiative at an earlier stage in development. Despite some differences between the two groups in terms of organisational structure, the event acted as a space to share learnings from Dingle and build relationships between the two groups. Many national and international outreach events have also been led by Mol Téic.

ESB Networks, as a partner within the collaborative group, has been influential in highlighting the project and the approach taken within its internal organisational structure. Also, they have acted to represent the project within the wider international sphere with relevance to electricity network operators and engineering bodies more broadly. Through all these outreach activities and events, the innovative approach to regional sustainable transitions has been highlighted, be it from a research perspective, a community perspective, or a technical perspective. Again, in relation to the study of diffusion in the context given, attribution must be treated with caution. There is no suggestion made that these activities increase the diffusion of sustainability in a broad sense. What they do, however, is share experiences of the novel collaborative approach of *Dingle Peninsula 2030*, and its success in facilitating the diffusion of sustainability with relation to the emergence of local initiatives in the community context.

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Boyle, E. 2021. A multi-stakeholder approach to the socio-technical transition to a low-carbon society. PhD Thesis, University College Cork.

Please note that 7.3 (pp. 182-190) is unavailable due to a request by the author.

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Chapter 8: Conclusion

In concluding this work, the thesis is situated with relation to participation, the multi-level perspective (MLP), the role of research, policy recommendations, limitations and further research, and the merging of top-down and bottom-up approaches. In the final remarks, the Dingle Peninsula is discussed from the vantage point of March 2021, capturing the development of *Dingle Peninsula 2030* up to this point and looking forward to the future.

8.1 Participation

Conceptually, participation has been a fundamental aspect of this research project. An outline of how it relates to different facets of the work is provided, drawing some conclusions of the contribution of this research to broader conversations on participation, as it relates to top-down and bottom-up approaches to sustainable transitions. On a methodological level participation within the stakeholder mapping (5.1) can be discussed. Through the emergence of the need for a multi-stakeholder intervention to bring together key community-based organisations and groups to discuss their goals in relation to the shared vision of *Dingle Peninsula 2030*, this method was established. The development of an innovative participatory mapping approach to social network analysis aligns with the principles of action research. With regards to policy interventions, the method outlined has the potential to offer a mechanism through which to involve a diverse range of stakeholders around deliberative decision-making processes. It is suggested as a tool that can be drawn upon by active change agents working in community contexts to increase their capacity to engage a wider public in planning. While further research is needed on effective outputs for the visualisation of complex maps, the process has highlighted the potential of this participatory network mapping exercise as an action research approach to social network analysis which seeks to develop upon mapping approaches within both the sociological and geographical literature.

The collaborative committee draws on the reflections of group members to gain an understanding of the approach to collaborative governance. Each organisation represented in the committee opens up the space for the participation of other organisations, with other primary motives, to influence their work. A hesitance towards this, from an incumbent position on organisational project management, can be alleviated through gaining insights on the successes and failures of collaborative governance. The need for collaborative governance structures for the establishment of socio-technical transition projects within community contexts is noted (Bos & Brown, 2012), however, little attention has been given to the need for reflection within these collaborative groupings, with collaborative governance not necessarily more effective in and of itself, but dependent on characteristics of actors and their interactions (Rasche, 2010, P.5), something

understandable through reflection. While collaboration can be called for in a tokenistic manner, the need for reflection-for-action (Thompson & Pascal, 2012) can assist in guiding organisational transformation to enable collaborative governance to be implemented effectively. An important question to pose is how can innovative governance structures diffuse both upwards and outwards, i.e. to influence policy and to include the wider community? The need for collaborative, heterogeneous partnerships including both local informal groups and top-down organisations is an important consideration (Hansen & Coenen, 2015).

Despite the relative infancy of *Dingle Peninsula 2030,* the multi-stakeholder collaborative approach has been influential in assisting and facilitating the diffusion of sustainability into numerous contexts. The post-Marxist, de-constructionalist perspective on participatory forms of environmental governance which sees participation as a performance (Bludhorn & Deflorian, 2019) can be argued against with emergent instances of success borne out of participatory approaches to governance. By way of example, the ESB Networks *Dingle Project* and its commitment to collaboration evident through its representation on the committee for *Dingle Peninsula 2030,* has led to a number of emergent diffusions of sustainability that would not have been viable if acting independently as a national public body. The experience of ESB Networks, through working in a participatory fashion within a community context, aligns with the investigation of community engagement within public bodies for the delivery of climate infrastructure. Within policy, the role of engagement has been acknowledged (DRCD, 2019). Within the context of this research project, some good practice measures have been outlined and the suggestion has been made that they should be implemented within policy for infrastructure development. Such community engagement practices could enhance the emergence of community-led sustainability initiatives expediting Ireland's transition pathway through citizen engagement. The Covid-19 pandemic has provided lessons in relation to responding to climate change challenges (Boyle & O'Regan, 2020). It has also highlighted the central importance of community engagement in responding to crises (Burgess et al., 2021).

8.2 The multi-level perspective

The core insight from the MLP is that transitions emerge through "the alignment of processes within and between the three levels" (Geels et al., 2017, P.465), therefore the incumbent regime, radical niche innovations and the socio-technical landscape. When seeking to understand transitions using the analytical device of the MLP we must understand the processes at play within and between the three levels, and outline the complex nature of the relationships which exist between them. From a governance perspective, the merging of top-down and bottom-up approaches to transitions,

through a multi-stakeholder collaborative structure, inherently rests on the interplay between the regime and niche classifications set out within the multi-level perspective. Its application as a heuristic device through which to visualise the range of research interventions included within this thesis is justified. Social learning, whereby learning occurs through interaction between actors exchanging new knowledge, practises and perspectives influence multi-stakeholder processes within and between the niche and regime levels. The alignment of processes within and between the three levels can be supported by processes that enhance the opportunity for social learning through interaction. *Dingle Peninsula 2030,* and the action-orientated approach taken from a research perspective, can facilitate the alignment of processes through embedding participatory collaboration as a fundamental concept. The reflective approach to investigating the collaborative committee, for example, acts as an instance where social learning between different levels of the MLP can be achieved.

