



An Chomhairle Náisiúnta Eacnamaíoch agus Shóisialta
National Economic & Social Council

Approaches to Transition

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Abbreviations

CLIs

Community-led initiatives

DCCAE

Department of Communications, Climate Action and Environment

EGFSN

Expert Group on Future Skills Needs

IISD

International Institute for Sustainable Development

IPPR

Institute for Public Policy Research, UK

NDP

National Development Plan 2018–2027

NECP

National Energy and Climate Plan

PES

Public Employment Service

SDGs

Sustainable Development Goals

TASC

Think-tank for action on social change

TUAC

Trade Union Advisory

Committee (to the OECD)

UNFCCC

United Nations Framework Convention on Climate Change

WEF

World Economic Forum

Introduction

This paper looks at how transitions are approached, including experiences and approaches to governance elsewhere, particularly in relation to protecting vulnerable groups and sectors. It seeks to identify insights and lessons from past and current international experience. These approaches indicate the range of perspectives at play which touch on some fundamental questions about the role of society in shaping these transitions, some different perspectives on the benefits and risks in the future of work, and the scale and speed of the transformations required.

While this work was undertaken before the current health crisis, the insights will be relevant as the transition continues. It is important to acknowledge that, while other, unexpected events and challenges will affect how these transitions unfold, governments require strategies and tools to proactively and reflexively plan and manage transformative change.

The purpose of this paper is to develop greater shared understanding of the practical ways and strategies that could be applied to support and build resilience for those most challenged by Ireland's low-carbon and digital transitions. This will give a flavour as to how other countries are managing the low-carbon and digital transitions process, the thinking and practical tools being used to support transition, and in particular how others manage downside risks that disproportionately affect specific cohorts of workers or communities. There are considerable public governance challenges in any transition, particularly with the complexity and uncertainty of climate change combined with the scale and speed of the changes required at multiple levels of the economy and society (OECD/IEA/NEA/ITF, 2015).

While there are many facets to these ongoing debates, our particular lens is on delivering quality jobs and social and economic opportunities. Green (2018), in his review of the literature on transition approaches, notes that a broader understanding of those affected is required, as well as moving away from understanding losses and impacts as purely economic. For example, job loss is more than a loss of income. It has social and psychological aspects. Green argues:

This conceptualisation of loss – as wider than financial losses and more fine-grained than the welfare economic understanding of loss – has important implications for the classification and design of transition policy (Green, 2018: 8).

To complement this work, a research paper on international just transition practices was undertaken by Sinead Mercier. The research provides careful contextualised analysis of German, Australian and Scottish initiatives.

However, a caveat: insights from such experience is valuable, but Ireland will not find any off-the-shelf approaches. We will need to steer our own path and build our own planning and management approach to transition.

The paper is structured as follows:

- Chapter 1 introduces the challenge of Ireland in transition, in terms of both low carbon and digital.
- Chapter 2 provides an account of the policy context and how the low-carbon and digital transitions are unfolding.
- Chapter 3 reflects on some concepts and approaches to transition and identifies useful points to consider in this work.
- Chapter 4 outlines the approaches to planning and managing transitions.
- Chapter 5 presents the principles of transition, notably a just transition, and how these are underpinning international policy development.
- Chapter 6 will conclude with an overview of key insights to support the development of a Transition Teams framework.

Chapter 1

Ireland in Transition

Ireland faces unprecedented structural economic and social change in the coming decades, through the transition¹ away from fossil fuels to a low-carbon society and the digitalisation transition (automation and application of emerging technologies).² While there are mixed lessons from historical industrial and energy transitions (IISD, 2018), the low-carbon transition and digital transitions are ‘live’ and, arguably, uniquely challenging. None of the past transitions faced intertwined social, technological and ecological problems of the scale facing human kind in the early 21st century (Silveira & Pritchard, 2016; Silveira, 2016). The transitions facing Ireland also lie ahead in almost all countries.

A key question that frames this work is that there is no single defined destination or course for these transitions. Clearly, one is transitioning away from fossil fuels and unsustainable resource use, while the other is transitioning with and towards technological innovation and practices. However, many inherent qualities of the transitions are not often articulated or indeed agreed. Of value to this work is to understand some of these qualities, assumptions and ideas about what the transitions could and should be, as well as how they can be delivered. This will inform discussion as to the broader framework and enabling environment needed if job-related deliverables are to be achieved in the near and medium term.

The Council was asked to consider two particular transitions and their impacts: the low-carbon and digital transitions. In relation to the first, Ireland is committed to decarbonising the economy and building a low-carbon society. It has fresh policy momentum due to the Climate Action Plan and the Oireachtas Climate Action Committee’s report (JOCCA, 2019). In 2019, the Dáil declared a climate and biodiversity emergency.

Combined international and national focus and pressure is shifting Ireland’s policy on climate change towards more ambitious targets and more stringent and active governance. The transition to a low-carbon economy and society has been given tangible limits and targets through the Paris Agreement on climate change, which set the objective of limiting global average temperature increases to well below 2°C

¹ The process or period of changing from one state to another is known as a transition.

² Such as blockchain, the Internet of Things and artificial intelligence. Of significance also is the shift towards the circular economy and the impact of global mega-trends such as globalisation, demographic growth and urbanisation.

above preindustrial levels and to strive to limit it to 1.5°C, recognising that this would much reduce the risks and impacts of climate change.³

To achieve Ireland's commitments to the Paris Agreement, there has been increasing societal and government momentum and pressure to deliver policies and measures to bring about a downward shift in emissions in Ireland. It is likely that the impacts of these measures may not be equal across society, without due regard. Affected groups may include individuals who own emissions-intensive household assets (e.g. oil boilers); communities or regions in which emissions-intensive industries account for a large share of economic activity (e.g. the Midlands), and corporations and businesses that own emission-intensive business assets (Green, 2018).

With regard to the second transition, the journey towards increasing digitalisation, automation and artificial intelligence is also gathering pace. The forthcoming National Digital Strategy will set out how Ireland will prepare and maximise the opportunities from these developments. The digital transition refers to the economic and social effects of the increased use of digital technologies and data as well as the interconnections that result in new and/or changes to existing activities. Digital transformation affects all aspects of the economy and society in complex and interrelated ways, challenging existing policies in many areas. The speed of adoption of technological advances is seeing the emergence of new global business models, products, markets, sectors and activities, as well as disrupting ways of working and affecting skills needs (Government of Ireland, 2019d: 61).

These unfolding and complex transitions, while distinct, share common elements as both require preparation and planning in order to maximise opportunities and minimise risks and impacts. These transitions are underpinned by deep uncertainty and represent enormous challenges of societal engagement.

While the two transitions are the focus of this work, they are not occurring in isolation from other global trends and potential transformations such as the move towards a circular economy, increased protection of biodiversity, habitats and ecosystems, and mega-trends such as urbanisation, population growth, public health and globalisation. However, while the challenges are immense, there are social and economic opportunities that can be grasped through early, responsive and innovative policies and practice. These provides an incentive for increased ambition and collective societal action.

The focus of this broader project is understanding how and where these transitions may affect workers, communities, enterprises and key economic sectors, and what might be required to understand these impacts, anticipate future dynamics and prepare, while also supporting those who are at most risk of economic impacts. The project touches on larger issues that will not be fully addressed here, such as how to

³ UNFCCC Paris Agreement.

ensure new jobs are quality jobs, which is already an issue for many, and are not confined to the low-carbon and digital transitions. This work will also inform future enquiry and deliberation as to what a fair, just and transparent process of transition might look like for Ireland.

The development of a just transition approach is an important issue for all governments, particularly so when impacts and challenges are experienced on the ground.

For Ireland, as the National Risk Assessment points out:

As we transition to a low carbon economy and traditional industries and practices are disrupted, decoupling our economic growth from carbon emissions will become increasingly critical in maintaining our competitiveness. It will also be important to plan for the societal disruption caused by this transition and prepare retraining and reskilling opportunities to ensure individuals and communities can make the necessary changes.

It adds that: ‘there is an increased risk to social cohesion and of undermining the work done in recent years in this area, should perceptions of rural and regional imbalance persist or increase’ (Government of Ireland, 2019d: 46, 52). Further, ‘both political and societal willingness to tackle the longer-term risks of climate change could present a challenge, as significant up-front investment is required, which may not yield benefits for many decades.’

With jobs as the main point of reference, it is important to place this work in a wider frame, one that recognises the social, spatial and personal impacts of economic and technological change and incorporates those insights in the development of practical supports, skills and protections. What are the key considerations to bring to policy, so as to ensure that no-one is left behind as these changes occur in Ireland, and to minimise the economic and social impact on workers and families, enterprises, sectors, regions and communities? This paper therefore provides key concepts and approaches to provide the wider frame and context for this analysis, drawing widely from theory and practice.

Chapter 2

Irish Low-carbon Transition Policy Context

Government action on the low-carbon transition is informed by international and national agreements, laws and policies on climate action, energy, sustainable development and a just transition. Some of these are briefly outlined below. This is followed by a short description of key issues concerning the transition.

2.1 Climate Action Plan

Ireland faces the challenge of reducing emissions sufficiently to deliver the low-carbon transition and to meet the targets set by the Paris Agreement. It sets out a global action plan to put the world on track to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C. Ireland has previously committed to reduce emissions by 30 per cent as compared to 2005 levels by 2030.

Despite having a national objective of achieving transition to a competitive, low-carbon, climate-resilient and environmentally sustainable economy by 2050, outlined in the National Policy Position and supported by the Climate Action and Low Carbon Development Act 2015, results have been poor to date. Ireland had the third-highest emissions of greenhouse gases per capita in the EU in 2017 (CSO, 2019). Ireland's emissions were 51 per cent higher than the EU28 average of 8.8 tonnes.

The Climate Action Plan put in place a decarbonisation pathway to 2030 that would be consistent with the adoption of a net zero target in Ireland by 2050, but not sufficient to meet the Paris Agreement commitments (Government of Ireland, 2019a: 23). This plan seeks to reduce overall emissions by 2 per cent each year from 2021 to 2030, to meet our EU targets.

The Climate Action Plan states:

Every home, every community, every workplace and every farm, must be mobilised to get involved. Every network which supports our lives – energy, transport, telecommunication, public service, waste management – must adapt rapidly. If we delay the transition, we as a country shall most certainly face greater costs and fewer opportunities. The reality is that, only by adapting now, can our enterprises remain competitive and our society resilient (*ibid*: 8).

Further planned developments of the outgoing government include a new Climate Action Act in 2020, in which the governance aspects of delivering the Climate Action Plan include the adoption of carbon budgets and the Long-Term Climate Strategy. This strategy and the integrated national energy and climate plans form part of the governance of the EU's Energy Union.⁴ The next government will have to consider how Ireland will meet its international commitments for climate action.

The final integrated National Energy and Climate Plan (NECP) will be submitted to the EU in 2020. It will set out the Long-Term Climate Strategy to 2050. This strategy will be a statutory successor to the National Mitigation Plan.

As part of the approach to the low-carbon transition, recent policy points to the need to embed social development and social justice in climate action. This features in the Paris Agreement, in national policy frameworks in terms of 'just transition' principles and actions, and also in the development of the Green New Deal in the US – proposed legislation that aims to address climate change and economic inequality. Similar initiatives have begun in the UK and EU (Gabbatiss, 2019). The Energy Union has a substantial social dimension, including measures to empower consumers, a focus on tackling energy poverty, and facilitating households and communities to access distributed renewable energy generation (Minas, 2018).

2.2 Increasing Focus on Social Justice

The social and climate justice aspects of the Paris Agreement have been strengthened since 2015 through the signatories of the Silesia Declaration, of which Ireland was one in 2018. The Silesia Declaration includes commitments to take into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs as crucial to ensure an effective and inclusive transition to low greenhouse-gas emission and climate-resilient development. This further acknowledges the importance of ensuring a decent future for workers affected by the transition, working to ensure sustainable development and community renewal, and the importance of a participatory and representative process of social dialogue involving all social partners (Council of the European Union, 2018).

Building on International Labour Organization (ILO) principles of a just transition (discussed in Section 1.6), this commits the EU and Ireland to ensure 'a just transition of the workforce that creates decent work and quality jobs'. It emphasises that the Paris Agreement focuses on 'the intrinsic relationship that climate change actions, responses and impacts have with equitable access to sustainable development and eradication of poverty' (*ibid.*). It states that the 'just transition of

⁴ <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/governance-energy-union>

the workforce and safeguarding and creating sustainable employment and decent work are crucial to ensure public support for long-term emission reductions’.

Following the recommendations of the Citizens’ Assembly, *How the State Can Make Ireland a Leader in Climate Change* (Citizens’ Assembly, 2018), the Joint Committee on Climate Action report 2019 emphasised that climate action had to be fair and that vulnerable citizens, workers and communities must be protected. It viewed what is referred to as a ‘just transition’ as exploring opportunities to green existing jobs, and creating new jobs in areas such as energy retrofitting for buildings, sustainable forestry and peatland restoration. It recommends the establishment of a Just Transition Task Force to examine and address the needs of those regions and sectors that are most likely to be affected by climate action. It also includes measures that now need to be put in place for the Midlands, arising from the decision to phase out peat extraction (JOCCA, 2019).

The Joint Committee stated: ‘A just transition can drive environmental sustainability as well as decent work, social inclusion and poverty eradication when societies are shifting from a carbon-intensive to a low-carbon and circular economy. Transitioning to a decarbonised society in Ireland must happen in a manner that is just and fair to all sectors of society’ (*ibid.*: 15).

The report outlined that: ‘With a just transition, climate policies can provide both security and opportunity to citizens, employees and employers alike. A just transition model means new jobs, new industries, new skills, new investment opportunities and a chance to create a more equal and resilient economy. The just transition is part of an overall climate justice approach. Action on climate change cannot be considered independently of other Sustainable Development Goals, as recognised in the recent IPCC SR 1.5’ (*ibid.*: 15). It emphasises that ‘work on a just transition is most effective when it is planned well in advance of the change occurring’. Also: ‘a just transition will not be achieved by a single quick fix. Rather, it requires consideration of the social justice implications of policies and decisions across all sectors’ (JOCCA, 2019: 16).

The Government’s Climate Action Plan states that the Sustainable Development Goals (Agenda 2030) and the Paris Agreement on climate change require a transformational shift of our economies and societies towards climate-resilient and sustainable development (Government of Ireland, 2019a: 04). It sets out key actions on a just transition for those facing particular challenges in adjusting, through reskilling, energy poverty schemes and community participation (*ibid.*: 9).

It argues that ‘it is essential that the burdens borne are seen to be fair and that every group is seen to be making an appropriate and fair level of effort. This will be essential to maintaining the high level of political and civic consensus which has been built’ (*ibid.*: 139).

As part of key actions for 2020, it states:

A Just Transition Review Group will be established within the National Economic and Social Council (NESC) under NESC working group structures in 2020. Through this group, NESC will review the transition, identify specific needs and challenges, and develop appropriate responses to them. NESC will publish a periodic review and strategic advice on the just transition (*ibid.*: 34). The strategic advice will be a key input to the formulation and adaptation of a five year Just Transition Strategy.

It also includes further actions on climate dialogue and community engagement, recognising that building awareness, increasing participation and deliberation on the low-carbon transition is fundamental to its success.

Specific strategies are being developed in relation to: engagement, capacity-building and empowering community action; realising the new economic opportunities in communities and regions; just transition for those facing particular challenges in adjusting through reskilling, energy poverty schemes and community participation; and empowering the new generation to have their voices heard and get access to the science and the opportunity to lead change (*ibid.*: 13).

The final National Energy and Climate Plan will likely include increased focus on the social and employment aspects of climate policy. In feedback on Ireland's draft NECP, the European Commission noted that the final version should:

Integrate just and fair transition aspects better, notably by providing more details on social, employment and skills impacts of planned policies and measures. The final plan should particularly address the impact of the transition on the populations living in carbon-intensive regions (European Commission, 2019).

The Sustainable Development Goals (SDGs) are important for climate mitigation and climate adaptation. The Department of Communications, Climate Action and Environment (DCCAE) outlines how 'these goals cut across a range of pressing environmental challenges of our time and aim to directly combat these, in particular through SDG 13: Climate Action'(DCCAE, 2018: 22).

There are additional challenges for Ireland in adapting to climate change, discussed in the National Adaptation Framework (*ibid.*).⁵ The framework considers the significance of the social and economic context for building a climate-resilient Ireland.

⁵ This distinction between mitigation and adaptation will be smaller in future as the climate impacts are increasingly evident, such as the potential risks and impacts of harvest failures, droughts, flood and storm damage.

It is also important to take note of the social and economic policy context surrounding adaptation action. Climate change is likely to disproportionately impact on the lowest socioeconomic groups in society; these groups are also the worst positioned to adapt to the changing climate. Other socio-economic changes such as urbanisation and increasing population are also likely to pose further challenges to adaptation. Failing to consider climate risks and adaptation is likely to enhance existing vulnerabilities and could potentially give rise to new ones. In enabling a just transition it is therefore important that all adaptation planning takes these considerations into account and factors them into policy making' (*ibid.*: 20).

2.2.1 EU Developments

The EU Commission's Platform for Coal Regions in Transition aims to enable multi-stakeholder dialogue on policy frameworks for successful transformation of coal and carbon-intensive regions, and to facilitate the development of strategies and projects in areas such as investment for structural transformation, growth and jobs. The Midlands region has recently been included in this platform following an application by the Irish Government. This would bring guidance and expertise on the development project ideas and implementation strategies, including feedback on relevant EU policies, programmes, funds and financing instruments.⁶

The Coal Regions in Transition Initiative is delivering tailor-made assistance to 20 regions including the Midlands.⁷

The European Commission has stated:

Transformation to carbon neutral economy will have to be just. No region can be left behind in the transition. Regions whose economies depend on activities that either are expected to decline or will have to transform in the future can be particularly affected—such as areas of coal mining, oil and gas exploration. Energy intensive sectors such as steel, cement and chemicals as well as car manufacturers will see a shift to new production processes with new skills required (European Commission, 2018).

Other EU developments include the possibility of an Energy Transition Fund, proposed by the outgoing European Parliament in 2019. In its interim report of the Multiannual Financial Framework, the European Parliament said that a fund €4.8bn could be made available to provide seed money for stimulating action, or provide transition support in other ways (WWF, 2019).

⁶ PQ Minister Bruton May 2019: <https://www.oireachtas.ie/en/debates/question/2019-05-14/390/>

⁷ https://ec.europa.eu/energy/topics/oil-gas-and-coal/EU-coal-regions/coal-regions-transition_en?redir=1

2.3 Emerging Climate and Justice Issues

Other key institutions in Ireland point to the role of a just transition as part of climate policy development. The Climate Change Advisory Council's Annual Review considers that a "just transition" framework is essential and can add depth to policy, create coherence and garner public support' (CCAC, 2019). It considers a just transition as comprising climate justice,⁸ energy justice and environmental justice (*ibid.*). As part of a just transition approach, it points out that dialogue that is respectful, deliberate and considerate, and aimed at understanding the barriers and challenges faced by at-risk individuals and communities, is important for the effectiveness of climate action (*ibid.*: 50). This involves seeking to 'understand the causes of vulnerability and how responding to climate change is an opportunity to engage in restorative justice and requires actively engaging vulnerable and underrepresented groups in terms of gender, ethnicity and socio-economic status while developing responses to climate change'. It differentiates between achieving a just transition in the domestic sphere; and contributing to the just transition internationally.

As part of a focus on a just transition domestically, the CCAC refers to the need to consider the distribution of the benefits of transition 'so that vulnerable people and communities are part of the transition and experience associated benefits such as energy cost savings, improved air quality, warmer homes, and greater access to services' (*ibid.*: 52).

Other key stakeholders point to the transition as necessary and challenging but full of opportunities. Ibec, which recently developed a roadmap, *Building a Low Carbon Economy*, argues:

With smart policies, the low carbon transition presents an opportunity to strengthen competitiveness, enhance energy security, improve quality of life and create thousands of sustainable jobs' but the transition will not be easy. It will require enormous private and public investment, the deployment of new and innovative technologies, and a complete transformation in how we use energy, run our factories, fuel transport, build towns and cities and interact with our environment. It will also mean hard choices, job losses and challenging times for business.

Irish and international unions point to the importance of a just and equitable transition, with a focus on quality jobs. Siptu (2017) pointed out that 'trade unions have a vital role to play in improving the quality of jobs, in protecting jobs in existing

⁸ Other research overviews identify climate justice as broader than a just transition. In a review for the Joseph Rowntree Foundation, it was defined in this way: 'Climate justice is about ensuring, both collectively and individually, that we have the ability to prepare for, respond to and recover from climate change impacts and the policies to mitigate or adapt to them by taking account of existing and projected vulnerabilities, resources and capabilities' (Banks, 2014).

workplaces and industries by demanding sustainable industrial transformation, organising workers in new decent jobs’.

ICTU too has argued that ‘a properly-managed transition to a low carbon economy is one which would also deliver major opportunities for job creation and economic growth’. It provides a set of recommendations for a just transition approach to be applied to the Midlands. The European Trade Union Confederation has also published guidelines on the role of trade unions in building a just transition, with numerous examples from across the European Union (ICTU, 2019).

A global transition to a low-carbon and sustainable economy has both positive and negative impacts on employment, as outlined in a United Nations Framework Convention on Climate Change (UNFCCC) paper on the just transition of the workforce (UNFCCC, 2016). Quantitative and qualitative aspects of employment impacts, number of jobs and quality of jobs, and four particular impacts on work are identified: (i) job creation, (ii) job substitution, (iii) job elimination and (iv) job transformation and redefinition (*ibid.*: 15-16).

However, a broader cross-cutting issue is the quality of jobs and decent work and how this will develop in future work. According to the UNFCCC (*ibid.*: 14), decent work entails ‘jobs that provide adequate incomes and social protection, safe working conditions, respect for rights at work and effective social dialogues’. Stroud *et al.* (2013: 13) take this further, emphasising work that is skilled and satisfying, also referred to as ‘quality jobs’ (Sheldon *et al.*, 2018: 2).

One potential issue is that the low-carbon economy may not create a sufficient number of jobs in the locations where jobs are lost, and the creation of green jobs may not happen at the same time or in the same place as conventional job losses occur (UNFCCC, 2016: 18). The UNFCCC paper states: ‘To the extent possible, these disconnects need to be bridged by transition policies in order to minimise dislocation and human suffering. Delayed action will lead to more severe impacts on the world of work’.

2.4 Other Significant Policies

The National Development Plan 2018–2027 (NDP) and Project Ireland 2040 set out the investment priorities that will underpin the implementation of the National Planning Framework through a total investment of approx. €116bn.⁹ Project Ireland 2040 provides a long-term overarching strategy, outlining planned social and economic development.

⁹ <https://www.gov.ie/en/policy-information/07e507-national-development-plan-2018-2027/>

Future Jobs Ireland has a broad reach and includes five overarching pillars: embracing innovation and technological change; improving SME productivity; enhancing skills and developing and attracting talent; increasing participation in the labour force, and transitioning to a low-carbon economy. The final pillar includes actions to review the regional dimension of the economic and employment implications of the transition to a low-carbon economy, including specific actions on retrofitting, electric vehicles, the bio-economy and green procurement (Government of Ireland, 2019c).

Regional Enterprise Plans are part of a policy focus on driving economic growth and sustaining better standards of living throughout Ireland, and are described as a ‘bottom-up’ initiative by the Department of Business, Enterprise and Innovation. They outline how these plans complement national-level policies and programmes emanating ‘from the top down’, and, in particular, there is strong alignment with Ireland’s national enterprise policy, *Enterprise 2025 Renewed*.¹⁰

The Midlands Regional Enterprise Plan (Government of Ireland, 2019b) aims to ensure that the Midlands is well positioned to address the challenges posed by the transition to a low-carbon economy and renewable energy, and avail of the job opportunities in renewable and sustainable products, and services and manufacturing.

2.5 Digital Transition Policy Context

The digital transition, or indeed transformation, refers to the economic and social effects of the increased use of digital technologies and data as well as the interconnections that result in new and/or changes to existing activities. Today an ecosystem, comprising seven interdependent digital technologies, underpins digital transformation. There is broad consensus that this will continue to evolve at pace, driving wide-ranging economic and social changes. The term digital transition is used in this paper to refer to this broad transformation. These technologies are: high-performance computing power, the Internet of Things, 5G Networks, Cloud Computing, Big Data, Artificial Intelligence, and Blockchain.

A new Digital Strategy is under development, following a consultation process in 2018. It will cover a broad range of societal and economic areas, including infrastructure and security; data, privacy and regulation; education and skills; trust, wellbeing and inclusion; digital public services; innovation; the digital economy, and labour-market changes.¹¹ This will replace the current strategy, *Doing More with Digital*. The purpose of the new strategy will be to provide a coherent vision across

¹⁰ <https://dbei.gov.ie/en/What-We-Do/Business-Sectoral-Initiatives/Regional-Enterprise-Plans/>

¹¹ <https://www.gov.ie/en/press-release/69baa0-government-seeks-views-on-irelands-digital-strategy/>

sectoral policies that relate to digital matters. It will enable Ireland to maximise the economic and societal benefits that arise from ongoing digitalisation.¹²

The Government is also developing an Industry 4.0 Strategy that will provide an ecosystem and supports for the digital transformation of the manufacturing sector and its supply chain. It is also developing a National Artificial Intelligence Strategy to align with related EU initiatives and provide a direction for the research and development of AI by enterprises as well as the innovative use of AI by enterprises to improve productivity (Government of Ireland, 2019c).