The established understanding of grassroots innovations suggests that they differ from market-based innovations as they "foreground moral values and collective aspirations, aim to change social practices and 'ways of living', are highly contextual, and are often developed in response to local problems" (Geels, 2018, P.193). While *Dingle Peninsula 2030* is a contextual, regional endeavour, its multi-stakeholder collaborative approach merging top-down and bottom-up actors to bridge between regime and niche sectors differentiate it from simple classification. It has been initiated in response to the local need to decarbonise the peninsula, in light of the goal of sustainable employment opportunities on the peninsula outlined by Mol Téic, yet reaches beyond this through partnership with more established regime based actors. The application of the MLP to visually outline the range of research interventions contained here provides a suitable frame to outline the overlaps and synergies between different aspects, with no element or its impacts remaining static within a defined level. The application of the MaP can add greater depth, as has been applied here with relation to the novel contribution of the 'interceder' role (7.2.3). The interaction between levels is what leads to transitions, and situating the research undertaken with relation to *Dingle Peninsula 2030* in this frame highlights its potential as a successful transition initiative in the years ahead.

8.3 Role of research

Research approaches that engage collaboratively with community and civil society stakeholders have been investigated from a primary and secondary basis. The practice-based experiential learnings from this thesis have brought about a range of findings on the benefits and challenges of conducting a doctoral thesis in this manner. The links established within the community and as part of the

collaborative committee have facilitated the undertaking of the research in a manner that would not have been possible from a detached perspective. Learning from the mistakes of previous researchers such as Scheper-Hughes (2000), highlighted the importance of building strong interpersonal relationships, founded on trust, good communication and joint decision making. Sticking to your word and delivering on promises is essential when undertaking action-orientated research in the collaborative fashion presented through this work. The sense of direct impact which this approach can facilitate is often at odds with standard research practices and enhances the experience of creating 'usable knowledge', returning to an earlier consideration (see: 6.2.2.3).

It is, however, not without its challenges. There is an inherent time pressure for specific outputs within an academic context which does not align with the need for relationship building. Inversely, often the peer-review process is at odds with the community need for information. The need for grey literature which can bridge this divide has been developed through this work in the form of learning briefs. This can be recommended as a means through which to disseminate information and findings promptly while academic papers go through the review process. It is not acceptable to focus on one over the other, so again we run into the problem of time. Structuring a collaboration such as this can be difficult from the perspective of a research centre, and from a researcher perspective, the logistics of the location causes some difficulties. One of the most challenging aspects associated with undertaking research in this manner from the disciplinary grounding of sociology, whilst trying to undertake collaborative action-orientated research, is the need to balance both the subjective/objective and the insider/outsider tensions. Personally, this has been a struggle throughout. I have tried to manage my role by sometimes being central to the collaborative group, and at others taking a more detached perspective writing up papers and reports. As previously noted, the future of sociology has centred on two distinct but competing interpretations of the purpose and relevance of the discipline, transdisciplinarity and tradition (Mišina, 2015). My focus is transdisciplinary, but at times a more traditional approach is needed to enable me to develop the necessary outputs concerned with a PhD. This, however, creates further challenges, as I need to ensure the personal relationships built up within the collaborative group are kept in good health.

Moving on from first-hand experiential learnings, the investigation of academics practising transdisciplinary research with community and civil society stakeholders conducted through the use of interviews provides further insights with both benefits and challenges related to these approaches outlined previously (see: 6.2). When discussing the merging of top-down and bottom-up approaches to sustainability transitions, research has a central role to play in championing the approach and in acting to facilitate the establishment of collaborative fora between different types

of organisations and actors. The challenges of such research approaches have been outlined, alongside the motivations in order to remain cognizant of the benefits of such approaches for researchers.

8.4 Policy Recommendations

Through this PhD. I have been housed in MaREI, as a member of the Energy Policy and Modelling Group. Within this setting, one eye is always on the policy implications of the research. Focus is given here to five core high-level policy recommendations

1. Rural development projects should be more closely aligned with climate action. While sustainability is often intrinsically linked to rural regeneration there is a need to more explicitly develop the importance of vibrant communities in responding to climate action. Vibrant communities are the precursor to societal action in meeting the challenges faced.

2. Multi-stakeholder collaborations should be supported through policy, enabling different organisations and actors to work across different sectors of society in developing responses to climate change. Within this effective mechanisms must be created for community-led initiatives to be facilitated by top-down institutions.

3. Community engagement should become a core aspect of planning and development at a cross-institutional level concerning climate infrastructure. It should be given as significant a weight as financial and technical aspects. This must be a government-led initiative that sets a structure that all public bodies must follow, and which enables flexibility within the specific contexts of communities

4. Well networked senior government officials should be supported in assisting multi-stakeholder collaborations for sustainability transitions within their own local contexts to bring together top-down and bottom-up approaches.

5. Established academic practices often favour disciplinary specialisation over transdisciplinarity. The structures needed to enable more collaborative research must be developed.

8.5 Limitations and further research

Several limitations must be outlined with regard to the overall research project. Firstly, through undertaking the investigation an action research approach has been a central guiding principle, with MaREI sitting on the collaborative committee, working closely with partner groups (Mol Téic, ESB Networks, NEWKD) on a range of pursuits not directly related to traditional research. The support of MaREI to the wider collaborative group has been highlighted through the reflections of the collaborative committee (see: 5.2) and also through a number of the diffusions of sustainability (see: 5.3). Action research is a means for practical problem-solving and the continued development of scientific knowledge. It also can enhance the proficiencies of the different actors involved in the process through inclusive collaboration. MaREI's role within the project has been mutually beneficial for all partners involved. There is, however, an emergent danger with relation to legacy planning and the 'exit strategy'. At some point in time, all research projects end. The danger with relation to *Dingle Peninsula 2030* is that the resources provided by MaREI may lessen in the coming year. This danger has been mitigated to some degree through securing 3-year funding through Science Foundation Ireland to continue involvement in the project, however, this funding relates more to engagement and project management as opposed to research. Any action research project must be cognizant of the inevitable end point within the relationship with the partners in question. The general short-term nature of funding for research (2-3 years) is not congruent with the importance of allowing time to build solidarity, previously referenced as an important consideration (Lemos et al., 2018). Related to this, another limitation is the 'live' nature of the project and the finite nature of the thesis. These two opposing factors limit the potential to provide definitive evidence of the success of the project when compared with retrospective investigations. This is particularly pertinent with regards to the diffusion of sustainability. The benefits of the approach have been elucidated throughout the thesis, but the trade-offs must also be acknowledged as a limitation.

A more traditional approach to sociological research may produce findings that are more aligned with established journals in the social sciences. Throughout undertaking research in this manner I have been stuck between the tension of the group on the ground and my academic role. I have accepted this tension as unavoidable (Fuller, 1999, P. 223), however, this is not to suggest it as ideal. It places potential limitations on my own career development, and also on the replicability of the research undertaken. On reflection from the overall PhD experience, I would deem this approach as successful and informative from a personal perspective. Developing skills towards training for postgraduate students to undertake similar research approaches would be a space I would seek to move into, away from the uncertainty contained within the approach taken here.

Alongside these issues is the limitation with regards to time. This has been referenced as a finding with the study of transdisciplinary action-orientated research approaches (see: 6.2.2.1) and the reflections on the collaborative committee (see: 5.2.4). The time requirements placed upon a researcher engaging with a live project in an action-orientated manner are constantly in competition with the time requirements placed upon a doctoral student in a traditional sense. While, on personal reflection, this has been balanced to the best of my abilities, the contracting time requirements place limitations on both the collaboration and the research outputs to some degree. This is not to suggest the tension is unmanageable but rather to acknowledge its existence. Continuing with the idea of action research, Ackoff's (1999) categorisation of 'messes', whereby phenomena under investigation are complex and multi-dimensional issues, which can only be contextually understood and partially resolved, must be referenced. The Covid-19 pandemic has brought about significant changes to the *Dingle Peninsula 2030* project, and within this, the research undertaken. Due to the active and emergent nature of the approach taken to *Dingle Peninsula 2030*, it is difficult to imagine what 2021 would have looked like without Covid-19. Returning to the language of the MLP, landscape forces can have considerable impacts on action research projects, with them not existing as controlled experiments or exercises in armchair academia. Covid-19 has not impaired the project, but rather has become part of the story. If this project had begun in 2020, however, we might have had to deal with more severe consequences.

Future research, continuing from this thesis, can be suggested in several directions. Firstly, further analysis of the diffusion of sustainability with relation to *Dingle Peninsula 2030*, guided by the work undertaken (see: 5.3), and reconvened at a later date on the 2030 timeline could provide further insights into the collaborative approach to transitions and the merging on top-down and bottom-up perspectives. The research investigating community engagement within public bodies could be further developed through the integration of an action research approach, implementing and evaluating the best practice measures developed within this research (see: 7.3.1). The emergence of the interceder classification (see: 7.2.3) could be built upon with the emergent literature on intermediaries in socio-technical transitions (Kivimaa et al., 2019; Kanda et al., 2020; Boyle et al., 2021).

8.6 Merging Top-Down and Bottom-Up approaches to Sustainability

This research project has been an investigation of the merging of top-down and bottom-up approaches to sustainable transitions. Throughout the project, as referenced above, participation has been a key consideration throughout, and from this, the MLP has been used as an analytical tool

to interpret the implementation of participation through the different scales within it. The idea of participation can be traced through the different aspects of the research undertaken, with it drawing out findings in relation to participation within regional transition projects, climate infrastructure development, and research practices. While the direct relationship of the merging of top-down and bottom-up approaches to sustainable transitions has been outlined through this project, it must also be situated within the wider landscape. Internationally democracy is at a point of crisis, particularly with relation to distrust in political institutions (Hart, 1978; Applebaum, 2020). The wide range of existential threats posed to 21st-century society, such as artificial intelligence, climate breakdown, the biodiversity crisis, and geo-political tensions, are positioned within the context of the socio-political crisis.

Reimagining the institutions which structure society is a pertinent project (Harris & Hughes, 2020). As E.O. Wilson notes "the fundamental problem of humanity is we have Palaeolithic emotions, medieval institutions, and accelerating God-like technology" (Else, 2012, P.34). While the former is beyond influence, the latter two must be aligned moving forward. The political, economic, and social structures which have become embedded in western society are no longer fit for purpose. Some solutions are being offered and considered in recent times such as a restructuring of economics away from principles established by figures such as Adam Smith and developed in the 20th Century through Friedman and Hayek amongst others, towards new macroeconomic systems which can account for the multitude of issues faced (Pettifor, 2020; Raworth, 2017). Politically, experimentation with new forms of governance has been seen with the rise of citizens' assemblies globally (Chwalisz, 2019) as a form of deliberative democracy, a development within which Ireland has taken a global leadership role. In relation to climate change and issues of environmental sustainability, the Irish citizens' assembly on Climate Change (2016) represented an important milestone in deliberative democracy for climate action (Forsberg, 2020; Devaney et al., 2020). Anthropologically, we can look to Clastres' (1977) depiction of power relations in the native rainforest cultures of South America, and its decentralized approach, away from its coercive potentialities. In ancient Grecian culture, as noted by many in relation to the contemporary citizens' assembly model (Fishkin, 2014; Warren & Pearse, 2008), participatory democratic processes were central to political life.