2.5.1 EU Developments

The European Commission's Digital Agenda, one of the seven pillars of the Europe 2020 Strategy, aims to develop a digital single market to generate smart, sustainable and inclusive growth in Europe (Urban Agenda for the EU, 2018).

The 2015 Digital Single Market Strategy for Europe focuses on maximising the growth potential of the digital economy. It includes access to digital services and modernised e-government, e-health, e-energy and e-transport.

A third relevant strategy is the Digital Transition Action Plan, part of the implementation of Urban Agenda. The plan envisages cities as the networked activity hubs of the future, which will play a key role in societal and economic development, within environmental limits.

2.5.2 Emerging Digital Issues

The debate on Ireland's digital transformation is at an early stage. However, we are already experiencing the start of the digital transition as technologies and the business models that use them are replacing old models and now shaping daily life (e.g. Netflix).

What are the potential gains and potential risks from automation, robotics and artificial intelligence? As it develops, there is a broad acceptance that the digital transition will have a substantial impact on the labour market in terms of jobs being replaced or dramatically altered in terms of their task composition. This has focused attention on the need to provide relevant education, training and skills development so that individuals can either take up new job opportunities or acquire the new skills/competencies required to undertake their existing jobs.

The World Economic Forum (WEF) states that, globally, while overall job losses are predicted to be offset by job gains, there will be a significant shift in the quality, location, format and permanency of new roles (World Economic Forum, 2018).

¹² <https://www.oireachtas.ie/en/debates/question/2018-05-22/104/>

Demand for jobs is likely to focus not only on data analysts and scientists, software developers and social media specialists but also on sales and marketing professionals and innovation managers (with more ‘human-centred’ skills required). Roles at risk include accountants, mechanics and machinery repairers, data-entry clerks, drivers and others (*ibid.*).

The Expert Group on Future Skills Needs (EGFSN) (2018: 67) argues:

Ireland needs to go beyond the traditional approaches of more widespread broadband connectivity, improved IT literacy, increased e-commerce and better electronic services from public administrations that are the staple of government ICT and Industry 4.0 strategies. To prepare for the change that is coming Governments will need to act on both an in-depth and broad basis moving forward.

EGFSN recommended action on the digital transition in five areas: vision; collaboration; data; technology; and skills, including the soft skills of leadership, interpersonal and business.

Addressing the impacts of the digital transformation on jobs and skills is also key to an inclusive and people-driven outcome. Key issues will include the decline and rise of job types¹³ and planned responses for the workplace; digital skills and capabilities; access and supports, among other areas. WEF argues that this job churn is not new as waves of automation have reshaped the global economy throughout history. It points out how ‘technology will also create new tasks – from app development to piloting drones to remotely monitoring patient health – opening up opportunities for work never previously done by human workers, highlighting that different types of new technology may bring about very different outcomes for workers’ (World Economic Forum, 2018). This will make reskilling critically important. Employers surveyed for the WEF’s (global) report estimate that, by 2022, no less than 54 per cent of all employees will require significant reskilling and upskilling. Also, 74 per cent of respondents identified the availability of skilled local talent as their key consideration. This points to considerable opportunities for countries with high levels of educated and skilled workers, such as Ireland.

The Expert Group on Future Skills Needs argues:

The emergence and uptake of digital technologies such as automation, advanced analytics and artificial intelligence may threaten certain occupations, but the horizon for their impact is unclear. At the same time, these technologies are stimulating the creation of new occupations and new industry sub-segments, as well as improving the

¹³ Job types are in constant flux, with some on the decline such as cashiers, bank tellers and travel agents, while others are emerging such as social media manager, blockchain engineers, and big-data analysts (EGFSN, 2018: 7).

overall productivity of the workforce, which in turn helps to lift the overall economic wellbeing of populations (EGFSN, 2018: 11).

It states:

... the relationship between the adoption of technology and its impact on labour is not straightforward. Since the industrial revolution technology has tended to improve productivity, which in turn has led to higher wages. It has also changed the nature of work, altering specific tasks and the skills required of the workforce. While technology has historically been a catalyst for change, it has not led to mass unemployment.

Ibec states that ‘automation, digital platforms and other innovations are changing the types of jobs being created and the nature of work itself. This rapid change presents big challenges. It is causing a growing polarisation of labour-market opportunities between high and low-skill jobs and disrupting employment patterns. It also has the potential to exacerbate income and opportunity inequality’.¹⁴

It is important that debate around the digital transition is not dominated by a form of technological determinism, as a range of economic, social, ethical and policy factors will shape the future evolution of the digital economy (Kenney & Zysman, 2016). With this transformation comes the rare opportunity to fundamentally improve work and the nature of employment. Dangerous, dirty and dull work can be drastically reduced while jobs that celebrate creativity, flexibility and purpose can be enhanced (OECD, 2019d).

For businesses and small enterprises, new business models and technologies represent only part of the transition as it is also about staff training and development, and change management, among other factors. The digital skills of the workforce are part of the wider challenge, ensuring they are sufficient and continuously improving.

Digital literacy remains an issue across the EU. Research from the OECD points to relatively low training for those with low skills compared to those who are highly skilled – a 40 per cent gap on average. Not all workers stand to benefit from the digital transformation to the same extent. Low-skilled and older workers, and workers in jobs at high risk of automation will bear the brunt of the changes and benefit little from the jobs created in high-tech industries (*ibid.*).

Critically, the nature and quality of policy decisions made by the State will be pivotal in determining the ability to harness the benefits of this unprecedented digital and technological change while also addressing the challenges it poses. In other words,

¹⁴ Ibec campaign, Smarter World, Smarter work – Investment in Skills and Employability: <https://www.ibec.ie/influencing-for-business/ibec-campaigns/smarter-world-smarter-work/investment-in-skills-and-employability>

the key stakeholders – government, social partners, communities and private enterprise – can shape the type of digital transition they want to achieve.

These structural shifts require workers, businesses and governments to work together to prepare for this new world of work. The OECD argues that a people-centred ‘transition agenda’ needs to be formulated so that everyone may benefit from a positive, forward-looking plan that helps workers and societies to manage uncertainties, does not leave anybody behind, and puts welfare at the forefront, ensuring both people and firms will benefit (*ibid.*: 5)

The Trade Union Advisory Committee (TUAC) (to the OECD) points to the importance of a human-centric approach to the digital transformation. While digitalisation offers opportunities for well-being and social cohesion, the downside risks are substantial (TUAC, 2019).

A big issue will be meeting the costs of training, skills development and social protection for workers more vulnerable to job restructuring and loss due to automation. One study, cited by the OECD, estimates that between 1 and 5 per cent of a single year’s GDP on average would be needed to move workers in occupations at high risk of automation to other areas (Andrieu *et al.*, 2019). This is to be considered in addition to existing training and social protection expenditures, and would increase if those at medium risk were also moved and supported. Countries have yet to determine how to split these costs between employers, governments and workers, and which incentive mechanisms may be needed (OECD, 2019d).

This work touches on wider debates on the future of work and how work itself is changing. These issues are discussed elsewhere, for example in the ILO’s Global Commission on the Future of Work report *Work for a Brighter Future* and the OECD’s *The Future of Work* (Global Commission on the Future of Work, 2019; OECD, 2019a). Issues raised there include the quality rather than quantity of work, developing human-centred skills (critical thinking, active listening, creativity and social skills), the shorter working week, and universal basic income).

Chapter 3

Understanding Transitions

Adopting a multidisciplinary approach to understanding transition is essential as no single academic or practice-based discipline provides a sufficient perspective.¹⁵ The growing literature on transition management and the study of sustainability transitions have increasingly shifted from a focus on the abstract structures and levels of action (the ‘what’), to bottom-up action and politics, as well as concrete practices (the ‘who and how’).¹⁶

While it is useful to draw on concepts and practice that can inform any policy approach to transitions, there is perhaps more value for the project at hand in appreciating practical strategies and approaches, and their rationale and effectiveness. There were early criticisms that studies of sustainability transitions did not pay enough attention to the politics of such processes (e.g. Köhler *et al.*, 2019; Meadowcroft, 2009; Shove & Walker, 2007). Indeed, the politics of transitions has become a core research strand in the literature (e.g. Avelino *et al.*, 2016).

An important and frustrating characteristic of a transition is that it is really only after it is complete that it can be fully understood. This perspective was outlined in NESC Secretariat work on climate change in 2012 (NESC Secretariat, 2012). And this perspective on sustainability and low-carbon transitions, which remains pertinent, was outlined in a Secretariat Background Paper on the social and behavioural aspects of climate change:

Transitioning, the passage from one state, stage, subject, or place to another, encompasses technological and scientific developments as well as social practices and behaviour. It is extremely challenging to understand the potential transformative impact of such change and the inter-relatedness of technology and social practices. For example, the impact of the mobile phone on the global and national landscape as much as on individual lifestyles. Asking us to consider this back in the 1980s, we would not have envisioned the extent to which the mobile phone would become so personalised to our business and social needs through ‘apps’, for example. It is only with the benefit of hindsight, therefore, that we can spot transitions clearly (Koppenjan *et al.*, 2012: 8; Moore, 2012).

¹⁵ Some bigger policy questions for future work include: how can transition be achieved (while protecting against negative impacts to society, economy and the environment)? How can people and communities be supported to shift social practices that are in line with both transitions? What practical strategies might be effective in managing them in the short to medium term?

¹⁶ For example, Ehnert *et al.*, 2018.

Geels (2005) identifies several key transitions such as that from sailing ships to steamships (1780-1914); high death and birth rates to low ones (second half of the 19th century); horse-drawn carriages to automobiles, and the shift from coal to natural gas for residential heating (1960-1975).

As Loorbach (2004: 2) states:

Transition processes are long term (over 25 years) processes of change that are co-evolutionary by nature and involve a broad range of societal actors. Transitions are therefore always the result of interacting economic, social, technological, institutional and/or ecological developments. By definition, transitions are not caused by single events or developments but always have a number of causes that interact.

There is a body of conceptual and empirical work on the energy or low-carbon transition including transition management, theories of socio-technical transitions, spatial and geographical considerations, and the social and behavioural aspects of transition (Geels, 2005; Rotmans *et al.*, 2001). The transition management approach focuses on the multi-level, multi-phase and multi-actor challenge in making the transition to a low-carbon economy and society (Barry *et al.*, 2016). These are useful in providing concepts and tools to examine transitions, as well as highlighting how adopting one approach over another can shape how these are operationalised and reflected in policy.

Box 1 (see Appendix 1) summaries some key concepts and approaches used to understand transition. Some approaches are outlined briefly along with other more recent approaches, drawing from the work of Andre Silveira at the University of Cambridge Institute for Sustainability Leadership. Many of these concepts feature in policy and transition approaches, and it is helpful to note that this is a varied and emergent field of study. It is possible to characterise a shift from more techno-economic and transition management approaches in the early phase of understanding transitions, to current debates which are more nuanced and varied, incorporating social, ecological, geographical and political appreciations.

A few key conclusions can be drawn from this overview. First, it is useful to take a wide lens to transitions and their governance, rather than an overly narrow one. Multiple perspectives can inform societal debate on how to respond to transformational change.

Second, drawing in social and geographical considerations from the outset will ensure that issues such as social support, inequality and unintended impacts to particular locations may be anticipated. A localised, place-based, bottom-up approach to policy intervention can be of value (cited in Government of Ireland,

2019d: 62).¹⁷ The spatial implications of the digital transition are potentially considerable in an informational economy. Understanding that global networks connect certain places according to their relative value for the network highlights the central role of cities as mega-centres for informational jobs (Castells, 1990). Castells' concept of the 'Network Society' points to networks as new forms of social organisation that are being further adapted by the digital transition. His underlining point is that society shapes technology according to the values, needs and interests of the people who use the technology. The space of flows plays a central role in Castells' vision of the network society. It is a network of communications, defined by hubs where these networks crisscross. According to Castells, elites in cities are not attached to a particular locality but to the space of flows (Castells, 2000).

Further to this, the experience of transition for people will not be abstract but situated and made concrete through changes in services, jobs, forms of heat, transport and ICT in their home and work places, neighbourhoods, communities, towns, rural and urban areas. It has been argued that the impact of the low-carbon transition is likely to be geographically concentrated (Botta, 2018: 10). This resonates with the experience of coal regions across Europe and the Midlands region in Ireland.

Third, the scholarly and policy-focused research on transitions is growing and widening rapidly, but still quite small in scale and scope. Much of the early focus has been on identifying insights from the analysis of past transitions and governments. A key general point in seeking to understanding transitions is that the focus to date has mostly been on what structures and processes can be put in place to support a transition, but much less so on the social and behavioural challenge that transitioning raises. This points to the importance of the wider social and political context in which the transitions are developing as they can be undermined by a lack of trust, inequality, and rural/urban imbalance.¹⁸

Finally, there are multiple approaches to transitions, and all are needed to enrich our understanding. However, such analysis has to come with the caveat that it is likely that major transitions may come about through a paradigm shift, rather than through planned incremental change. Revolutions (in science) and paradigm shifts come about as the result of breakdowns in intellectual systems, breakdowns that occur when old methods won't solve new problems (Kuhn, 1962).