These political ideas, at a macro level, can be related to more specific micro-processes. Within this context, the merging of top-down and bottom-up approaches to sustainability can operate as niche experiments for imagining and developing new political structures. Within the context of the project undertaken here, the collaborative approach to governance, the participative action-research

approach to the investigation, and the potential emergence of community engagement practices within public bodies can all be related to the broader macro level. The devolution of power to local governance has long since been referenced within the literature (Morgan, 2007). This research project, while in no sense a panacea to the ills of contemporary democracy, has offered forth some findings and inspirations for participatory collaborations across the four sectors of the multi-actor perspective (Market, State, Third Sector, and Community). Through highlighting such an approach I present insights with relation to governance for sustainable transitions and deliberative democracy more broadly. Returning to the dualism of participation, whereby one must be externally empowered and internally able to participate in social and political life (Horvath & Szakolczai, 2018), *Dingle Peninsula 2030* can act as an example where participation and multi-stakeholder processes assist in building capacity to enact these two requirements.

8.7 Fungie and the flu

Throughout this research project, two major developments impacted the Dingle Peninsula. The first of which was of global proportions, the second specifically local. Both, however, play an important role in the story and development of *Dingle Peninsula 2030.*

In 2019, Guinness World Records declared a local resident of the Dingle Peninsula the oldest solitary dolphin in the world. Fungie, a male bottlenose dolphin, was first seen in the Dingle harbour in 1983. In the following years, he became a central figure within the Dingle tourism industry with over 10 boats offering trips to see the dolphin on a daily basis in the summer. His playful nature, interacting with humans in the water, endeared him to locals and tourists alike. Some anecdotal estimates suggest Fungie brings €2.5 million to the Peninsula each year through the tourist industry. In October 2020, while writing this thesis, he went missing, with marine experts claiming him to have either moved on or to have died. It is claimed that 50-100 full-time jobs could be lost following Fungie's departure, coupled with the wider emotional loss felt by locals in the area and others further afield.

In March 2020, the Covid-19 pandemic reached Western Europe and radically altered daily life. The impact of the pandemic has two specific characteristics relevant to our investigation of *Dingle Peninsula 2030.* Tourism numbers plummeted as international and intercountry travel was restricted and as workplaces closed remote working was taken up en masse. Paradoxically, the Dingle Peninsula became at once disconnected and connected to the wider world in a way previously unimagined. Within the context of *Dingle Peninsula 2030,* the vision set out seeks to work towards a

more environmentally and economically sustainable future for the peninsula. Fungie's death and the impact of Covid-19 on tourism could be suggested as a tipping point, from which the area can move towards a more sustainable economy, underpinned by an environmentally driven ethos. *Dingle Peninsula 2030* has set a foundation for this journey. The emergence of remote working as a general practice nationally illuminates Dingle as a viable location for families to live. While I have drawn out the wider implications of the merging of top-down and bottom-up approaches to sustainable transitions, the final word should go to the local context. The Dingle Peninsula is a collection of communities of interest with established boundaries and articles of differentiation. It is an area conflicted by historical and global forces bringing about the proliferation of unsustainable practices across numerous sectors. Yet, amongst all of this disparity and degradation is the amazing natural beauty and the modes of unification that bring people together; the Connor Pass and the Slea Head Drive, the rugged landscape and the inclement weather. Continuing on from the work of Brent (2004) community can be understood as desire. *Dingle Peninsula 2030* is a desire for community and sustainability. The Dingle Peninsula, like much of the world, is in a moment of transition. While there is much cause for concern, *Dingle Peninsula 2030* may assist in evoking this desire for community across the region in the years ahead.

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Discography

In the closing stages of this thesis, to keep my sanity whilst finalising the bibliography, I decided the only thing to do would be to prepare a discography from my record collection of the albums I have listened to in the final days before submission. This was done in parallel to compiling the bibliography. The list follows the order in which the albums were listened to.

Dr. John- *Gris-Gris* (1968)

The Beatles- *Abbey Road* (1969)

Randy Newman- *Sail Away* (1972)

Captain Beefheart and his Magic Band- *Safe as Milk* (1967)

Automatic- *Signal* (2019)

ESG- *Come Away with ESG* (1983)

Various Artists- *Life & Death on a New York Dancefloor 1980-1983* (2018)

Various Artists- *Quare Groove Vol. 1* (2018)

King Krule- *Man Alive!* (2020)

King Krule- *The Ooz* (2017)

Little Simz- *Grey Area* (2019)

Appendix

Appendix 1

Appendix 1: Potential stakeholders mapped to the Multi-Actor Perspective (Avelino & Wittmayer, 2016)

Beginning to Classify Stakeholders

(CC-Cultural capacity, IC- Instiutional Capacity, OC- Organisational Capacity, PC- Personal Capacity)

(Community (networks, clubs, community groups), State (Governmental departments, Municipalities, political parties, tribunals, official agencies), Third Sector (associations, foundations, Universities, schools, NGOs, charities, cooperatives), Market (Multinationals, social enterprises, SNEs)- Avelino & Wittmayer (2016)

1. An Gaetacht GAA: (OC) (Community)
2. Annascaul Community Council- Noel Spillane (OC) (Community)
3. Annascaul GAA: (OC) (Community)

4. Camp Community Council - Establish, manage, operate and develop community development programmeme, community centre and community field in Camp. Bridget O'Connor (OC) (Community)
5. Castlegregory GAA: (OC) (Community)
6. Coiste Forbartha an Leith Triúigh (Cloghane) Development Committee. Catriona (OC) (Community)
7. Coiste Forbartha Baile an Fheirtéaraigh - Development Committee. Breege Granville (OC) (Community)
8. Coiste Forbartha Baile na nGall - Development Committee. Rochie Holohan (OC) (Community)
9. Coiste Forbartha Ceann Trá - Development Committee. Jim Long (Post Office) (OC) (Community)
10. Coiste Forbartha Dun Chaoin - Development Committee. Lorcan Slattery (West Kerry Live) (OC) (Community)
11. Coiste Forbartha Lios Pol - Development Committee. Marie Griffin (OC) (Community)
12. Department of Agriculture, Food and the Marine (DAFF): Government Department responsible for leading the sustainable development of a competitive, consumer focused agri-food sector (IC) (State)
13. Department of Communications, Climate Action & Environment (DCCAE): Government Department responsible for the telecommunications and broadcasting sectors and regulates, protects and develops natural resources (IC) (State)
14. Department of Rural and Community Development (DRCD): Government Department which focuses on rural and community development and also has responsibility for ensuring arrangements for strong oversight of the charities sector (IC) (State)
15. Dingle Business Chamber – Promotes economic and social development on the Dingle Peninsula. John Sheehy (OC) (This Sector)
16. Dingle Creativity and Innovation Hub (MolTéic): Innovation and Creativity digital centre (OC) (Third Sector)
17. Dingle Fishery Harbour Centre (DFHC): Local harbour centre owned and managed by Department of Agriculture, Food and the Marine (IC) (State)
18. Dingle GAA: Local sports club (OC) (Community)
19. Dingle Peninsula Tourism Alliance: a voluntary not for profit organisation, dedicated to the development and promotion of tourism on the Dingle Peninsula (OC) (Third Sector)
20. Dingle Peninsula Women's Network: Local women's network (OC) (Community)

21. Economic and Social Research Institute: National research Institute (linked to MAREI) (IC) (Third Sector)
22. Enterprise Ireland (EI): National agency supporting Irish business (IC) (State)
23. ESB Networks: Electric Utility company, with specific responsibility for the electricity networks (low and medium voltage) (IC) (State)
24. Falite Ireland: Regional state agency responsible for tourism (IC) (State)
25. IDA Ireland (IDA): Semi-state body promoting foreign direct investment (IC) (State)
26. Inland Fisheries Ireland: conserve, manage, develop and promote the natural resource of Inland Fisheries (IC) (State)
27. Institute of Technology Tralee (ITT): Regional Institute of Technology (IC) (Third Sector)
28. Irish Academy of Engineering: Voluntary organisation providing independent advice to policy in relation to engineering and related issues (OC) (Third Sector)
29. Kerry County Council: administrative body governing County Kerry (IC) (State)
30. Kerry Education and Training Board (KETB): Local statutory authority for education and training (IC) (State)
31. Kerry Sustainable Energy Co-Operative: Community energy co-operative (OC) (CC) (Community/ Third Sector)
32. LEADER: European Union initiative to support rural development projects initiated at the local level in order to revitalise rural areas and create jobs (IC) (State)
33. Lispole GAA: (OC) (Community)
34. MaREI: National research centre for marine and renewable energy (IC) (Third Sector)
35. Mol Téic: company, limited by guarantee (CLG), that is responsible for Dingle Hub and some other initiatives National Transport Authority: Public transport licensing agency for Ireland (OC) (Market)
36. North East West Kerry Development Company (NEWKD): Local Development Company (OC) (Market)
37. Sustainable Energy Authority of Ireland (SEAI): National sustainable energy agency (IC) (State)
38. Teagasc: State agency responsible for research and development, training and advisory services in the agri-food sector (IC) (State)
39. Transition Chorca Dhuibhne: Local entity of Transition Network on the Dingle Peninsula (OC) (CC) (Community/ Third Sector)
40. Transition Kerry: County Kerry entity of the Transition network (OC) (CC) (Community/ Third Sector)

41. Tyndall Institute: European research centre in integrated ICT (Information and Communications Technology) hardware and systems (IC) (Third Sector)
42. Údarás na Gaeltachta: Regional state authority for social, economic and cultural development of Irish speaking regions (IC) (State)
43. University College Cork (UCC): National University (IC) (Third Sector)

Other sporting organisations – Rugby, Soccer, Badminton etc.

Cultural organisations (music, drama, painting, poetry, etc.) –

Appendix 2

The following is a consent form for all participants partaking in interviews as part of the research project, working title 'Community Engagement in Public Bodies', organised by Evan Boyle, MaREI, UCC. All participants should read the form and ask any questions they may have. Before the interview can start, all parties should sign the form. The participants will be given one copy of the signed form.

Consent for Participation in Interview

I volunteer to participate in this interview as part of a research project conducted by Ph.D. candidate Evan Boyle, MaREI, UCC. I understand that the project is designed to gather information about the community engagement practices within public bodies.

1. My participation in this project is voluntary. I understand that I will not be paid for my participation. I may withdraw and discontinue participation at any time without penalty. If I decline to participate or withdraw from the study, my anonymity will be upheld.

2. If I feel uncomfortable in any way during the interview, I have the right to decline answering any question or to end my participation.

3. Participation involves conversation in an interview organised by Evan Boyle, University College Cork. A mobile phone will be used to make an audio tape of the discussions of the interview. I agree to use of a dictaphone Yes ◯ No ◯

4. I understand that the researcher will not identify me by name in any reports using information obtained from this interview, and that my confidentiality as a participant in this study

will remain secure. All data will be stored in an encrypted, password protected file on a private computer.

5. Analysis of the project, including this interview, may be used for the submission of a research paper in an international journal.

6. I will not be identified by the researchers in any subsequent interviews/ workshops. This precaution will prevent my individual comments from having any negative repercussions. If I wish to receive a transcription of the interview I can do so by emailing evan.boyle@ucc.ie.

7. I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study. Yes ◯ No ◯

8. I have been given a copy of this consent form.

Participant Signature:

Date: Interviewer Signature:

Appendix 3

DINGLE PENINSULA 2030

MEETINGS, EVENTS AND OTHER ACTIVITIES INVOLVING EXTERNAL ACTORS

DATE	EVENT/ACTIVITY	PRESENTATION TITLE/MEETING AGENDA	VENUE	RELEVANT ATTENDEE'S
4 Dec 2017	Seminar on ESB Networks Dingle Electrification Project, with invited stakeholders	**Agenda** 1. Introductions 2. Presentations and discussion 3. Brief updates since last meeting ☐ ESB Networks - project management, other developments ☐ SEAI – new schemes and SEC's etc ☐ Transition Kerry & Transition Chorca Dhuibhne – recent conference ☐ Enterprise Ireland – SBIR scheme, other developments ☐ Údarás na Gaeltachta – Community Fund, update on EU project ☐ Kerry Co Co – possible applications for support & other developments ☐ Dingle Fishery Harbour ☐ IT Tralee – possible opportunities for job creation ☐ Kerry Education and Training Board – possible collaboration ☐ Dingle Hub – project management, SEC, former Dingle Hospital /Workhouse	Dingle Skellig Hotel,	47 attendees from Dingle Hub, ESB Networks, Údarás na Gaeltachta, NEWKD, MaREI, ESRI, Kerry Co Co, KETB, Net Feasa, Transition Corca Dhuibhne, Kerry Sustainable Energy Co-op, Transition Kerry, Enterprise Ireland, IT Tralee, Dingle Fishery Harbour, GAA, Carlow Kilkenny Energy Agency, Castlegregory/Cloghane
23 Feb 2018	Meeting between MaREI & board member of Mol Téic	To discuss plans for the *Dingle Peninsula 2030* initiative	ERI/UCC, Lee Road, Cork	MaREI representatives and board member of Mol Téic

27 March 2018	Wired Atlantic Way Public Meeting, 'Are Smart Meters Safe?'	A range of speakers on negative health implications of smart meters	Dingle Skellig Hotel	About 50-60 attendants
3 April 2018	Official Launch of ESB Networks *Dingle Project*	The official launch of the ESB Networks *Dingle Project* with a range of speakers	Dingle Skellig Hotel,	Invited stakeholders
21 May 2018	Presentation to Sustainability Summer School, UCC Organised by Sociology Dept & Green Campus, UCC & Ludgate Hub, Skibbereen	'Global Goals, Local Actions: Making Sustainability Work'	UCC	Presentation made by board member of Mol Téic to postgraduate (20+) students attending the summer school
25-29 June 2018	GoalMine - a 5 day summer camp for teens in Tralee, Dingle & Cahersiveen - using thinking tools such as LEGO Serious Play and Design Thinking Organised by IT Tralee	As part of a week long summer camp, the students spent one day in the Dingle Hub, and prepared a video presentation on sustainability issues in Dingle with support from MaREI	Dingle Hub	3 Dingle students, 2 MaREI Ph.D. students
16 July 2018	Workshop on the possibilities for supporting agriculture, in raising efficiency and protecting the environment in Dingle	**Short Presentations:** • Dingle Hub: Background and overall concept of the project • Net Feasa: Potential of IoT networks on the Dingle Peninsula Followed by **World Café discussions** This event resulted in the Dingle Peninsula Farm Ambassador Programmeme	Dingle Skellig Hotel	Reps from: Dingle Hub, local farming, Transition Kerry, NEWKD, EPA, Teagasc, Kerry Co Co, LAWCO, LAWSAT, Inland Fisheries, Údarás na Gaeltachta, DCU, ERI (UCC), KETB, SHU, IT Tralee, UCC
1 Aug 2018	Seminar on Bioenergy/Anaerobic		Dingle Skellig Hotel	Deirdre de Bhailís & Brendan Tuohy, Dingle Hub; Local

	Digestion, with Jerry Murphy, MaREI	Presentation 'MaREI Centre and Bioenergy', followed by questions and open discussion		Farmers: Andrew Fitzgerald (dairy), Jill Fitzgerald (dairy), Colm Murphy (dairy), Ronan Sugrue (dairy), Denis Galvin (dairy), Brigid O'Connor (sheep) & Thomas O'Connor (organic); Pat O'Shea, IFA, NEWKD; Seamus O'Grady, Tralee Bay Oyster Hatchery & Seaweed Farm; Seamus O'Hara, NEWKD, Transition Kerry; John Kennelly, Senior Engineer, Kerry Co Council; Conall MacGearailt, Údarás na Gaeltachta; James Gaffey, Biorefinery Specialist, IT Tralee; Clare Watson, Evan Boyle & Connor McGookin, MaREI; Tim Clarke, Biogas Consultant, EPS; Xavier Dubuisson, XD Consulting, SEAI Energy Mentor; Vanda Mešnjak Baršić, KSEC; Martin Bealin, Global Village Restaurant; and Mike Fitzgerald, Net Feasa
5-7 Oct 2018	ESB Networks Information Stand at Dingle Food Festival	Competition for free solar PVs	Dingle town	Public event
6 Nov 2018	Workshop with UCC students from the Dingle Peninsula	Students were asked to reflect on their communities' strengths and weaknesses before exploring opportunities for the future, as well as concerns if current trends continue	UCC	13 students from across the Dingle Peninsula, MaREI Dingle Team members

21 Nov 2018	Presentation to Researchers in Environmental Research Institute (ERI), UCC	**Research opportunities with the local community of the Dingle Peninsula Outline** Part 1. Dingle Creativity and Innovation Hub Part 2. Sustainability and Transition to Low Carbon Society ☐ Energy Master Plan ☐ Transition Dingle 2030 ☐ ESB Networks *Dingle Project* ☐ Bionergy, Anaerobic Digestion and Gas Networks Ireland (GNI) ☐ Sustainable Transport ☐ Engagement with local community and others Part 3. Dingle Peninsula Test and Trial Networks ☐ Smart Farming ☐ Water Monitoring Part 4. Opportunities for research	ERI, Lee Road, Cork	Presentation made by board member of Mol Téic to researchers
28 Nov 2018	Workshop 'How do we Engage Communities in Climate Action? Practical Learnings from the Coal Face' Organised by MaREI and funded by National Dialogue on Climate Action (NDCA)	**Workshop Programmeme** 1. Experience engaging communities in action – what works and what doesn't? 2. Distilling recommendations for approaches, actions and rationales in relation to climate action 3. Refining recommendations for different audiences and contexts	MaREI Centre, UCC ERI Beaufort Building, Ringaskiddy, Co. Cork	MaREI Dingle team members and 19 community engagement practitioners
17 Dec 2018	ESB Networks *Dingle Project* Ambassador Launch	Launch of Ambassador project for ESB Networks *Dingle Project*	McCarthy's Bar, Dingle	MaREI Dingle team members, general public, ESB Networks *Dingle Project* members, 5 Ambassadors
17 Jan 2019	Workshop *Innovative Methods on Community Engagement: Toward a*	This workshop focused on obtaining a deeper understanding of existing		24 academics and researchers with direct experience of community engagement