¹⁷ The results from a University College Cork (UCC) study of towns at risk of job automation suggest that the pattern of job risk from automation across Ireland demands policy that is not one-size-fits-all (Crowley & Doran, 2019, cited in Government of Ireland, 2019d).

¹⁸ Ireland is among 20 of the 28 countries surveyed that displayed overall distrust in institutions (Government of Ireland, 2019d: 46).

3.1 Characterising Digital and Low-Carbon Transitions

Despite the uncertainty and complexity of both transitions, it is useful to reflect on some of their distinctive characteristics. They can and will have synergies and tensions. Other transitions are also at play, however, so it is not possible to consider their trajectory in isolation. The points outlined are speculative and are looked at here to inform discussion.

The low-carbon and digital transitions are unfolding at the same time, and both are likely to have a profound impact on the future of work, for example. Further, digital may well be an important contributor in bringing us to low-carbon. Climate breakdown and policies for adaptation and mitigation will also influence how the digital transition unfolds.

They differ in the extent to which they are geographically concentrated (Botta, 2018). A further likely difference is time, with increasing urgency underpinning the low-carbon transition, and many of the expected changes from the digital transition, such as automation and the application of artificial intelligence, taking longer to widely affect Ireland's economy and society.

One particular characteristic worth noting from this simple comparison is that the role of the state is key for the low-carbon transition, with it taking the lead in shaping policy. This may well emerge in time with the digital transition, but has been slow to develop as yet. Both transitions are poorly understood by the public, and it is worth considering how to address this in a way that builds shared understanding and common purpose.

In many respects, we have been going through a rapid technological transition for about thirty years. There has been little analysis of what lessons can be learnt from this and how it can inform our current transformations. For example, in relation to electrification, there was a societal focus on gaining social acceptance. Voluntary organisations played a role in supporting the rollout of the Rural Electrification Scheme, and alleviating the anxiety over this innovation being introduced to people's homes.¹⁹

¹⁹ Throughout the 1940s and 1950s, many excellent information pamphlets were published by the Rural Electrification Office (REO) in Dublin and distributed by the 792 Local Area Offices around the country, which were also aided by many local voluntary organisations such as Muintir na Tíre, Macra na Feirme, Macra na Tuaithe and the Irish Countrywomen's Association, Fionn Regan, RTE Brainstorm, <https://www.rte.ie/brainstorm/2019/0821/1070066-lessons-on-climate-action-from-the-rural-electrification-scheme/>.

Table 1: Comparing Digital and Low-Carbon Transitions

Characteristic	Low Carbon	Digital
Time/intensity	Likely to be rapid and intensifying to 2030	Uncertain but likely to gradually increase; not expected to have significant impact until 2025-2030
Drivers	State(s) – global consensus on need to reduce emissions/Paris Agreement; government targets and policies	Business and tech – technological innovation, cost-saving efficiencies, improve productivity and competitiveness, improve security, speed
Geographical	Intensive regions with industrialised use of fossil fuels but also diffuse impacts for all citizens, businesses, communities and the state	Network society – opportunities in urban areas
Current phase	Reduce non-ETS sector GHGs by 30% by 2030, relative to 2005 levels (at a minimum) Reduce ETS GHG 43% below 2005 by 2030	Already underway with changes in digital work practices across sectors, occupations and regions. This is likely to intensify through increasing automation, presenting new challenges to both public and private enterprises and the workforce.
Scale of transformation	Transformation of energy, transport, buildings and agriculture systems to net zero emissions by 2050	Technologies will change business models, innovate products and services, and customer experiences but not clear in what ways yet. But will include changes to operations and business processes, technologies used and job tasks.
Likely impacts	Modest job impacts in aggregate but job losses likely in switching from peat and coal to renewable energy; vulnerable workers in that sector – can have profound impacts on local communities. Job gains from retrofitting buildings and high-efficiency standards. Uncertain how shifts to electrify transport, increase public transport and mobility will affect jobs. Diversifying agriculture a key challenge.	Uncertain but considerable impacts likely, with expected disruption likely to result in changes to job roles and tasks rather than job losses (EGFSN, 2018) Implications for SMEs Risks of automation for low-skilled workers; gendered aspects
Characterised	Policy-led, multi-faceted process to drive down emissions, with increasing public policy focus on social and economic opportunities and risks of transition	Private-sector and innovation-led process primarily but with increasing public policy EU & state role in guiding and regulating the application of technologies and protecting citizens' data, for example in relation to restrictions on the use of facial recognition applications
Finance	Requires state investment to drive transition, alongside private funds Uneven opportunities for small investors/communities to invest	Largely private funds and commercial investments but public investment in infrastructure (e.g. broadband)

Societal challenges	Fast pace of change required in changing energy system and key sectors	Lack of awareness of transition societally
	Low public understanding of change required	Lack of public and civil society debate and governance to shape direction of transition
	Societal engagement and support for transformation required	Lack of capacity in small businesses to transition
	Impacts of climate change unpredictable	Disconnect between digital and low-carbon transitions, as well as with globalisation, biodiversity loss and other transitions
	Global context of worsening climate impacts	Gender dimension – some female workers potentially more at risk
	Gender and age dimensions –some male workers potentially more at risk; older workers over-represented in fossil-based energy sector	Quality jobs an issue
	Spatial dimensions – challenge in matching job losses with new jobs and skills transferability	

3.2 People and Places in Transition

A potentially useful approach to understanding and responding to the low-carbon and digital transitions is to focus on place, and how communities are involved. Recognising different places and local attachment, and working with local knowledge and solutions are said to be central to a just transition (Agyeman *et al.*, 2009; Gambhir *et al.*, 2018). Taking a just transition in terms of how it relates to particular localities is a useful lens. Spatial justice is a ‘reflection on urban space focused on the spatial nature of social interaction and the inequalities that are produced and reproduced through spatial relationships’ (Soja, 2010).

In Ireland, understanding the transition in terms of local places and geographies could help us to examine issues around the rural and urban experience. Rural communities, while having the potential to change behaviour if supported, will have challenges that are not necessarily faced to the same extent by those in urban areas. The Midlands represents a distinct region with unique challenges for Ireland’s low-carbon transition.

The Midlands Regional Enterprise Plan (Government of Ireland, 2019b) aims to ensure that the Midlands is well positioned to address the challenges posed by the transition to a low-carbon economy and renewable energy, and avail of the job opportunities in renewable and sustainable products, and services and manufacturing.

Box 1: NESC (2014), Wind Energy: Building Community Engagement and Social Support

In national and international accounts of the success and failure of renewable energy projects, particularly wind, there are three components that we consider significant and form part of the approach outlined here:

1. An overarching energy transition process that facilitates and guides society-wide efforts to transform energy systems. An intentional, participatory and problem-solving process underpins German and Danish experience. An integral component of the process is national discussion, informed by international best practice, about how to design an energy strategy in line with society's goals.

2. An effective and inclusive process of public participation that helps to shape and share local value. A genuine and open participatory process for wind energy that brings expertise together, facilitates exploration and executes possibilities is critical. Communities that contribute to and shape the local value of energy are more likely to support future developments.

3. Enabling organisations and, in particular, intermediary actors that support the kind of problem-solving and entrepreneurialism necessary to initiate renewable-energy developments. Intermediary actors have contributed to the successful development of wind-energy projects in other countries and in Ireland. Our central argument is that there is a need to connect these in an integrated approach to build social support and community engagement.

Drawing on that work, it can be argued that a just transition has to be a locally developed one – that without a collaborative and participative framework that is locally driven, a just transition is more of an idea than a practice. Supporting and enabling communities to fully participate in the energy transition is critical both in terms of developing resilience, creating economic opportunity, reducing emissions and increasing sustainable development, and as part of building a coalition of the willing and societal engagement around the challenges of climate action.

The NESC wind energy work pointed to the critical role of intermediary supports to enable communities to fully avail of the opportunities arising from the energy transition (ibid.). MaREI (Marine and Renewable Energy Ireland) research points to struggling energy communities and also to the untapped potential of intermediaries, as well as the need for societal capacity development (MaREI, 2019).

Communities are also being viewed as a tool for transition. Community-led initiatives (CLIs) play a key role across the EU – for example RESCoop, the European federation of renewable energy cooperatives. The EU network of community energy projects has 1,500 projects; the Transition Network lists 600 local initiatives, and there are 6,000 community-supported agriculture projects (Ecolise, 2019). Ireland

has many networks working towards sustainability and the low-carbon future, including 10 initiatives in the Transition Network. There are also many initiatives that are not formally in a network; for example, the many plastic-free and zero-waste initiatives which have sprung up over Ireland in the last few years. The People's Energy Charter set up in 2013, and outlined below, is an example of community-led public participation. Since 2015 local authorities across the Republic of Ireland have set up the Public Participation Network, with the remit to engage citizens in local decision-making.²⁰

²⁰ http://wiki.ecolise.eu/index.php/Community-led_initiatives_in_Ireland

Chapter 4

Planning and Managing Transitions

Drawing on OECD work and other resources, a number of common themes can be useful in shaping strategies for managing transition. A prevalent view from policy-focused debates, led by the OECD, is that governments that plan and prepare for transitions, both low-carbon and digital, will be better able to avail of the opportunities that arise, and can put in place measures to protect citizens, enterprises and sectors from potential impacts. This early-mover advantage is often discussed in terms of the economic benefits that come from building resilience and adaptability in business and industry, but the social facets and implications are also critical. Of course, aside from these two, perhaps sharp ends of the challenge facing governments, are multiple other governance issues that require a whole-of-government response in terms of policy design, delivery and monitoring, given the complexity of these transitions and how they will affect all aspects of daily life to varying degrees.

The European Commission notes that the transition ‘cannot be managed *ex ante*’ (WWF, 2019). The need to plan for transition is at the centre of international and national policy discussions. The OECD has argued that ‘with the right policies in place – notably strong fiscal and structural reforms combined with coherent climate policy – governments can significantly reduce the risks of climate change, while also providing near-term economic benefits’ (OECD, 2017). This requires combining ‘climate-consistent, growth-enhancing policies with well-aligned policy packages for mobilising investment in low-emission infrastructure and technologies’ (Botta, 2018).

As outlined above, the low-carbon transition is a policy-driven transition process (Galgoczi, 2019). Purposive decarbonisation requires forward-looking, early proactive intervention by the state in alliance with other actors (WBGU, 2018: 11). Unplanned transitions can leave a legacy of negative social, health and local economic impacts that last for many generations (Stone, 2018). Therefore, a key dimension is that the management of transitions requires balancing diverging interests and building consensus (IISD, 2018). The OECD emphasises that, in relation to the digital transformation, multi-stakeholder co-operation brings tangible benefits that can lead to better policies and outcomes (OECD, 2018).

The reasons for planning and preparation include the need to prepare for negative impacts, adaptation and building resilience, to avail of the multiple opportunities and advantages from early action and to maintain a watchful eye on opportunities and potential impacts. The business/enterprise, environmental and societal opportunities that will arise through each of these transitions, and in the synergies between them, provide the incentive and glue for broader societal action. New services, technologies, business models and enterprises are likely to lead to the

development of new skills, a skills gap in some areas, and less demand for other skills. Acting early, rather than later – or ‘first mover advantage’ – has served business well in many cases, acting to reduce emissions and develop sustainable business practices. For example, the Carbon Disclosure Project’s ‘A list’ of high-environmental-performing companies consists of successful and profitable businesses.²¹ Others point to the advantages of being a later mover in relation to technological innovation.

4.1 Principles of a Just Transition

A prevalent view is that when low-carbon transitions unfold, deeper injustices related to equity, distribution, and fairness invariably arise (Sovacool *et al.*, 2019). This view includes the recognition that decarbonisation is a challenge that is inherently entangled in the social realm – in politics, economics, culture, geography and knowledge (Sovacool *et al.*, 2019).

Drawing on past experience of transition, a key set of principles that are shaping policy debates internationally and in Ireland are those that seek to deliver a ‘just transition’. This emerged in the context of a low-carbon energy transition but has relevance to the digital transition.

A useful definition of a just transition is from the International Institute for Sustainable Development:

A just energy transition is a negotiated vision and process centred on dialogue, supported by a set of guiding principles, to shift practices in energy production and consumption. It aims to minimize negative impacts on workers and communities with stakes in high-carbon sectors that will wind down, and to maximize positive opportunities for new decent jobs in the low-carbon growth sectors of the future. It strives to ensure that the costs and benefits of the transition are equitably shared (IISD, 2018: 2).

Emerging from the union movement, the International Labour Organization (ILO) developed key principles that have gained international support and are shaping how governments respond to managing these transitions, notably fairness, justice and equality. The ILO argues that a just transition can be ‘a strong driver of job creation, job upgrading, social justice and poverty eradication’ (ILO, 2013; UNFCCC, 2016: 21). For governments, this means the transition is not just environmentally effective and economically efficient, but also socially inclusive (Robins *et al.*, 2108).