	Low Carbon, Climate Resilient Future Organised by Imagining 2050, UCC and funded by National Dialogue on Climate Action	examples of community engagement in the area of climate action. The format included a number of interactive exercises and plenary discussions		working in the field of climate action, including MaREI Dingle Team members
18 Feb 2019	*Dingle Peninsula 2030*/SEC meeting with Declan Meally, SEAI & Tour of KETB Training Facilities	Briefing on Dingle Peninsula Energy Projects • ESB Networks *Dingle Project* • Transition *Dingle Peninsula 2030* (Dingle SEC and Energy Master Plan; Anaerobic Digester Feasibility Study; Sustainable Transport and Tourism; Community Engagement Proposals) • Energy Coach Local Training Initiative – opportunities for SEAI involvement and collaboration • Follow-on actions	KETB Training Campus, Tralee	MaREI Dingle Team Members, *Dingle Peninsula 2030* collaborative committee members, SEAI, KETB
4 March 2019	First Round of Network Mapping Workshop	Participatory mapping workshop with four local community organisation representatives	Dingle Hub	Deirdre (Mol Téic), Thomas (Transition Kerry), Fionnán (Údarás), Seamus O'Hara (NEWKD)
10 April 2019	LED Bulb Swap Event	The overall aim of the event was to begin a discussion on energy usage in people's homes. By demonstrating how something as simple as changing to LED bulbs can significantly decrease the amount of electricity used in lighting people see that small actions do add up	Pobailscoil Chorca Dhuibhne (Dingle Peninsula Community School)	c.100 including MaREI Dingle Team members
27 June 2019	Presentation to IPASS Summer School, Italy	'*Dingle Peninsula 2030* - A Multi Stakeholder Approach to the Socio-technical Transition to a Low Carbon Society'	IPASS Summer School, Acquapendente, Italy	Presentation made as part of Ph.D.

30 Aug 2019	Presentation to Royal Geographical Society, London	"Creative Methods for Engaging Communities on Sustainable Transitions", using *Dingle Peninsula 2030* as an example	RGS, London	Presentation made as part of Ph.D.
2 Oct 2019	Presentation to the Education and Public Engagement Managers of the 17 SFI-funded Centres	**Agenda** • *Dingle Peninsula 2030* (Deirdre) • ESB Networks *Dingle Project* (Claire) • MaREI (Brian) • MaREI Dingle team engaged research (Clare & Evan)	ERI, UCC, Lee Rd, Cork	MaREI Dingle Team members and *Dingle Peninsula 2030* collaborative committee members
2 Oct 2019	Meeting with Andy Fox, Engagement Manager, Coillte	To discuss his role as Community Engagement Manager in Coillte, and community engagement around RE developments on Dingle Peninsula	ERI, UCC, Lee Rd, Cork	MaREI Dingle Team members and *Dingle Peninsula 2030* collaborative committee members
11-12 Nov 2019	Climate Hack	An interactive outreach event with students in 3 Dingle secondary schools The overall aim was to capture the key concerns of young people in the area. By giving them usable information and asking them to assume the role of a town planner, an interesting insight was gained into what parts of the energy transition they viewed as most important and their perceptions of the various solutions available.	3 Dingle secondary schools	MaREI Dingle Team members and *Dingle Peninsula 2030* collaborative committee members
13 Nov 2019	Meeting with Ruth Buggie, SEC Programmeme Manager, SEAI	**Agenda** • Brief outline of initiatives within "Dingle 2030 – Our Sustainable Future" • Overview of ESB Networks *Dingle Project* • SEAI plans for Community Energy (see forwarded questions from ESB Networks). Main opportunities for	Dingle Hub	MaREI Dingle Team members and *Dingle Peninsula 2030* collaborative committee members

		Dingle Peninsula in the areas of Solar PV, Anaerobic Digestion and Hydro. • Discussion between Dingle Hub, SEAI, ESB Networks and MaREI on initiatives within "Dingle 2030 – Our Sustainable Future" covering Energy Masterplan, Community Engagement, Engaged Research, Sustainable Transport Opportunities		
13 Nov 2019	Meeting with Climate Action Regional Offices (CARO) Management Team	**Agenda** • Overview of initiatives within "Dingle 2030 – Our Sustainable Future" covering Energy Masterplan, Community Engagement, Engaged Research, Sustainable Transport and including opportunity to hear from participants on the Community Energy Mentor Training Course which is commencing on 13.11.2019 • MaREI Overview Framing the role of technology, research and community engagement in addressing Climate Change • ESB Networks *Dingle Project* Overview including ☐ Project Ambassadors ☐ Engagement, Education and Evaluation	Dingle Hub	MaREI Dingle Team members and *Dingle Peninsula 2030* collaborative committee members
5 Dec 2019	ESB Networks *Dingle Project* Event, to hear about the experiences of *Dingle Project* Ambassadors and trial participants, project updates and focus for 2020	A social and networking event with stakeholders, where ESB Networks trial participants shared their experiences and learnings.	McCarthy's Bar, Dingle	MaREI Dingle Team members and *Dingle Peninsula 2030* collaborative committee members, ESB Networks *Dingle Project* team, and ESB Networks *Dingle Project* participants and families.

13 Feb 2020	Launch of *Dingle Peninsula 2030*	Outline • Learn about Corca Dhuibhne's Energy • Master Plan– our communiity guide to energy choices • Meet your Community Energy Mentors • Meet with ESB Networks to apply for their Electric Vehicle Trial • Hear about Climate Action Solutions developed by students from Meanscoil Nua an Leith-Triuigh, Coláiste Íde & Pobalscoil Chorca Dhuibhne • Swap your old bulbs for energy saving LEDs and much more including DPTA Sustainable Tourism tips and Bus Eireann Transport options	Pobalscoil Chorca Dhuibhne	Public event attended by all *Dingle Peninsula 2030* collaborating committee
25 Feb 2020	'Kick Off' Meeting between ESB Networks & MaREI	To launch the ESB Networks/MaREI collaboration		MaREI Dingle Team members and ESB Networks *Dingle Project* team
7 July 2020	Meeting with Michelle Kearney (Department of Agriculture), John Muldowney (DAFM); Philip Blackwell (DAFM); Joan McDougall (DAFM); Kevin Keegan (DAFM); Barry Caslin (Teagasc); John Upton (Teagasc)	To discuss potential collaborations	Zoom	MaREI Dingle Team members, Teagasc representatives, Department of Agriculture representatives, and an ESB Networks Ambassador
11 Nov 2020	Webinar jointly organized by MaREI & SEAI, as part of SFI Science Week	An Armchair Chat with *Dingle Peninsula 2030*	Webex	Dingle Peninsula collaborative committee members, SEAI, 200+ viewers

19 Nov 2020	Meeting with Loop Head group	To discuss the work of *Dingle Peninsula 2030*	Zoom	ESB Networks Ambassador, Mol Téic manager, MaREI Dingle Team members
26 Nov 2020	Meeting with Loop Head group	To discuss the work of the Loop Head group		ESB Networks Ambassador, Mol Téic manager, MaREI Dingle Team members
9 Dec 2020	ESB Networks Webinar	'Empowering the Active Energy Citizen and Energy Communities'	On-line	Presenters: Clare Duffy, Clare W., Ruth Buggie & Rory McKeown Facilitator: Derek Hynes
9 Dec 2020	Local Climate Dialogues Workshop	An Exchange with Imagining 2050, *Dingle Peninsula 2030*, GEAI Leitrim and EnergyPolities	Zoom	Presentations by MaREI Dingle Team members

Appendix 4

DINGLE PENINSULA 2030 INTERNAL MEETINGS, AND WORKSHOPS

DATE	VENUE	EVENT TITLE
27 March 2018	Dingle Hub	Transition Dingle 2030 Exploratory Meeting
19 July 2018	Dingle Hub	Informal Discussion
13 Sept 2018	Dingle Hub	Collaborative committee Meeting
19 Oct 2018	Dingle Hub	Collaborative committee Meeting
7 Jan 2019	Dingle Hub	Collaborative committee Meeting
4 March 2019	Dingle Hub	Collaborative committee Meeting
4 March 2019	Dingle Hub	Case Study Meeting
25 March 2019	Dingle Hub	Branding & Marketing Workshop
9 May 2019	Dingle Hub	Dingle 2030 Collaborative committee Meeting
10 June 2019	Dingle Hub	Dingle 2030 Collaborative committee Meeting
16 July 2019	Environmental Research Institute (ERI), UCC	Case Study Workshop
9 Sept 2019	Dingle Hub	Dingle 2030 Stakeholder Meeting
4 Nov 2019	Dingle Hub	Dingle 2030 Stakeholder Meeting
6 Dec 2019	Dingle Hub	Dingle 2030 Stakeholder Meeting
21 Jan 2020	Dingle Hub	*Dingle Peninsula 2030* Stakeholder Meeting
13 Feb 2020	Benners Hotel	Meeting with ESB Networks Ambassafor on future agriculture projects
14 Feb 2020	Dingle Hub	*Dingle Peninsula 2030* Stakeholder Meeting
19 Feb 2020	Dingle Hub	Meeting with energy mentors about setting up community energy group
20 Mar 2020	Skype/Viber	Meeting about KPI's for ESB Networks *Dingle Project*
27 May 2020	Skype	Meeting with ESB Networks re KPI's
7 April 2020	Skype	Meeting to discuss KPI's and Deliverables
15 April 2020	Zoom	*Dingle Peninsula 2030* Stakeholder Meeting
6 May 2020	Skype	Meeting with ESB Networks
13 May 2020	Zoom	*Dingle Peninsula 2030* Meeting
18 June 2020	Zoom	Discussion with ESB Networks Ambassador on research related to Agriculture projects
21 July 2020	Skype	Quarterly Report meeting with ESB Networks (Q2 2020)
10 Sept 2020	Zoom	*Dingle Peninsula 2030* Meeting
7 Oct 2020	Zoom	*Dingle Peninsula 2030* Meeting
4 Nov 2020	Skype	Quarterly Report meeting with ESB Networks (Q3 2020)

Appendix 5

Feedback survey	
How useful did you find the workshop?	Very useful (6 of 6)
Did you enjoy the workshop?	Yes (6 of 6)
What didn't work well? Responses	
When I saw the 2 breakout topics I wasn't sure I had anything to add but hopefully some recent experience may have been of use. A short 5 minute comfort break would have been good. To rest eyes and stretch a little.	
No issues.	
It was difficult to know where to insert the sticky notes at times - where they were relevant.	
What worked well? Responses	
The staging of general before breakrooms. I liked the facilitator managing the post-it's as it gave us a chance to watch and interact and not worry so much about spelling, also avoided repetition. I thought the group size was really good. The pacing worked and the breakouts were good.	
workshops and plenty of opportunity to engage	
The technology was great! Going to check out mural and sketch board too! Break out rooms also worked really well.	
Mural as a tool was very easy to input notes and the session was facilitated very well.	
What is your one key learning? Responses	
Again, like our in person event, I was reminded again that the challenges I face in community engagement are just mine. It is hugely valuable to think that this group also faces the same particularly between the internal expectations and the external engagement needs. And that through this collaboration we can identify results in a peer reviewed way that may convince better than those we arrive at individually.	
Engage on how to engage	
Tracking and measurement of community engagement activity needs to be re-evaluated on an ongoing basis.	
Tracking and measurement of community engagement activity needs to be re-evaluated on an ongoing basis.	
Enjoyed the new platform	

Appendix 5: Response to survey evaluation of online workshop with 6 responders.