²¹ <https://www.cdp.net/en/articles/companies/worlds-top-green-businesses-revealed-in-the-cdp-a-list>

The ILO highlights the following principles for a just transition:

- strong social consensus on the goal and pathways to sustainability;
- policies that respect rights at work;
- recognition of the strong gender dimension of environmental challenges and opportunities, and consideration of policies to promote equitable outcomes;
- policy coherence across economic, environmental, social, education, training and labour portfolios to generate an enabling environment for the transition;
- anticipation of impacts on employment social protection for job losses and displacement, skills development and social dialogue, including the right to organise and bargain collectively;
- the need to take into account the specific conditions of countries, including their level of development, economic sectors and sizes of enterprises – no ‘one size fits all’ solutions; and
- the importance of fostering international co-operation among countries. (ILO, 2015).

Negotiated by over 160 governments, employer organisations and unions, these are intended to be the precursor to a global labour standard to be negotiated in 2022 (Gambhir *et al.*, 2018). This is linked to debates on the importance of decent work and the four pillars of the decent work agenda (ILO): employment creation, social protection, rights at work and social dialogue.

The principles have been adapted and reiterated in different reports. For example, the UK’s Trades Union Congress (TUC) says that these steps are needed practically for a just transition: a clear and funded path to a low-carbon economy; workers must be at the heart of delivering these plans; every worker should have access to funding to improve their skills; and new jobs must be good jobs. (Page, 2019).

Important elements of a just transition approach – drawn from the International Institute for Sustainable Development (IISD), the OECD, and the European Trade Union Institute (ETUI) – include a focus on ‘decent’ jobs. This includes pay and conditions, hours, location, longevity and the quality of work; the social and psychological significance of declining sectors to individuals and communities; regeneration of local economy; social dialogue at all levels; an inclusive society, and viable programmes for matching unemployed workers with new opportunities.

These principles and variations of them also feature in just transition initiatives internationally. For example, a recent Canadian taskforce has outlined seven principles for a just transition for coal workers and communities:

- respect for workers, unions, communities, and families;
- worker participation at every stage of transition;
- transitioning to good jobs;
- sustainable and healthy communities;
- planning for the future, grounded in today's reality;
- nationally coherent, regionally driven, locally delivered actions; and
- immediate yet durable support (Government of Canada, 2018).

While there is no single definition of a just transition, there is growing consensus that such an approach has to be built into climate action, to achieve both equitable solutions and public support. Achieving a transformation of the scale necessary in a relatively short period of time is a considerable political challenge, requiring policies that share both the burden and the benefits and opportunities.

There is an implicit understanding in the principles that securing a just transition will also require learning from the past, and a concerted attempt to minimise the negative impacts and maximise the opportunities for workers and local communities that the push towards a low-carbon economy will bring (IPPR, 2019a: 7).

4.1.1 Values for a Digital Transition

Just transition principles emerged in relation to the low-carbon transition, but apply also to the digital transition (IISD, 2018).

Principles and values are also being debated in relation to the digital transition, automation and artificial intelligence (AI). The OECD has recommended five values-based principles for the responsible stewardship of trustworthy AI. These focus on benefiting people and the planet, and respecting the rule of law, human rights, democratic values and diversity, with safeguards in place, and functioning in a robust, secure and safe way, with accountability and transparency.²²

²² <https://www.oecd.org/going-digital/ai/principles/>

The OECD to date has identified a number of key principles that should be incorporated in the design and delivery of the suite of policy measures that will be required to manage the digital transition:

- First, the overall strategy should be people-centred, with a strong emphasis on ensuring that no individuals or communities are left behind.
- Secondly, policy design and delivery should be premised on the intensive and ongoing participation of the key stakeholders, in particular government, state agencies, the social partners and private enterprises.
- Thirdly, government should seek to foster collective bargaining and social dialogue in seeking to develop proactive solutions that can actively shape the future of work.
- Fourthly, the policy response needs to be multi-faceted.
- Fifthly, the nature and pace of the digital transition ensures that the stakeholders must embrace and work with a degree of uncertainty.
- Finally, while there is a need to adapt existing institutional and policy arrangements, in some instances a major overhaul of the current approaches may be required rather than merely tinkering at the margins.

There also tends to be inequalities in access and use of digital technologies by age, gender, education and other socio-economic groupings, suggesting that certain groups may be better placed than others in taking advantage of the opportunities presented by digital technologies (OECD, 2019e). In a UK-based Institute for Public Policy Research (IPPR) study on automation, the potential for automation was found to be similar for men and women in their mid-20s, but for older workers it is increasingly likely that a job with high automation potential is held by a woman. Among those aged 61 to 65, women in work were four times as likely as men in work to be in a job with a high potential for automation (IPPR, 2019b). These figures are based on technical potential for automation, but do not reflect the likelihood of that automation taking place.

4.2 Differences in Just Transition Perspectives

Principles can be applied to varying degrees. How deeply just in process and outcome these transitions should be is the focus of debate. The principles have been interpreted and further developed to outline what is, arguably, a deeper and more participative societal approach than other interpretations. Probing the key dimensions of justice, the University of Cambridge Institute for Sustainability Leadership points to the need for equitable distribution, full recognition, equal participation in decision procedures and equal capabilities (Silveira & Pritchard,

2016).²³ Others point to the principle of burden-sharing as integral to a just transition approach (Galgoczi, 2019).

Garrett-Peltier and others identify a quasi-continuum from a transitional approach based on fairness, wide access to jobs opportunities and protection from risk at one end and, at the other, a transformative approach to include quality jobs, equal rights and collaborative and inclusive governance processes (Garrett-Peltier, 2018). This variation in approach was noted as involving policies with a lighter touch such as energy efficiency and financial compensation versus a transformative one that promotes democratic worker participation, community or cooperative ownership of energy resources and community-based design.

For some, the just transition concept, by focusing on the justice and equity dimensions of the shift towards a low-carbon world, can inform a new and powerful narrative. This is characterised by the Just Transition Research Collaborative as ‘a narrative of hope, tolerance and justice. A narrative that is both aspirational and grounded in people’s actual lived experiences. A narrative that acts as a beacon to guide collective action while simultaneously giving rise to tangible alternatives on the ground’. It adds that ‘not all stakeholders, however, share the same idea of what a just transition should look like, or how and by whom it should be accomplished’.²⁴

Garret-Peltier identifies several challenges in developing just transition programmes, including determining the boundaries of who is included for support and how unions and organised labour can be a source of both support and opposition.

In a report for the OECD, Smith (2017) pointed out that transition has to be planned for and managed.

The just transition will not happen by itself. It requires plans and policies. Workers and communities dependent on fossil fuels will not find alternative sources of income and revenue overnight. This is why transformation is not only about phasing out polluting sectors, it is also about new jobs, new industries, new skills, new investment and the opportunity to create a more equal and resilient economy (Smith, 2017).

Without action, it is important to reflect on the alternative to a just transition – economic and technological progress coupled with environmental protection and possibly restoration, but without social equity or consideration of rights and protections. The social and political challenges that approach would create could make the transition unachievable. Proactively engaging with social justice is critical

²³ See also Table 2, https://www.cisl.cam.ac.uk/resources/publication-pdfs/table-2.png/image_view_fullscreen

²⁴ <https://medium.com/just-transitions/introduction-e3c46fb3c067>

for navigating urgent 1.5 degree societal transformations (Patterson, J.J. *et al.*, 2018a).

Risks are also profound if the digital transition is not managed. The OECD states:

If government and business are seen as sitting on the sidelines, devoid of plans that serve to aid those most affected, a tech backlash may ensue that prevents us from achieving many of the positive outcomes made possible by the digital transformation and which may also lead to an erosion of confidence in the ability of governments to cope with this change and to look out for people's welfare (OECD, 2019d; Anderson & Rainie, 2018).

However, Patterson *et al.* (2018b) argue that a social justice lens can shift the terms of debate and help to broaden the political coalition willing to coordinate or take action. Social justice brings attention to the fundamental moral nature of climate change in a way that may have more power of political persuasion in civil society than technocratic arguments. Just transition framing can forge unusual alliances, recognising that neglecting justice issues associated with transformation brings the risk of backlash against climate action. It can also provide a way of connecting seemingly distant future impacts to present-day decision-making and more responsibilities in societies. But, they argue, it may need to be complemented by a substantial mobilisation of resources for affected groups (Patterson *et al.*, 2018a). Newell (2018) argues that, since justice has procedural as well as distributional elements, opening up spaces for deeper and more meaningful engagements with different pathways for transitioning could subject plans to more rounded and critical scrutiny. It might help to widen the circle of engaged actors.

The motivation to develop just transition policies has both an ethical and political motivation. Garrett-Peltier (2018) states, in reflections on just transition (JT) programmes in the US:

The political motivation is to gather support from people harmed by climate action and who would benefit from a JT program. The ethical motivation behind the JT concept is that losers from a policy intervention should be compensated, and that protecting the climate is a public good whose cost should not be borne by a small set of workers or communities.

There are tensions within the just transition concept. Three primary ones have been identified by Cipler and Harrison (2019):

- 'Sustainability-inclusivity' involves conflicts between rapid and bold policy action in time-sensitive contexts and inclusive governance processes.
- 'Sustainability-recognition' involves conflicts between sustainability performance and recognition of diverse value systems and rights.

- ‘Sustainability-equity’ involves conflicts between achieving sustainability performance and equitable distribution of benefits and burdens.

These point to the competing priorities of action and inclusive participation, balance of rights and role of markets, environmental impacts, and equitable distribution of resources among others.

Another issue inherent in the just transition debate is that fossil-fuel industries may be supporting and advocating for a just transition and supported approach (additional resources), whereas other businesses routinely transition and include job losses without such support (Newell, 2018).

While the debate on values and principles remains a live one, practical approaches to achieving a just transition are where policy debates are now shifting. However, differences remain in the interpretation of a just transition that will shape what policies are adopted. The ILO principles provide a broad foundation for action, but there is a need for research, evaluation and analysis of policies and measures for some time after they are implemented to examine if and how they have delivered tangible results. Aligning just transition policies with decarbonisation measures more broadly may be the only way to ensure that the process and outcomes are fair and just, but that they also result in reduced emissions.

In broad terms, a just transition is understood in this paper as a stated vision and process that is collaborative and participative, through social dialogue, including with regional and local areas affected. This process forms part of purposive decarbonisation, which requires forward-looking, early, proactive intervention by the state in alliance with other actors (WBGU, 2018: 11). It is not surprising that this poses a considerable political, governance and administrative challenge.

NESC’s previous work on the climate policy process, referenced in the Climate Action Plan, identifies the challenge of developing policy in an environment where technology is fast-changing and where there are few fully known, easy or cheap options that effectively address climate change (NESC, 2019). This requires a collaborative approach that seeks to understand how things work by engaging with frontline actors. Others point to the need for engagement also due to the deep uncertainty in complex systems and in relation to wicked problems that can exert a paralysing effect on decision-making when institutions are used to dealing with a ‘predict then act’ paradigm. Effective decision-making under these conditions requires extensive peer engagement in addition to the use of quantitative analysis methods (Li & Pye, 2018).

Perhaps less discussed in relation to principles is who pays for transition, how is this funded, and how is the responsibility shared? The financial implications of a just transition approach have been the focus of discussion in the European Parliament, and an EU Just Transition Fund is under consideration.

Chapter 5

Applying a Just Transition to Policy: Overview of Main Approaches

As touched on earlier, there is no single approach to applying just transition principles to policy or a blueprint to follow. This section is an initial sketch of some of the issues and key points being discussed in relation to policy development.

There are some broad themes common to the debates on the low-carbon and digital transitions. A focus on OECD work alone identifies similar issues across the climate and digital transition debates. ILO principles recognise the importance of social dialogue, a focus on jobs, a gendered and rights based approach; and the significant role of finance.

The approaches and elements outlined are multi-pronged – with a focus on both the outcome of policy and the process by which it is delivered. However, some recommended approaches are aspirational rather than concrete, and thus are difficult to dispute or demonstrate as effective.

5.1 OECD Perspectives

The OECD argues that, for future European development, it will be vital to develop strategies to ensure a balanced and equitable transition and to support regions, industries and households that stand to lose out, as well as create an active social dialogue between government, employers and workers (OECD, 2019b: 40).

It provides a more concrete set of actions in its overview of just transition strategies and approaches developed to date. It puts forward six key ‘takeaways’:

- A suite of policies introduced in order to smooth the impacts of sectoral restructuring on workers.
- Physical regeneration activities may be necessary, especially for those regions whose environment has been damaged by extractive industries.
- There is a gender dimension to the transition, exemplified by the UK experience.
- Web-based information tools can be used to help workers to identify job opportunities.
- Impacts on the value chain of structural changes should be considered (OECD, 2018: 21).

Policy measures for managing the low-carbon transition outlined by the OECD include carbon pricing; setting framework conditions and regulations; developing active labour-market policies; strong coordination among different stakeholders, and focusing on skills policies and distribution impacts. Other considerations for policy include the spatial divergence of declining and growing industries, adopting a sectoral focus, social dialogue, and the gender and age dimension (*ibid.*: 35).

For the digitalisation transition, a similar theme emerges of co-ordinated policies, dialogue and social protection. The OECD (OECD, 2019c, 2019d) contends that managing the digital transition in an inclusive manner will require action across five interrelated policy areas:

- preparing worker for new jobs and changes to existing ones;
- empowering people with the mix of skills to succeed in a digital world work;
- addressing the massive training challenge;
- improving social protection to ensure non-standard workers are better covered; and
- addressing concerns about the quality and conditions of new forms of work (*ibid.*).

It states:

Ensuring a smooth and fair transition for all workers requires a comprehensive package of co-ordinated policies, including facilitating worker redeployment, investing in skills, education and training, providing social protection and adequate employment protection to all forms of work, strengthening social protection, forward-looking labour market regulation, fostering social dialogue, and prioritising resources that can support the transition process (OECD, 2018).

The OECD brings urgency to the debate on preparing for the future of work:

The scale and the speed of these changes wrought by digital transformation remain unclear, placing a premium on improving our awareness of the changes underway, the shifts in how value is generated and the skills needed by digitally-enabled firms. A policy response to review, update and enact policies that will cushion and facilitate this transition, especially for those least equipped to navigate the changes, needs to start now (OECD, 2019d: 3).

5.2 Other Perspectives on Just Transition Policy

The UNFCCC's analysis of the elements of a just transition resonate with the OECD's work, with a focus on employment impacts, training, social protection and social dialogue (UNFCCC, 2016), including:

- understanding the employment impacts of mitigation policy;
- research and early assessment of the impacts on workforce and by sector;
- consultation and social dialogue;
- training and skills development;
- social protection and security; and
- post-assessment of just transition measures and effects.

A bundle of measures and policies emerges as a central theme of many reports recommending policy action. A report by E3G (Third Generation Environmentalism) (Popp *et al.*, 2018) on how to ensure a just and fast transition provides a succinct and comprehensive list of the main areas of potential focus:

Just transition incorporates a bundle of potential policies addressing the vulnerabilities of workers and communities, including bottom-up transition dialogues and democratic, participatory consultations in affected regions, local investments in low-carbon growth sectors and technologies, research and innovation strategies, reskilling and training, local economic diversification plans, targeted infrastructure investments, recultivation of local environments, and social protection measures (see, for example, ITUC's "Climate Justice: There are no jobs on a dead planet").

A coordinated response to planning a just transition is increasingly part of the EU climate debate. Some are calling for it to be more prominent in policy development. E3G recently identified key actions at a EU level to progress a successful just transition and complement the EU's 2050 vision. It argues that the success of decarbonisation policies depends critically on whether they manage socio-economic consequences in a just way (Popp & Fischer, 2019), involving:

- a clear sense of medium and long-term direction to give planning certainty;
- mapping transition trajectories for sectors and regions;
- including all dimensions of just transition;
- the EU enabling regions and sectors to design and implement a transition; and

- identifying key actors in the just transition.

It is evident that the just transition has no blueprint or fixed set of rules. However, governance for transition is complex and multifaceted. In developing a strategy, governments would likely seek to identify a balanced suite of particular measures, underpinned by a narrative and approach to a just transition. Ensuring an inclusive transition will necessitate a multipronged and coordinated policy approach involving a broad range of public and private actors (see also Sutton, 2018). Policies that mainstream a just transition through sectoral and overall climate policy and those that are targeted to vulnerable workers and sectors are both featured.

Some analysis of previous transition initiatives points to the pitfalls for governments, including the tendency to ignore the complexity of economic geography and the capacity of some regions to create sustainable new industries. This analysis referred to another tendency – locking in the incumbent industry to block the arrival of economic diversification (Sartor, 2018).

A UNFCCC COP24 paper on just transition approaches points to future challenges, including the need to tailor measures, ensuring focused dialogue that codesigns solutions, and bearing the costs and benefits. These will differ in size and focus depending on the local situation.

A further point is that both top-down and bottom-up approaches and how they connect might be key. Sheldon *et al.* (2018), in a review of successful and unsuccessful transitions, concluded:

Government representatives and agencies need to work closely with affected local communities, particularly through employers, unions and local networks. Most useful is where those networks link different levels of government, public bodies, the plant owner, unions, employers in other industries and civil society organisations.

There is a need ‘for an overarching framework that brings strong, clear, cohesive top-down leadership, coordination and sufficient funding; together with encouragement of broad and open local consultation, and bottom-up initiatives, particularly through local networks that can tap into top-down funding and coordination (*ibid*: 54).

This distillation of measures and policies is presented with the obvious caveat that not all of them are, or should be, part of a shopping list of measures. Rather, they serve to illustrate the following point, made by Minas (2018) in relation to EU policy discussions:

It is clear that a just transition cannot be delivered through any one policy or technological approach. Rather, it requires a broad range of initiatives by multiple actors in the public and private sectors, including regulatory interventions at multiple levels.

A number of other reports and analyses point to both similar and other, distinct conclusions (e.g. UNFCCC, ILO, NEF, NESTA, ICTU, Ibec, Grantham Institute, WBGU, IPPR). For brevity, these are outlined under some provisional headings. The elements draw out the common themes, including points also made by the Working Group. These are outlined not as a recommended list or necessary elements of any strategy, but as an overview of the frequently cited strands and elements of just transition approaches, both experienced and proposed.

Table 2: Frequently Cited Elements of Just Transition Policy Approaches

Purposeful Transition Governance

Targeting and Supporting Jobs and Sectors: Risks and Opportunities

Social Protection, the Labour Market and Services

Skills Development and Building Resilience

Place-focused Regional Development and Policies

Transformational Measures

These are outlined briefly below.

5.2.1 Purposeful Transition Governance

Governance for transition is characterised as multifaceted, whole-of-government and coordinated, with a focus on planning and forward-looking analysis, enabling policies; investment and infrastructure; regulatory and financial measures, and research and development. A strong emphasis is placed on social dialogue, societal engagement, and providing public reassurance and guidance.

Some of these are further detailed below.

Multi-faceted, whole-of-government and co-ordinated policy approach

State capacity required – multilevel governance; embracing and working with uncertainty; people-centred, and intensive participation. Requires state investment, capability and reflection to ensure it is fit for purpose, flexible, responsive and has the capacity to navigate significant societal change (Institute for Global Change, 2019).

IPPR study of the North of England recommends incorporating the concept of just transition into national industrial strategy as well as strategic economic plans and local enterprise strategies.²⁵

Planning and forward-looking anticipatory analysis

Macroeconomic analysis of the effects of climate policies needs to be supplemented by sector-specific and micro-economic assessments of local impacts on workers and communities (UNFCCC, 2016).

The employment impacts of mitigation policy on workforce and by sector need to be understood (*ibid.*)

Provide broader oversight and coordination of industrial policy and matching of industrial actors to local opportunities.

Anticipatory analysis of opportunities, risks and impacts.²⁶ Climate Ireland identifies a series of questions to ask based on the vulnerability-based approach to adaptation from climate risk. These may be also be relevant to vulnerability from transition.²⁷ A key part of this approach is that there are top-down and bottom-up approaches, which include local scenarios, current vulnerabilities, livelihood approaches, sustainable communities and future vulnerability (Jones & Preston, 2011).

Enabling Policies

These encompass measures that support and enable proactive consumers, communities, business, industry and particular sectors.

Analysis from just transition initiatives presented as part of the UNFCC COP24 discussion points to what they consider is still needed. This points to the need for tailoring of measures, focused dialogue that codesigns solutions and bearing the costs and benefits as future challenges, including:

- support for national and sub-national entities to engage in social dialogue and to design processes and institutional arrangements to explore context-specific vulnerabilities and economic resilience opportunities;
- political and economic analysis of who bears the costs and benefits of the transition, contextual factors defining potential interventions, and the role of finance in mitigating the impacts of a disorderly transition (Burton, 2018).

²⁵ This was also noted by IMPACT in 2017.

²⁶ Risk is defined as the potential for consequences where something of value is at stake and where the outcome is uncertain (Rosa, 1998).

²⁷ For example, are the vulnerabilities (economic, social, environmental, geographical) well understood (as a whole and for each sector)? What data is needed to achieve this? Is the relationship between vulnerability and climate/digital transition impacts well understood? Look at qualitative information and models, and assess likelihood. An adaptation analysis can then be conducted which considers these risks.

Investment and Infrastructure

Hard and soft infrastructure investment in regions may be required (e.g. low-carbon energy sources, carbon sinks – bogs, forestry – as well as skills, human capacity, resilience and basic supports: income bridging, early retirement packages, training and travel allowances).

Regulatory and Financial

Important to combine bottom-up knowledge with top-down financial or regulatory support (Sartor, 2018).

Research and Development

Targeted research and evaluation funds will be required on just transition in particular sectors and locales. Also, there will need to be a focus on the distributional impacts of policy: gender, age, geographic, income analysis of impacts and benefits.

The Quadruple Helix model will be usefully applied, in which the main protagonists of innovation-generating processes (industry, academia, government and civil society) collaborate to accelerate the transfer of research and innovation results to growth (EGFSN, 2018: 68).

Measures and Processes that Monitor and Protect Rights

The conditions, information and processes that underpin a just, managed and fair transition require data and analysis on an ongoing basis, and this needs to be integrated into a governance process.

Social Dialogue

Stakeholder participation and dialogue has repeatedly been shown to be a key ingredient in transition initiatives. A review of coal transitions in six OECD countries indicates the value of building relative consensus and involving all stakeholders in the transition planning (Caldecott *et al.*, 2017; Botta, 2018: 24). A stakeholder forum can ensure a more stable, well-managed transition; for example, Port Augusta, Australia where workers and local residents identified a clean energy solution to replace local mines (Stone, 2018).

Social dialogue needs to involve trade unions in the process of determining just transition policy (IPPR, 2019a).

Policy design and delivery should be premised on the intensive and ongoing participation of the key stakeholders, in particular government, state agencies, the social partners and private enterprises. This includes engaging with local networks as part of multi-level governance (Sartor, 2018).

Societal and Community Engagement

Societal worries around the future of automation and climate change are likely to require state reassurance and guidance.²⁸

Timely and meaningful engagement with affected communities is needed around maximising opportunities to gain from the transitions. Collaborative dialogue is also required on climate resilience and economic solutions for rural development.

From case studies of countries experiencing transition from major industrial change in recent years, the UK's TUC has identified four critical success factors for industrial change done well:

- People feel secure and have a stake in their local area.
- There is a strong social safety net to foster long-term opportunity in an area.
- There are genuine opportunities for participation in decision-making.
- There is proactive, positive interaction between state, unions and businesses (TUC, 2019).

5.2.2 Targeting and Supporting Jobs and Sectors: Risks and Opportunities

Particular communities and regions working in fossil-fuel-intensive industries are likely to be more severely affected in a low-carbon transition. A key strategy is to try to identify broadly which groups and sectors are vulnerable. Targeted measures for those regions or sectors are then proposed, drawing on experience from coal-intensive regions.

- Those who are affected may include: direct workers; indirect workers; communities based on an industry or employers; workers adversely affected by the policy measure, but outside the local area, and 'frontline communities' – the most vulnerable in the community who are disproportionately affected by the current energy and economic system (Garrett-Peltier, 2018). The impacts in relation to employment/work can be: job elimination, job substitution, job transformation and job creation (UNFCCC, 2016: 62).
- In relation to carbon-intensive industry in particular regions/communities, policy implications from the Coal Transitions Project referring to coal-intensive regions

²⁸ The concern over 'the robots are coming' is culturally shaped, as Swedes are not concerned but Americans reportedly are worried. Some of the risk in Sweden is lessened through social protection policies and supports for flexible entrepreneurship, resilience and the current 'social contract', but this is not guaranteed ('The Robots are Coming and Sweden is Fine', New York Times, 2017).

include: the value of a national or regional body to oversee activities; a timeline for end of coal; requiring companies to develop asset closure and labour-market plans in consultation with unions, regional governments and citizens; binding transition contracts with affected companies; financing the transition through establishing funds that companies pay into; supporting regions to develop alternative forms of employment; developing employee transfer schemes with a strong ‘on the job’ retraining focus; improving quality, and better targeting the use of retraining programmes (Sartor, 2018: 30).

5.2.3 Social Protection, the Labour Market and Services

There is a strong emphasis on ensuring that no individuals or communities are left behind, but also that labour-market strategies are active, resourced and protective against risks while also facilitating opportunities.

Active labour-market strategies are needed. The OECD and Botta point to active labour-market policies and some form of ‘flexicurity’.

The change in focus is continued from the employer to the worker in terms of social protection rights to facilitate transitions between jobs and sectors (OECD, 2019a).

Early retirement and financial compensation for workers who cannot retrain or relocate, funded by industry or government – this has been common in coalmine closures. In northeast China, where 4,800 workers lost their jobs, alongside policy measures to foster alternative industrial development, government set aside €100bn as an aid package to fund retraining, early retirement and the creation of new public-sector jobs between 2016 and 2018 (Stone, 2018).

Funding to support workers close to retirement to use their skills productively; wage subsidies for those workers who may be made unemployed as a result of transition; travel assistance for workers, and additional support for mental health and wellbeing services (IPPR, 2019a).

Many point to the broader role of governments to protect against risks and facilitate opportunities, but also monitor and protect rights.

5.2.4 Skills Development and Building Resilience

A core element of many reports is the importance of appropriate skills development for affected groups and sectors, but also a wider focus on building resilience.

- ‘Skills development is the key for successful transition of the workforce and creation of decent jobs, especially in certain sectors such as energy, building and transport’ (UNFCCC, 2016: 63).
- It is important to ensure adequate social protection and security (*ibid.*)

- To meet these (future of work) challenges, a lifelong approach is needed for skills development (OECD, 2019a).
- The government in the Netherlands has focused on retraining workers with ‘on the job’ learning rather than classroom-based training (Stone, 2018).
- Broker/intermediary services are important to link local employees with opportunities, jobs, training and information.
- Just transition ‘toolkits’ for affected industries to inform managers and leaders of SMEs, in particular about where to access subsidies and other support services which could then be passed on to workers. Examples of these activities are already underway in the Yorkshire and Humber region where the TUC is running just-transition training courses for workplace representatives in the manufacturing and power sectors in order to prepare workers for the impacts of decarbonisation policies (Unionlearn, 2018, cited in IPPR, 2019a:23).

5.2.5 Place-based Regional Development and Policies

There is a key role for targeted, regional and place-based policies and measures for an industrial transition more broadly, and not only directed at specific workers. Localised and targeted action is needed to build economic resilience.

- The New Economics Foundation examines an approach to industrial transition, drawing on past transitions, and point to policy that is purposeful, place- and people-led, and enabling. It argues that what is required is a collaborative and mission-led approach to industrial transition which puts local communities in charge, within an effective national framework and with enabling institutions, investments and wider economic change (NEF, 2018).
- Lessons learnt from China include the importance of policies that strengthen the local economy, improve infrastructure and the environment, and promote community cohesion (Bridle *et al.*, 2017).
- Clustering of new industries, academia and technical expertise can be useful, along with investing in local low-carbon energy projects; repurposing carbon-based assets for new industries (IPPR, 2019a; Sheldon *et al.*, 2018).
- Regional and rural supports can ensure equal access to digital transition benefits, e.g. broadband, and supports to develop remote working.
- Insights from early coal region projects (Burton, 2018) point to strategies that can be effective if well executed. They include:
 - ‘related diversification’: developing industries that are related to existing economic activities and industries but do not depend on fossil fuels;

- ‘smart specialisation’: supporting the growth of economic activities that build on an assessment of the region’s strengths and competitive advantages;
- strengthening local entrepreneurial networks: creating or strengthening networks between higher-education and training organisations, local companies and entrepreneurs, local government and unions, in order to identify and support the growth of suitable activities;
- improving local infrastructure: to increase the local economic attractiveness of the region; opportunities for economic linkages to other zones of economic activity and employment, and the productivity and growth potential of local industries, creating opportunities for former workers to stay in their region;
- improving ‘soft attractiveness factors’: to support reinvestment in the area, underpin land-value and thus the wealth of the local community, and limit or reverse demographic outflows (Burton, 2018);²⁹
- locating public-sector activities in the region: to mitigate demographic decline, provide additional economic demand for the region, and support the development of new strategic industries;
- locating innovation or energy transition projects in regions: often regions with a strong link to the energy sector are keen to retain it as it is part of the local identity, and may possess the infrastructure to do so (Campbell & Coenen, 2017).
- infrastructure projects that stimulate broader regeneration – the former industrial area in Bilbao was transformed by the Guggenheim museum development, which has become a by-word for successful transition, known as the ‘Bilbao effect’ (Stone, 2018);
- regional support schemes to build enterprise capacity, skills and innovation; for example, the European Commission’s structural funding.

²⁹ The Coal Transitions project included research teams from large coal-producing and consuming economies, namely Poland, Germany, India, China, South Africa and Australia, as well as experts in economic diversification, transition policy analysis, and historical coal transitions. The project included two streams relevant to the just transition: analysis of past coal and industrial transitions (across various contexts and scales); six country case studies on pathways to implement coal transitions compatible with the ‘well below 2°C’ objective.

5.2.6 Transformational Measures

There are measures focused on adapting institutional and policy arrangements. In some instances a major overhaul of the current approaches may be required rather than merely tinkering at the margins.

- Green differentiates between the political feasibility of measures and the more dynamic ‘political transformation potential’, arguing that future ambitious climate-mitigation measures will require political support which today’s measures could help build (Green, 2018). He adds: ‘there is potential for policymakers and supporters of decarbonisation to build a “just transition” narrative by targeting transitional assistance to the most vulnerable among these groups, rather than to the most powerful corporations’.
- Barry argues that addressing the climate and ecological crisis is not simply a technological issue or one of personal lifestyle choices. It is a huge economic, political and indeed cultural transformation (Barry, 2019).
- TASC has argued for a structured just-transition planning process for Irish agriculture, and draws on the German Commission on Growth, Structural Change and the Environment. It considered the far-reaching and fundamental structural changes required to equitably share the benefits and burdens of the transition (McCabe, 2019).
- Just green transitions move from job-counting to people-accounting. They involve the whole transformation of society, and do not focus exclusively on the most vulnerable (Stavis, 2018).

5.3 Strategic Approaches to Just Transition Policy

In identifying which measures to be applied and how to provide a coherent framework for them, there are a number of considerations. How broad or narrow will the suite of measures be in approaching a just transition? Will the approach be more transitional or transformational in its aims?

Green (2018) puts forward three key areas to reflect on to help determine what measures to apply in any just transition approach: fairness, political transformation potential, and expected effectiveness. Thus, as well as considering the fairness of policy instruments and their expected effectiveness, decision-makers would further reflect on the extent to which measures help to develop a positive political context for further climate action.

Green (*ibid.*) provides a useful typology of policy instruments and their motivation (see Table 3). He describes them as clusters of policy instruments and the rationales that link them to the achievement of transition policy objectives.

Table 3: Transition Policy ‘Ideal Types’ Based on Their ‘Scope’ (rows) and ‘Orientation’ (columns)

	Backward-looking	Forward-looking
Narrow	Compensation	Structural adjustment assistance
Broad	Exemption	Holistic adaptive support

Source: Green (*ibid.*).

This is useful in differentiating between potential approaches and how they could each apply to workers, firms, communities and corporations. Gambhir *et al.* (2018: 11) similarly differentiate between reactive and proactive policies, with the latter focusing on maximising the long-term benefits of the transition.

Green’s typology includes two measures that focus on maintaining the status quo at least temporarily, while the last two are focused on adapting to the new model/system.

- Compensation can include early-retirement packages, lump-sum payments or redundancy packages, and compensation to firms for lost business asset values.
- Exemption would include postponement of implementing a climate law or regulation for a group of firms/consumers/corporations/communities, or excluding some groupings from its reach.
- Structural adjustment assistance would include examples of payments or payments in kind to adjust to new market conditions such as wage subsidies, subsidised training, innovation vouchers,³⁰ subsidies to firms and households to purchase energy-efficient or low-carbon technology, and home insulation grants.
- Holistic adaptive support includes financial or in-kind support to assist the agent to mitigate or adapt to the full range of recognised losses, such as comprehensive transition planning; investments that support worker-re-

³⁰ Small non-repayable grants provided to SMEs to purchase services from public knowledge providers that will help introduce small-scale innovations. For instance, the Trading Online Voucher Scheme in Ireland assists SMEs in developing their e-commerce capabilities, providing up to €2,500, matched by their own funding. <https://www.localenterprise.ie/Discover-Business-Supports/Trading-Online-Voucher-Scheme/>

employment in industries of a similar social standing, in a similar industry and/or in the same community; place-based investments in community social, cultural and environmental infrastructure and development, and household schemes for those at risk of fuel poverty.

Another issue is one of strategy and how to frame or position a just transition approach; for example, would an EU mission-based approach to a just transition be a way forward, following on from Mazucatto's call for mission-oriented policy approaches (as outlined in previous NESC work on the climate policy process)?

Minas (2018) argues for this approach:

Stated in broad terms, the mission of the just transition is to end the 'false choice' of 'good jobs or a clean environment'. Stated in actionable terms, the just transition mission might be to create at least one quality job for every job lost in the climate transition, EU-wide, by 2030. Such a mission would be straightforward to communicate, enabling mobilisation of the widest possible alliance of institutions and citizens.

Chapter 6

Conclusion

This broad overview of material on transitions reflects the considerable research and policy interest in this area, with governments seeking to both protect against risks and maximise economic and social opportunities. No single approach or blueprint exists in managing transitions at the scale, speed and complexity that they are bringing already. Applying principles of a just transition is gaining momentum as a possible lens and yardstick to examine and respond to the ethical considerations that arise. However, evidence of their successful application is not yet clear and many aspects remain aspirational. Nevertheless, as outlined in this paper, there are compelling arguments indicating that the benefits of adopting a proactive, just and inclusive approach outweighs the potential risks of taking a passive, wait-and-see approach in which the impacts on vulnerable workers, regions and communities, as well as the wider societal impacts, could negatively affect the future success of transition.

To conclude, two points for further reflection for the final paper: first, a just transition may be seen as a basket holding a variety of opportunities and concerns, from the narrow, most urgent, potentially impactful and identifiable. These include: the shifts away from coal and peat and those industries and communities, and from jobs and tasks at high risk of automation, to a broader, wider set of concerns, challenges and opportunities for the wider population. Particular sectors, job roles and communities will be affected as the transitions bring material changes. There is merit in reflecting on how to proactively address both ‘sets’ of concerns and risks, the narrow and the broad, even though the latter remain uncertain and unpredictable.

Second, a just transition approach is one that explicitly names principles, goals and values and facilitates societal engagement. This can broaden the focus beyond technical and logistical issues on energy, transport, food and technologies to what kind of society and economy can we achieve as we move forward?

In summary, the paper’s key messages include:

First, the low-carbon and digital transitions are already underway. Despite their inherent complexity and uncertainty, there are economic and social benefits to adopting a proactive, managed approach. There are job-loss risks for vulnerable sectors and within job roles, but these are coupled with opportunities for new jobs and enterprises, which need to be planned for and managed.

Second, a just transition approach – increasingly recognised but still not fully understood in practice – seeks to ensure transitions are equitable and participative in both the process and outcome at national, regional and local levels.

Third, there is no template for applying a just transition approach. There are differences in how transformative, rather than just transitional, actions should be.

Fourth, there are some emerging common themes in policy debates as well as insights drawn from international just transition initiatives. These include a suite of policy measures that combine a purposeful, participative and multi-faceted approach to governance; using social dialogue in planning and delivering measures; targeted and supportive job and sectoral measures to enable quality jobs and training and skills development for workers; and place-focused development that includes low-carbon and digital-ready infrastructure and community, enterprise and household supports.

Fifth, there is value in exploring the potential of a place-based approach to enabling transition, with bottom-up local action and networks of practice to complement any overarching national just transition framework.

Finally, taking a broader approach to a just transition might help to achieve two key goals. First, it would include a focus on a wide (rather than narrow) set of concerns, challenges and opportunities from the digital and low-carbon transitions, rather than only targeting the most vulnerable groups. Second, a just transition that facilitates societal engagement around low-carbon and digital transitions might help us make progress.

6.1 Next Steps

The potential policy measures being put forward as useful to progress a just transition are a mix of both tried and tested examples and ones that are proposed but have not yet been tried. This paper does not examine how just transition initiatives in other countries have been approached and how they are progressing. This work is presented in a separate research report by Sinead Mercier, which provides valuable insights into practice, taking into account the varied historical, cultural and political landscapes.

6.2 Summary of Main Points

- The low-carbon and digital transitions are underway, and both are complex and uncertain. The focus of this project is understanding how, when and where these transitions may affect workers, communities, enterprises and key economic sectors, and what might be required to understand these impacts, anticipate future dynamics and prepare, while supporting those who are at most risk of economic impacts.
- This paper provides key concepts and approaches to provide the wider frame and context for this analysis, drawing widely from theory and practice. This

points to the value of taking a wide lens to transitions and their governance, rather than an overly narrow one.

- Each transition has distinctive characteristics. They will have particular synergies and tensions. Other transitions are also at play, in a particular policy, fiscal and legal Irish context: digital policy, climate policy, low-carbon transition developments (including just transition).
- There is literature on approaching transitions that can inform this work. While there are lessons from past transitions, some of which had negative impacts, the low-carbon transition is unprecedented.
- While transitions are unpredictable, there are benefits in trying to shape and manage them.
- Key principles of transition, notably a just transition, are underpinning international policy development. It sets out some key principles to both transitions. This paper outlines some key examples, commonalities and differences.
- This paper also examines why these transitions require state planning and leadership, and how the process is as important, if they are to be just, equitable and participative. Identifying opportunities and mitigating risks from transition will help progress economic, social and environmental sustainable development.
- What are the policy measures being identified as useful for a just transition? This paper briefly sets out different views about the nature of these transitions and the extent to which they are transitions or transformations.
- The evidence of international case study informs this work. Key factors and insights will be incorporated from the policy and practice of other countries. But no template exists and outcomes remain uncertain. There are differences in emphasis, as well as conceptual, political and substantive differences. However, a range of measures, policies and practices can be used.

Ireland's response to planning and preparing for the low-carbon and digital transitions should include considering how to achieve a just transition. Elements of other transitions and approaches can valuably inform this. Case-study work carried out by Sinead Mercier examines examples of just transition initiatives to better understand the difference between approaches and practice.

Appendices

Appendix 1: Summary of Perspectives on Transitions

Box A1: Summary of Perspectives on Transitions

Transitions management

What: how to govern transitions to more sustainable socio-technical systems. How: Focuses on establishing a vision and then policy choices are made along the way on the basis of learning experiences at different levels (Smith & Stirling, 2008; Rotmans *et al.*, 2001).

Key concepts: Transition pathways, Levels: niche (operational), regime (tactical), landscape (strategic).

Uses: makes the future seem clearer in current decisions (despite uncertainty); Transforms established practices; Develops iterative processes that constantly self-assess and readjust; Links technological and social change; Emphasises learning by doing; and Encourages a diversity of approaches rather than a single, centralised plan (Meadowcroft, 2009: 158; Evans, 2012).

Limitations: overly focused on technological innovation; ignores the legal, social and political aspects of transition (Evans, 2012); lack of empirical evidence as to its effectiveness.

Multi-level perspective

What: interconnected set of formal and informal rules or institutional structures form part of innovation systems (Geels, 2005).

How: transitions are shifts from one socio-technical regime to another.

Key concepts: strategic niche management.

Uses: regime shift can be promoted by deliberate creation and support of strategic niches; key role of individuals and networks of actors to shift the regime; politics plays a key role in setting the transition trajectory.

Limitations: more useful historically than forward-looking; too descriptive and structural.

Social practices

What: sociology of everyday behaviour and habits understood as 'shared' in that they are socially constructed, such as washing, driving, cooking, and a key part of any transition (Shove and Walker (2007).

How: social practices can change through practical know-how, concrete physical activities, new meanings, ideas and understandings.

Uses: focuses attention beyond individual choices to shared understandings and everyday practice; provides counter-balance to purely economic and technological understandings of transition.

Limitations: limited research and application as yet.

Reflexive governance

What: explores role of politics and power relations and human agency (Grin *et al.*, 2010).

How: assumes multiple agents seek to influence transition, focuses on cross-cutting aspects and reflects on the way ideas and concepts of governance shapes outcomes, learns and adapts.

Uses: focuses on competence and social power of actors away from corporate, technology and policy actors and shows how they can influence transition.

Limitations: lack of application.

Technological innovation systems

What: how emergence of new technologies and institutional and organisation changes go hand in hand.

How: Identifies key processes that need to run smoothly for the innovation system to perform well.

Uses: can help identify drivers and constraints to radical technological innovation.

Limitations: limited insights on why change happens and how to achieve positive change; focuses overly on large actors and business, neglects role of individual leadership.

Human geography

What: focuses on geographic aspects of transition in terms of space and place, but also particular social and environmental contexts (Lachman, 2013).

How: spatial understanding applied to cities, rural environments, focuses on role of networks, knowledge flows and how transitions occur differently in particular places.

Uses: can identify contextual aspects of why some transitions are successful; brings in issues of social justice and inequality.

Limitations: difficult to generalise conclusions beyond specific cases.

Resilience

What: focuses on social-ecological systems as complex adaptive systems characterised by uncertainty and non-linear feedback loops (Holling, 2001).

How: systems adapt and transform from one pathway to another through innovation, forming a new stable level.

Uses: adopting a systematic learning approach; capabilities to adapt to change are learnt from the natural world.

Limitations: doesn't sufficiently consider technological innovation.

Techno-economic

What: analysis of trends through economic history.

How: major technological change induces macro-economic, cyclical movements.

Uses: can describe phases including irruption phase, frenzy, bubble burst, synergy, steady growth and maturity.

Limitations: difficult to identify causes behind cycles and over-deterministic view.

Sources: Moore, 2012; Silveira, 2016.

Appendix 2: Snapshot of Transition Initiatives

Low-Carbon Transition Examples

Alberta, Canada

In November 2015, the government of Alberta launched the Climate Leadership Plan, which included an accelerated phasing-out of coal-fired power generators and the introduction of a carbon price. Coal-fired plants account for more than 55 per cent of total electricity generation, with more than 3,000 employed in the sector. The just transition approach taken is one of the first such strategies in the world to respond to the low-carbon transition. A dedicated Advisory Panel on Coal Communities has been established and a fund, from the carbon levies, has been used to promote innovation and economic diversification (Alberta Government, 2018).

Canada: On February 16, 2018 Canada committed to phase out coal-fired electricity by 2030. The intent is that this will contribute to Canada's goal of having 90 per cent of its electricity coming from non-emitting sources by 2030 (Government of Canada, 2018). The government of Canada shifted to a just transition approach, launching a Task Force on Just Transition for Canadian Coal Power Workers and Communities (*ibid.*). This task force, made up of labour, private sector, NGO, academic and local government representatives is mandated to engage with relevant stakeholders, notably the local workers and communities that will be most affected. The task force collected information on impacts and identified opportunities and funding streams to support workers and communities through the transition.

The task force's report included the recommendations (IISD, 2018; Government of Canada, 2018) listed in Box A2.

Appalachia, USA

In recent decades, the vast US area of Appalachia, spanning 13 states, has seen a shift away from coal-mining industry, with some negative economic impacts on workers and communities. Key elements attributed to this include: a reactive and *ad hoc* set of responses to closures; lack of an overall strategy; lack of a bottom-up response; weak or absent unions and little federal government engagement (Sheldon *et al.*, 2018).

Box A2: Recommendations of the Canadian Just Transition Taskforce

- Embed just transition principles in planning, legislative, regulatory, and advisory processes to ensure ongoing and concrete actions throughout the coal phase-out transition
- Develop, communicate, implement, monitor, evaluate, and publicly report on a just transition plan for the coal phase-out, championed by a lead minister to oversee and report on progress; Include provisions for just transition in federal environmental and labour legislation and regulations, as well as relevant intergovernmental agreements
- Establish a targeted, long-term research fund for studying the impact of the coal phase-out and the transition to a low-carbon economy
- Ensure locally available supports; Fund the establishment and operation of locally-driven transition centres in affected coal communities
- Provide workers a pathway to retirement; create a pension bridging program for workers who will retire earlier than planned due to the coal phase-out
- Transition workers to sustainable employment; Create a detailed and publicly available inventory with labour market information pertaining to coal workers, such as skills profiles, demographics, locations, and current and potential employers
- Create a comprehensive funding program for workers staying in the labour market to address their needs across the stages of securing a new job, including income support, education and skills building, re-employment, and mobility
- Invest in community infrastructure; Identify, prioritize, and fund local infrastructure projects in affected communities
- Fund community planning, collaboration, diversification, and stabilization
- Establish a dedicated, comprehensive, inclusive, and flexible just transition funding program for affected communities; Meet directly with affected communities to learn about their local priorities, and to connect them with federal programs that could support their goals.

Scotland

The Just Transition Commission Scotland was established for a two-year period to provide independent advice to Scottish ministers on the long-term strategic opportunities and challenges relating to the transition to a carbon-neutral economy. Focusing on themes including quality of work, regional cohesion, social inclusion and economic development, the commission is expected to engage with parties likely to be affected by, and contribute to, the transition to a carbon-neutral economy. Chaired by Professor Jim Skea, a leading climate scientist, the commission comprises representatives of business, unions, technology experts, the public sector and environmental groups. It is expected to complete its work by early 2021 (Scottish Government, 2018, 2019).

Spain

The recent Plan del Carbón agreement between government, business and the unions focuses on the planned closure of Spanish privately owned coal mines that are no longer economically viable. The government will fund a transition that is expected to take place between 2019 and 2023. The funding will support business and clean energy initiatives in mining regions over the next five years (2019-2023). The agreement offers early retirement for miners over 48, retraining for green jobs, and environmental restoration. The closure of 10 Spanish pits will affect 1,000 jobs (ETUC, 2018).

The Ruhr Valley, Germany: a multi-stakeholder approach

The multi-stakeholder approach taken in the shift away from the coal industry in Germany's Ruhr Valley provides a strong example of the role that 'multi-layered policy packages can play in ensuring a smoother impact on workers and local communities' (Botta, 2018). The coal sector employed half a million people at its height in the 1950s. An agreement reached in 2007 between key stakeholders, including firms, communities and local government, planned the phase-out of subsidies to underground hard coal mining by 2018. Other measures focused on tourism and regeneration, social protection and training. The Zollverein, one of Europe's largest industrial coal facilities, has become a UNESCO World Heritage Site.

UK coal mines

More than 700,000 coal miners were employed in UK coal mines at their peak in 1952. This number declined to 221,000 by the mid-1980s. In many ways, this transition was a case study in how not to do it in terms of protecting and supporting workers. The UK experience underlines that rebuilding former mining communities requires both time and a well-rounded suite of policies (e.g. physical regeneration, active labour-market policies and promotion of new enterprises).

Digital Examples

The Disruption Council, Denmark

The Disruption Council is an example of how multi-stakeholder cooperation can drive the development of a national strategy for inclusive digital transformation. The council is headed by the prime minister and its membership includes eight ministers and approx. 30 other members drawn from labour-market organisations, the private sector, academia and research centres. By discussing a wide range of issues relating to the transformation – education and training; security; social welfare and trade – the council aims to forge a shared and comprehensive understanding of the relative threats and opportunities. The recommendations of the Disruption Council have contributed to the development of:

- a Strategy for Denmark’s Digital Growth;
- a Danish Technology Pact and
- a new tripartite agreement on training.

The Technology Pact 2020, Netherlands

The Technology Pact 2020 which was signed in 2013 is a joint initiative of central government, the trade unions, industry, the education sectors and the regions. It has created a framework that has enabled different stakeholders to collaboratively build or accelerate joined-up initiatives that contribute to a workforce fit for the future. In 2016 the stakeholders revised the pact’s goals to take the acceleration of technological development into account, including recognition of the need to upskill and reskill to facilitate an inclusive digital transformation. The Technology Pact, which has been replicated in Flanders, Estonia and Denmark, highlights the value of involving multiple stakeholders in the design and implementation of a coherent strategy for inclusive digital transformation.

JobTech, Sweden

JobTech is an innovative initiative developed by the Swedish Public Employment Service (PES). Working in collaboration with the PES analysts, the JobTech team are developing new ways to collect and analyse market data using artificial intelligence. For example, they have developed a dynamic competence map based on the analysis of over 6 million adverts. These type of digital tools and services aim to enhance the quality and effectiveness of job matching in order to enable workers to identify the skills they will need in the job market and to take more control over their individual skills development and career path.

Tripartite Agreement on Adult and Continuing Training, Denmark

The aim of this three-year programme negotiated by the government and the social partners is to strengthen the activities of publicly funded adult and continuing

training. The agreement incorporates people who want to upskill or reskill. The key features of this agreement are:

- a €54m Reconversion fund which will enable unskilled and skilled workers to undertake training on their own initiative;
- an increased emphasis on providing and promoting participation in both core basic skills and ICT;
- easier access to continuing training and the payment of higher allowances to participants; and
- additional funding to improve the quality of courses and to ensure the sufficient supply of a diversity of courses tailored to the needs of the market.

Activate Empleo, Spain

Activate Empleo is project jointly designed by EOI (School of Industrial Organisation) and Google Activate to improve the employability of young people. EOI is a public foundation that is delivering Spain's digital skills strategy for the Ministry of Economy, Industry and Competitiveness. Activate Empleo comprises three stages:

- access to a universal online course on Digital Transformation for Employment;
- provision of personalised tutorials for individuals; and
- a six-month placement with a company.

To date over 400 individuals have participated in the programme and it is considered to have improved their employability.

Singapore

Singapore is often noted in reports on the transition to the digital economy for its Skills Future programme. To help create a high-skills workforce, the government established a tripartite Skills Development Fund in 1979 funded by, in part, employer contributions. Higher skills training became a core of the modernisation of Singaporean industry and its new path (Pang, 1982: 202, 217-19). Under the programme each individual is provided with credits that they can use to subsidise course fees. It is available for everyone and a main objective of it is to help the workforce respond to changing industry needs.³¹

³¹ More information can be found at <https://www.ssg.gov.sg/skillsfuture.html>

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